



Factors affecting learning strategies in the professional workplace
by Clayton Mark Gehring

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University

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Abstract:

The workplace is undergoing substantial and continuous change. The procedures required to perform common tasks are now being replaced with new methods requiring workers to regularly relearn significant parts of their job responsibilities. The purpose of this study was to determine if employee characteristics, such as gender and age, could be distinguished based upon their choice of learning strategies and to determine if clusters of learners exist in the workplace based on their choice of learning strategies.

Learning strategies and personal characteristics were collected from 262 employees in Great Falls, Montana, using the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) and a data sheet. Quantitative analysis using discriminant and cluster analysis was performed on the data. In addition to the quantitative results, follow-up interviews were conducted with a sample of employees from each cluster to gather additional information.

Discriminant analysis revealed no differences in the using of learning strategies when employees were grouped on age, gender, post-secondary attendance, educational credential, and years in position: However, cluster analysis produced four clusters of learners based on their choice of learning strategies. These four clusters were named the Focusers, Indexers, Resourcers, and Reflective Planners.

The major conclusions are that learning strategies are not a useful tool for discriminating among employees grouped on various demographic data, distinct groups of learners exist among employees in workplace learning situations, no single set of training principles will work for all employees, and organizational training efforts need to teach the learning strategies identified as critical for the job and for the organization. Recommendations from the study are based on the needs of businesses to tap into the knowledge of how their employees learn. The recommendations are directed toward the employees' awareness of their learning strategies, workplace trainers recognizing and capitalizing on the learning strategies of the learners, and evaluation of the organization's environment to assure that it provides employees the necessary elements for successful learning.

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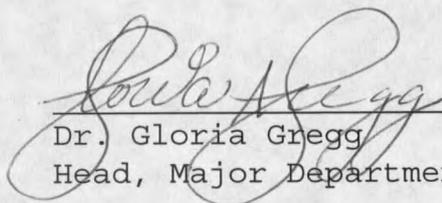


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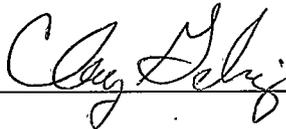
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ABSTRACT

The workplace is undergoing substantial and continuous change. The procedures required to perform common tasks are now being replaced with new methods requiring workers to regularly relearn significant parts of their job responsibilities. The purpose of this study was to determine if employee characteristics, such as gender and age, could be distinguished based upon their choice of learning strategies and to determine if clusters of learners exist in the workplace based on their choice of learning strategies.

Learning strategies and personal characteristics were collected from 262 employees in Great Falls, Montana, using the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) and a data sheet. Quantitative analysis using discriminant and cluster analysis was performed on the data. In addition to the quantitative results, follow-up interviews were conducted with a sample of employees from each cluster to gather additional information.

Discriminant analysis revealed no differences in the using of learning strategies when employees were grouped on age, gender, post-secondary attendance, educational credential, and years in position. However, cluster analysis produced four clusters of learners based on their choice of learning strategies. These four clusters were named the Focusers, Indexers, Resourcers, and Reflective Planners.

The major conclusions are that learning strategies are not a useful tool for discriminating among employees grouped on various demographic data, distinct groups of learners exist among employees in workplace learning situations, no single set of training principles will work for all employees, and organizational training efforts need to teach the learning strategies identified as critical for the job and for the organization. Recommendations from the study are based on the needs of businesses to tap into the knowledge of how their employees learn. The recommendations are directed toward the employees' awareness of their learning strategies, workplace trainers recognizing and capitalizing on the learning strategies of the learners, and evaluation of the organization's environment to assure that it provides employees the necessary elements for successful learning.

CHAPTER 1

INTRODUCTION

The workplace is changing at an unbelievable rate due to several factors presenting never-ending challenges for today's workforce. The procedures required to perform common tasks are now being replaced with new methods requiring workers to relearn significant parts of their job responsibilities on a regular basis.

These changes take many forms. In the past, communication may have taken several days from sender to receiver. Today, however, communication can take place instantly; this may not only be interoffice but worldwide via computer networks and fax machines requiring the employee to learn how to use and utilize the new technology effectively. More employees are performing their work responsibilities at home and accessing their workplace via a computer and modem. This telecommuting may require the employees to develop new skills in organization of work, self-motivation, and problem solving.

Businesses are also beginning to downsize their workforce due to the increased ability of technology to perform human functions and increased worker productivity, thereby requiring fewer employees and causing each employee to assume more responsibilities. In 1993 IBM reduced its workforce by 85,000 employees, General Motors by 80,000 employees, and Sears Roebuck and Company by 50,000 employees (Cooper, 1994) to name just a few. Workforce reductions are impacting both large and small businesses across a variety of industries. Not only does this change impact the workers who were laid off, but it also affects those employees who were not, because they must now assume more responsibility and may fear that their job is in jeopardy of being eliminated.

Another critical factor affecting both the workplace and society is that the amount of information available to businesses continues to grow at astounding rates. Present estimates predict that at the current growth rates, information will double every four years (Barcomb cited in Johnson & Kallaus, 1992). In order for businesses to remain competitive and for employees to perform their jobs

effectively and make good decisions, they must have access to current information. This access is becoming more and more difficult as information becomes outdated so quickly. As a result, the sources of information an employee may have available for solving problems and learning new techniques are changing. Information might come in diverse forms such as written material or a CD-ROM computer disk or from a coworker or even a computer on the other side of the world.

The changes in the workplace and ever-growing sources of information have a drastic impact upon what average workers can do and are expected to do as part of their job responsibilities. These additional responsibilities present workers with the potential for many new and different problems and challenges than in the past and require them to continually learn.

Not only has the workplace changed, but the workforce has changed as well. Many of today's employees entered the workforce before technology became commonplace and before formal education was considered almost essential for employment. These employees have experienced phenomenal changes throughout their careers ranging from mechanical

typewriters, mimeograph machines, and rotary dial phones to desktop computers, fax machines, and voice mail. Most employees have developed their work skills and learned to cope with these ongoing changes through on-the-job experience and many years of practical experience. Some also cope with the constant change through networks of friends and coworkers who serve as resources. Others have developed effective skills at memorizing information very quickly while others rely on external aids to learn and remember.

Many employers today consider formal education an essential component of an employee's experiences. In 1992, the average manufacturer rejected five out of six applicants because they were undereducated (Gordon, Morgan, & Ponticell, 1994, p. 208). Employers recognize the value of an educated workforce and the cost of training those who are not. Through formal education, employees acquire knowledge and develop attitudes about today's working world as well as learn skills for dealing with future changes in the workplace. These formally educated employees enter the workforce with potentially different learning skills than their non-formally trained counterparts. These different

learning skills are a result of the difference between learning for real-life problems that are experienced by the non-formally educated employees and learning for academic problems that are experienced by formally educated employees (McKenna, 1991; Sternberg, 1990). The academic setting generally provides training with a strong theoretical background and limited practical experience that must be developed based upon their theoretical knowledge. The formally educated employees are also presented with well-structured problems which is common in academic settings but which is not so common in the business world. If they rely upon the learning strategies and skills promoted while in school to deal with the reality of the changing workplace, in some cases these strategies may not support them well. For instance, the academic environment tends to provide structure and frequent feedback which is not common in the workplace where problems tend to be vague, unstructured, and producing infrequent or no feedback (Sternberg, 1990). Much of what is learned in the academic environment does not matter very much in terms of the skills needed to succeed on the job (p. 14). The varied educational experiences of these

two groups may have a strong impact upon the learning strategies they choose to use on the job. When learning about new technologies or taking on new responsibilities these different approaches may become apparent.

Regardless of educational background and years of experience, all employees are presented with the realities of a changing workplace which brings many new problems, challenges, and opportunities requiring them to decide how they will react. A significant part of dealing with the changing workplace involves employees accepting the change and learning to understand and use new opportunities to their benefit. The reaction of employees to change may include many responses such as denial, avoidance, trial and error, assigning blame for the change, questioning usefulness, consulting written or electronic materials, thinking about previous experiences, consulting other employees, group problem solving, or a combination of several activities to deal with the problem.

How an individual responds to new learning challenges strongly depends upon the learning strategies they have found to be beneficial and successful in the past when

dealing with learning situations. Learning strategies are the techniques or skills that a person uses in order to accomplish a specific task (Conti & Fellenz, 1991). The learning strategies an individual uses may potentially be affected by several factors. In addition, the strategies an individual uses are constantly being developed and refined as they experience new learning situations (Fellenz & Conti, 1993).

Individuals' past experiences with handling problems and change may have a direct impact upon how they respond to work-related problems. Education provides experiences that have the potential to impact how an employee will respond to problems in the workplace. For instance, formal education may encourage individuals to use written material as a primary source for solving problems, whereas those without substantial formal education may be more apt to explore the situation with a group of knowledgeable coworkers.

Another effect upon learning strategy may be the result of several years of work experience in a career providing a strong network of resource people from which to draw support in managing change and learning about new technologies.

Those just entering a career may not have developed a network of resource people and therefore may be more inclined to rely upon other methods.

The perceived reward or benefit from dealing with the change may provide substantial motivation for a worker to feel compelled to continue grappling with the problem using a variety of techniques. If individuals do not see any benefit that will result from dealing with the change, they may simply avoid dealing with it. However, if avoiding the change may result in loss of employment, then financial security may be the motivation that will push the individuals into using a variety of learning techniques to assure they will understand and deal with the change. Several factors have a strong influence upon the motivation of adults such as respect, sympathy, anger, fear, and friendliness (Kidd, 1973).

Problem Statement

As the workplace changes, learning new skills and concepts is critical to the success of today's workers. Workers have a variety of methods and learning strategies

they can use to manage these changes. Some of the strategies may be useful for one individual but not for another. The strategies an employee chooses to use may be affected by several different factors such as longevity in workplace, age, or level of formal education. It is unknown at this time what impact these factors have upon an individual's choice of learning strategies in the workplace.

Purpose

The purpose of this study is to describe the learning strategies used by employees in the workplace and to describe the relationship that demographic and personal factors may have with an employee's choice of learning strategies in the professional business environment of industries such as education, insurance, newspaper publishing, medical, financial, and construction. Some of these factors include longevity in workplace, age, formal education, relevancy of formal education, motivating reason(s) for work, success in the workplace, and relationships with coworkers and supervisors.

Research Questions

To investigate the relationship between learning strategies used in the workplace and various demographic and personal characteristics, this study will examine the following questions.

What is the profile of learning strategies used by employees in the workplace?

Do learning strategies as measured by SKILLS discriminate between workers grouped on the following demographic and personal factors:

- Age
- Gender
- Years of education
- Relation of education to job skills/responsibilities
- Value of formal education versus on the job experience
- Years of employment in current job and career field
- Satisfaction with current job
- Motivation for working
- Opinions of the impact of technology on the workplace and society

Is it possible to identify clusters of employees based on the learning strategies they use?

Significance of the Study

Through a better understanding of how adults learn in the workplace there are potential benefits in both the workplace and the educational environment. In the workplace,

those responsible for managing and training employees will be able to recognize the differences in how their employees learn and provide a suitable environment for the employee to adapt to new responsibilities and procedures and be the most productive. The results of this study may provide human resource managers with ideas for resources and information that would benefit their employees learning on the job.

In the educational environment and specifically in the classroom, this information may help instructors become more aware of the environment and skills their students will need to develop in order to succeed in the current business workplace. Any opportunity where educators can get a better understanding of the real-world business environment has the potential to improve the experiences of students in that educational environment.

Definition of Terms

Critical Thinking: Reflective thinking focused on what to believe or do. Includes identifying and challenging assumptions, challenging the importance of context,

imagining and exploring alternatives, and reflective skepticism (Brookfield, 1987, p. 12).

Formal Learning: Learning experiences that are institutionally sponsored, classroom-based, and highly structured where the institution controls the objectives and the means of delivery (Marsick & Watkins, 1990, p. 12).

Incidental Learning: A subset of informal learning that is a by-product of some other activity such as accomplishing a task, personal interaction, or even a formal learning experience (Marsick & Watkins, 1990, p. 12).

Informal Learning: Learning experiences that are not typically classroom based or highly structured where the learner controls the objectives but the institution still controls the means of delivery (Marsick & Watkins, 1990, p. 12).

Learning Strategies: The techniques and skills that an individual elects to use in order to accomplish a specific learning task. Such strategies vary by individual and by learning objective. Often they are so customary to learners that they are given little

thought; at other times much deliberation occurs before a learning strategy is selected for a specific learning task (Fellenz & Conti, 1989, p. 1).

Memory: Storage, retention, and retrieval of knowledge.

Memory strategies associated with adult real-life learning are rehearsal, organization, external aids, and memory application (Fellenz & Conti, 1993, p. 18).

Metacognition: Thinking about the process of learning and emphasizing self-regulatory tactics to ensure success in the learning endeavor (Fellenz & Conti, 1989, p. 2).

Metamotivation: Tactics and techniques used by the learner to provide internal impetus in accomplishing learning tasks, not necessarily in an education program (Fellenz & Conti, 1993, p. 10).

Professional Workplace: Environment that includes a traditional office-based setting with predominantly white-collar occupations ranging from lower-level workers to mid and upper management. This type of workplace is typically found in almost all industries.

Resource Management: Identification of appropriate resources, the critical manner in which they are used,

and/or the use of human resources in learning situations or activities (Fellenz, 1993, p. 27).

SKILLS: Acronym for Self-Knowledge Inventory of Lifelong Learning Strategies. A learning strategies inventory with established validity and reliability which usually asks respondents to rate 15 learning strategies in 4 of 6 scenarios commonly found in everyday life and which call for a learning effort on the part of the respondent (Fellenz, 1993, p. 2).

Assumptions of the Study

This study assumed that the workplace scenarios developed for the SKILLS instrument reflect the type of learning situations experienced by those who participated in the study. The scenarios involved such things as a job promotion and learning a new computer software program which are typical experiences that one experiences within their work environment.

Delimitations of the Study

The study sample was restricted to businesses in the Great Falls, Montana, area that met the definition of a

professional workplace and that were interested and willing to participate in the study. The participating employees within these businesses were volunteers. The generalizability of the results of this study are limited to the population that participated due to the volunteer nature of both the business and the participating employees.

In addition, in recent years several studies have been done to provide further understanding about the learning strategies used by adults in real-life situations. This study is part of this team effort to investigate learning strategies among various populations. As a result, the design and statistical analysis of this study was tailored to match the team effort and provide results that may contribute to this growing body of knowledge. Previous studies investigated a variety of adult populations. Among others the population studied were learning disabled students (Hays, 1995), Native American tribal college students (Hill, 1992), school administrators (McKenna, 1991), Canadian college students (Kolody, 1997), and Air Force officers (Korinek, 1997).

CHAPTER 2**REVIEW OF RELATED LITERATURE**Workplace Change

The often repeated phrases, "the only constant is change" and "the future isn't what it used to be" are a reality in many aspects of society, and the workplace is no exception. The workplace is not a stagnant structure. Many factors produce continual change throughout several facets of the workplace and the organization particularly since the post-industrial revolution. The American Management Association has determined that 84% of U.S. companies have at least one major business transformation taking place and almost half have three or more major change initiatives taking place in their organizations ("These Changing"..., 1995, p.o.1).

There are many factors in the business environment to which an organization must react if they are to be successful and competitive. Factors such as global competition, economics, downsizing, information growth, advances in information technology, and a contingent workforce have a major force upon organizations and their workplace. (Taylor, 1995, p. 20; Hutchcraft, 1994, p.o.1).

Information technology is moving to flatten hierarchies and empower workers (Sasseen, Neff, Hattangadi, & Sansoni, 1994, p. 92) as well as provide a significant resource for organizations in an era of continued growth in information. Of the 84% of businesses undergoing some form of change, over 80% of the changes involve information technology (Laabs, 1996, p.o.1). Frank Schrontz, former CEO of Boeing, stated "Clearly the world is changing, and we must change with it...by becoming more efficient and more productive. Information moves too quickly, and valued technologies are too perishable for Boeing, or any other company, to assume that its past is a guarantee of its future" (Tapscott, 1995, p. 61).

Information technology is also producing the concept of the virtual workplace where workers are not bound by the constraints of the organization's walls. Work becomes what you do, not where you go (Handy in Cohen, 1997, p.o.4). The virtual workplace needs only to provide access to the organization's information resources via remote communications. A virtual workplace will require substantial changes on the part of management in moving away from traditional mind-sets (Jenner, 1994, p.o.2). A large, hierarchical company with communications problems is probably not going to flourish in a virtual environment (Cohen, 1997, p.o. 2).

Virtual employees need to be proactive about learning, interacting, and communicating. Without the presence of coworkers down the hall, other methods of communications must take over (p.o. 2). The knowledge-based economy is the driving force behind the virtual workplace as many workers do not need to be physically present at the workplace to perform their jobs, they but merely need access to the technology and the information (Jenner, 1994, p.o. 4). Workers will float in and out of the office at periodic

times throughout the day and week, requiring a different concept in the use of space in the workplace. Space usage will move away from individual work areas toward group or team work areas, providing areas where the workers can

convene and confer (p.o. 4). Virtual employees also have the benefit of working in an environment that is free of racism, sexism, and other judgment barriers. When people receive an email, they envision the sender being like them and they focus on the content of the message not on the sender of the message (Cohen, 1997, p.o. 3). The virtual workplace is also desirable because it is compatible with new family patterns and addresses worker concerns for independence and autonomy (Fay, McCune, & Begin, 1987, p. 22).

The growth of information is also having a substantial effect upon how organizations operate. Information growth during the post-industrial age is clearly a major force in our world. The information explosion has produced more information in the last 30 years than in the previous 5,000 (Pritchett, 1994, p. 20).

One of the most visible results of economic problems in the business world is downsizing, also referred to as re-

engineering. Long-term employment security is a thing of the past as downsizing of organizations is leaving fewer workers to do more work and performing the work better than it has been done before (Taylor, 1995, p. 20). In 1996, AT&T announced layoffs of 40,000 employees, reducing its workforce by over 10% (Nocera, 1996, p.o.2). Major companies are greatly reducing their workforce: IBM by 85,000, Boeing by 30,000, and McDonnell Douglas by 33,000 (Cooper, 1994, p.o. 1; Caudron, 1994, p.o. 3). Many more companies are feeling the same economic pressures as these major companies. A survey by the American Management Association showed that 25% of companies had plans to downsize within the next six months and many, 63%, that downsize one year, downsize again the following year (Reynolds, 1993, p. 1). The leading reason for downsizing is anticipated or actual downturn in business (Madrack, 1995, p.o. 1). Despite the fact the some businesses expect productivity to increase due to downsizing, one-third of businesses have seen productivity decline and another third saw productivity increase (p.o. 2). What is certain to decline as a result of downsizing is employee morale (p.o.

2), which may account for some of the lack of increased productivity. However, some companies that went overboard with downsizing are finally noticing significant productivity losses and are now desperate to "rightsize" by trying to keep and attract experienced workers to manage the company (Poole, 1995, p.o. 2). So many people were fired that company knowledge has left with them, and by hiring young people with little or no experience, they have no one in the company from which to learn (p.o. 2).

Increasingly companies are now hiring contingent, or temporary, workers to replace once permanent positions in order to cope with economic pressures (Cooper, 1994, p. 2). Contingent workers provide organizations with the greater flexibility, lower labor costs, as well as expertise from former jobs to innovate their operations (Caudron, 1994, p.o. 3). In addition, companies see contingent workers as a way to reduce recruitment and testing costs (p.o. 3). The Bureau of Labor Statistics claims that temporary employees produce the equivalent of two more hours of work per day than their permanent counterparts (p.o. 4).

In 1996, approximately 90% of businesses utilized temporary employees, and this sector is expected to be one of the top growth industries through 2005 ("Valuation of...", 1996, p.o. 1). Another survey, by International Society of Certified Employee Benefits Specialists, found that 72% of firms use contingent workers and of those, 60% have increased their use over the past five years (McNerney, 1996, p.o. 2). The number of temporary workers on a given day topped two million during 1996 ("Rising Temps", 1996, p.o. 1). Some projections even estimate that one third of the workforce will be individuals employed on an as-needed basis within ten years (Caudron, 1994, p.o. 2). McDonnell Douglas, which laid off 33,000 workers, now has a plan to have 10% of its workforce operating on an as-needed basis (p.o. 3).

Although the majority of contingent workers are in service and trade positions, the professional sector is catching up ("Temporary Staffing's...", 1996, p.o. 2). More and more contingent workers are found in virtually all levels of the organization (Cooper, 1994, p. 2). Companies can now call on interim managers, sometimes called "throw-

away" executives, to help in many situations (Oliver, 1994, p.o. 2). The area of information technology has also seen dramatic increases in demand for contingent workers. Alan Schonberg of Management Recruiters International reports that his company has seen more than a 270% increase in temporary staffing requests for information technology managers ("Temporary Staffing's Still...", 1994, p.o. 2). Much of this increase in demand for technology managers is due to technology opening up markets previously unavailable and to businesses now desiring to use technology as a means to access these new markets (p.o. 2).

There are definitely problems associated with hiring contingent workers. Contingent workers have less loyalty to the organization, may not fully understand the vision of the organization, and may become an unintended safety risk to themselves and their employees (Rousseau & Libuser, 1997, p.o. 1). In fact, some major companies have made a conscious decision to cut back in the use of contingent workers. Ford Motor Company analyzed its business operations and decided that it had too many contingent workers in its core operations. Ford is now implementing a plan to reduce its

contingent workers to 10 or 15% of its workforce (McNerney, 1996, p.o. 1). Several factors led to Ford's decision to reduce its use of contingent workers. Among them was concern for security of company information and strategy and concern for workforce harmony. Surprisingly, Ford also cited reasons that are normally given as benefits of using contingent workers such as lack of flexibility and cost. Executives felt that in their situation contingent workers had to be trained for specific skills, that it took too long for them to get up to speed, and that there was no cross-functional skills. When adding up all the agency fees, cost of turnover, and training, Ford felt they were spending more than if they hired permanent employees for some positions (p.o. 2). Jeffrey Schmidt of Tower Perrin sees contingent workers as a valuable resource. However, he asks, "Are we buying a short-term gain at the risk of long-term security?" (p.o. 2).

Organizations used to be able to take 10-15 years to fully implement changes, but they do not have that luxury any longer. They must move faster and develop technologies to accelerate that process (Steinberg, 1992, p.o. 1). Some

companies have realized this and are responding. Some products in the financial market only have a product life cycle of a few hours before the competition has caught up (Tapscott, 1995, p. 60). Sony introduced over 5,000 new products in 1995, IBM has reduced its product development time from 2,500 person days to an astounding three hours, and Miller Beer generates 90% of its revenue from products that did not exist two years ago (p. 60).

Change in organizations has become so prevalent that the field of management has developed the concept of "change management." Over 68% of U.S. companies undergoing some kind of major change have some form of change management in place (Romano, 1995, p.o. 1). Despite that, less than half of these companies' executives have confidence that their organizations are able to confront change successfully in areas critical to the future of their organization (Marbler, 1994, p.o. 1). Change management focuses on getting commitment and involvement from all levels of the organization by organizing, implementing, and controlling changes in the organization in order to produce sustained, measurable change in the performance of individuals and the

organization (Romano, 1995, p.o. 2). There are also those who feel that the phrase "change management" is an oxymoron because the idea of managing change in today's world of constant change does not seem reasonable (Clemmer, 1996, p.o. 1). The concept of managing change assumes that there is a logical, step-by-step process that change follows and that executives must simply manage their organization according to the predefined steps. To deal effectively with change, the focus cannot be on the change as some manageable force, but rather the organization must prepare to deal with tomorrow's changes today. Most resistance in organizations comes from failing to make preparations for the change (p.o. 2) and not educating their workforce ("Five Views", 1992, p.o. 3).

Growing foreign competition has forced U.S. companies to rethink their ways of doing business or go out of business (Cooper, 1994, p. 1). Government policies such as the North American Free Trade Agreement could fundamentally alter the U.S. businesses, placing a premium on highly skilled workers and a technologically proficient workplace ("HRD in the USA", 1993, p.o. 2). Seventy percent of U.S.

made goods compete at home with foreign-made goods, and since 1960 the U.S. share of world trade has dropped from 18% to 15% (Moebius cited in Merriam & Caffarella, 1991, p. 11).

These growing forces have produced many new needs within organizations and reinforced the demands for existing needs. It does appear that change is here to stay, and from a business perspective, it does not appear to be slowing down as 79% of business leaders feel the pace of change in their organizations is "rapid" or "extremely rapid" (Marbler, 1994, p.o. 1). The employees within the workplace are undoubtedly feeling many emotions regarding change.

According to the American Management Association, the most frequently felt emotion in the workplace is enthusiasm (63%), which is good news for businesses if they can tap that emotion to help implement needed change. However, second and third most felt emotions are frustration (51%) and stress (50%) (Romano, 1995, p.o. 3), which may be the result of frequent and ongoing change.

Daryl Conner, President of ODR, Inc., states that the single most important characteristic of a winning

organization is its capacity to bounce back from change, and be stronger than before ("Five Views", 1992, p.o. 1). In light of what the future holds, organizations will need to maintain this ability to bounce back for many years to come. All this change does not come without learning on the part of all involved in the organization. "It would be difficult to think of some way to live in a society changing as rapidly as ours without constantly learning new things" (Cross, 1981, p. 1), and certainly the workplace is a place where much learning occurs.

Workplace Learning

Without question, the workplace is a major force in changing the nature of adult education as it becomes a work-related phenomenon (Rachal cited in Merriam & Cunningham, 1989, p. 7). A significant amount of time and money is spent by business, industry, and government to provide work-related training for workers. Learning today is integrated into all key aspects of work ("The Coming of Age", 1994, p.o. 1). More money is spent on workplace learning than on all of public higher education (Carnevale, 1989, p. 27). A

report by the Learning Industry: Education for Adult Workers estimates that 60 billion dollars is spent yearly by companies for formal training which serves one-third of the nations workforce (Educating Adult Workers, 1991, p. 66).

General Motors Corporation alone invests one billion dollars annually on workplace education (Houston, 1990, p.o. 1). It is estimated that 40 billion dollars for formal training and 180 billion dollars on informal and on-the-job training each year (Carnevale, 1984).

Types of Workplace Learning

Marsick and Watkins (1990) distinguish among three types of workplace learning: formal, informal, and incidental. Marsick and Watkins (p. 12), Mocker and Spear (1982), and Jarvis (1987) all developed definitions to identify each of these types of learning and their ideas have very common themes. Formal learning is viewed as institutionally sponsored, classroom-based, and highly structured where the institution controls the objectives and the means by which the learning will occur. Informal learning, on the other hand, is not typically classroom-based or highly structured. The learner has primary control

of the objectives of the learning, but the institution still controls the means of delivery. Incidental learning, a subset of informal learning, is defined as a by-product of some other activity such as accomplishing a task, interpersonal interaction, or even a formal learning situation. According to Watkins (1990), 90% of workplace learning is informal or incidental. Carnevale (1984) provides similar estimates of 83% informal and incidental learning and 17% formal learning.

A central feature of informal or incidental learning is learning from and through experience (Marsick & Watkins, 1990, p. 15). Marsick and Watkins believe that informal and incidental learning are needed most when individuals experience a situation as non-routine. Informal learning may occur when a person decides they need to know something and they take the steps to learn it, which may involve a mentor or other resource. Informal learning is self-motivated, self-directed, and purposeful. It is difficult for organizations to structure informal learning, although they can provide an environment in which it can be enhanced (Marsick & Watkins, 1990, p. 21).

As the amount of expenses seem to indicate, employees spend much more of their training time in informal training than they do in formal, employee-sponsored training. The U.S. Bureau of Labor Statistics reports that 70% of employees' training time is in informal learning activities (Benson, 1997, p.o. 1). Employees of U.S. companies indicate that 74% of their retraining had some type of employer involvement (Carnevale & Carnevale, 1994, p.o. 1) with 84% receiving some form of formal training and 96% involved in some type of informal training (Benson, 1997, p.o. 1). The Carnegie Foundation for the Advancement of Learning calls adult learning for the workplace the fastest growing sector of education ("Educating Adult", 1991, p. 66). In recent years the federal government has also become more involved with workplace learning through such programs as the School-to-Work Act of 1994 that includes workplace learning as a key strategy (Gittleman, 1994, p.o. 1) and the establishment of the Office of Work-Based Learning in the Department of Labor ("The Coming of...", 1994, p.o. 6).

Businesses benefit from investing in workforce education programs through increased worker productivity. A

study at the University of Pennsylvania reveals that companies who increased the educational level of their employees by one year experienced an 8.6% increase in productivity (Jones, 1996, p. 22). Another symbol of business acknowledgment of the need for workplace learning is the 400 businesses that have a separate building labeled as an education or training center and over 2,250 courses offered by 140 companies that award academic credit (Watkins, 1983, p. 1).

Workplace learning not only affects the business but also affects the individual as well. Workplace learning accounts for 85% of the variance in an individual's lifetime earnings. In addition, both large and small companies benefit from training although larger companies provide substantially more formal training (Carnevale, 1984). In terms of informal training, the Bureau of Labor Statistics found similar results regardless of company size (Benson, 1997, p. 1).

The technical solutions of the old workplace are not valid in today's workplace because the Information Age and the knowledge sector have transformed the workplace into an

entirely different structure requiring different skills and capacities of its workers. Workplace managers in the Information Age realize that success for their business depends on the ability of workers to generate and use knowledge in order to foster continual improvements (Sorohan, 1993, p. 2). "Technology is not only making learning mandatory, it is providing many of the mechanisms for it to occur" (Merriam & Caffarella, 1991, p. 16).

Teaching workers linear, step-by-step rules for every task does not work in an age of technological developments and competitive demands that require frequent change (Sorohan, 1993). Learned responses to situations will not serve employees well in the current workforce because of frequent change and non-routine situations (Marsick & Watkins, 1990, p. 21). Workers must understand a few fundamental principles, internalize them, and use them as their guide to adjust to the changing workplace. American businesses are realizing that their workers are not being used as effectively as they could be (Rose, 1996, p. 5). Businesses are finding fewer and fewer opportunities for routinization which is encouraging executives to rethink the

hierarchical structure so that it becomes more of a learning organization (Berryman & Bailey cited in Sorohan, 1993, p.o. 2). In addition, economic pressures to improve productivity are also forcing many organizations to adopt the learning organization strategies (Rose, 1996, p. 14). Reliance on past experience and past decisions, both good and bad, becomes critical to determining the best solution to future problems and challenges. An examination of top executives revealed that many decisions they make are not made through a step-wise process but rather by using "tacit knowledge" gained from experiences on the job (Kaplan, Drath, & Kofodimos cited in Marsicwk & Watkins, 1987, p. 22). A Honeywell study of managers revealed that 50% of the skills managers use came from the day-to-day work experience, 30% from interactions with others in the organization, and 20% from actual training (Marsick & Watkins, 1987, p. 22). Self-analysis of previous decisions was a critical factor in developing problem solving skills although in many occasions self-analysis was not an explicit activity but was performed routinely and continually within the routine of daily work. In a learning organization, problem solving skills are

critical at all levels as decision making is pushed farther down into the organizational structure. The tasks performed last week may be changed this week as new developments and demands are forced upon the workplace. Lower-level workers might be ready for this kind of autonomy in learning although they might not be accustomed to setting goals, identifying ways of learning, and monitoring their own progress (Ravid cited in Marsick & Watkins, 1987, p. 27).

Though it cannot always be readily observed, each organization has a climate of environmental factors that affect how people interact and how they learn (Smith, 1987, p. 40). Every workplace provides an environment that either facilitates or inhibits learning (Knowles, 1980, p. 66). A learning organization provides an environment of self-direction and collaboration to help workers develop successful workplace skills whereas an organizational environment built around higher-level control promotes routinization that is inflexible to new circumstances. How the workplace is set up and not the presence or absence of technology is what enhances or inhibits learning (Scribnel & Sach cited in Sorohan, 1993). A workplace environment that

encourages self-direction and collaboration helps employees develop conceptual understanding (p.o. 4). Some organizational structures are such that they cannot always change their structure; thus, they are locked into a hierarchical and central decision-making process even if they wish to change (Marsick & Watkins, 1987, p. 25).

The current paradigm of learning in the workplace falls short in many organizations because of the focus on the Behavioristic model of learning that requires observable results and where personal development is considered a secondary benefit of workplace learning (Marsick, 1987, p. 1). Training is done on an individual basis with little opportunity for individuals to assess their learning with their coworkers or in terms of the overall organization and with problem solving focusing on finding the best solution through a step-by-step, linear model that is used for all problems encountered. Most training in this type of organization involves classroom-based, formal training sessions that focus on very specific work-related skills designed to improve productivity and produce immediate results for the organization.

If businesses are to thrive and survive in the post-industrial era, they must reconsider the intangible factors within their organizations such as respect for human value and personal development, social interactions, service orientation, independent thinking, and creativity among all employees (Marsick, 1987, p. 11). Complex, hierarchical organizations must move toward flexibility and adaptability. Flexible policies by employers can contribute to increased employee productivity in response to change events (Knox, 1977, p. 576). Investment in training and dismantling the traditional hierarchical organizational structures will do more for employees' well-being and self-worth than government sponsored welfare programs ever did (Torrington, 1993, p.o. 3). The organization must be capable of monitoring and questioning the way in which it operates, fully involving the participants in the organization and constantly reflecting on and questioning what it and others are doing in order to appropriately identify and solve problems in order to maintain flexibility. Employees without a holistic view of the organization cannot be fully involved in this process.

Undoubtedly organizations have begun to realize employee training is necessary as training budgets have not been slashed during recent slow economic times. Management has begun to accept the need for training and retraining to a degree that was not previously recognized (Torrington, 1993, p.o. 2).

Learning Organizations

Business leaders frequently state that, "our employees are our greatest asset," but what efforts are made to develop and improve this asset? With the dawn of the Information Age, a new facet of workplace learning that has begun to receive considerable attention both in the U.S. and abroad is the concept of the "learning organization." A survey of top U.S. managers found that 70% felt a learning organization holds the most promise for sustaining business results, and 40% have appointed someone in charge of education in their companies ("Taking School...", 1996, p. 1). Learning organizations are "organizations where people continually expand their capacity to create the result they desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where

people are continually learning how to learn together" (Senge, 1990, p. 3). To survive and prosper in the Information Age, it is not so much about learning information but rather about learning how to learn, and developing critical capacities to discern and judge information (McGovern, 1991, p.o. 2). Learning organizations are those "that learn continuously and transform themselves... where learning is a continuous, strategically used process--integrated with and running parallel to work" (Watkins & Marsick, 1993, p. 8). A new sector of the economy that is creating the need for learning organizations, is the "knowledge sector" that is driven by the ever-growing knowledge base on the world (Perelman, 1984). The knowledge sector requires workers to view learning as the central focus of life's project where they constantly strive to work together to better understand and make sense of organizational reality. However, an organization of individuals who learn is not a learning organization. Learning must be captured, shared, and used by the organization so that all parts of the organization can benefit from the learning (Marsick & Watkins, 1996, p. 18).

Although no precise formula exists for creating learning organizations, there are several ideas of what characteristics learning organizations must possess. The first characteristic involves having employees at all levels understanding and seeing the entire organizational system and not focusing on individual parts (Birkner & Birkner, 1996, p.o. 2). Workers in a learning organization must have a holistic picture of the organization rather than a simple focus only on their own role within the organization. Through a broader understanding of the organization, employees are able to make better decisions that coincide with the direction of the organization.

There must also be a high degree of understanding of the current realities of the organization and of having a vision of the desired future of the organization. The gap between one's vision and reality is used to generate change (Birkner & Birkner, 1996, p.o. 2). This gap can be described as creative tension (Senge, 1994, p.o. 1). Creative tension comes from the organization clearly seeing where they want to be and developing an honest picture of their current reality. Closing this creative tension gap can be

accomplished in two ways: (a) By raising current reality to reflect the vision or (b) by lowering vision toward reality. Learning organizations must learn how to work toward moving reality closer to the vision. Without the ability to understand reality and create a vision, creative tension cannot happen (p.o. 2). There is a distinction between problem solving and creative tension (p.o. 2). Problem solving is attempting to get away from an aspect of current reality that is undesirable, whereas creative tension, the focus is on achieving something we want to create. Many organizations only change when problem are bad enough to force them to change (p.o. 3).

In order to generate a true reality and vision, individuals must also be aware both of their own biases and assumptions that they use to make decisions and determine their behavior and of those of others and the organization. Learners must have a capacity for continued critical reflection that involves examining the assumptions from which they evaluate their actions (Marsick, 1987, p. 9). This is "action learning" where teams of learners are given real business problems to solve as a means of providing real

learning (Sorohan, 1993, p.o. 2). They must peel back the layers of the organization's culture as part of the learning process (Marsick & Watkins, 1995, p. 19). It is critical that individuals, groups, and organizations change their culture, challenge previously held assumptions, and eliminate the "we have always done it that way" approach (Bencivenga, 1995, p.o. 2). A common element among learning organizations is a healthy disrespect for the status quo (Wishart, Elam & Robey, 1996, p.o. 3). In this critical reflection, workers dig beneath the surface to examine taken-for-granted assumptions, norms, and values (Watkins & Marsick, 1987, p. 5). Critical reflective learners in an organization may not automatically follow a leader but may first determine whether or not they see the problem and solution from the same perspective (Mezirow cited in Watkins & Marsick, 1987, p. 18).

A shared vision of the organization is another critical element to establishing a learning organization (Benivenga, 1995, p.o. 3). Shared vision involves developing and projecting a sense of mission that becomes owned by all. Developing a shared vision takes the time and commitment to

develop an environment that can support it (Birkner & Birkner, 1996, p.o. 2). If people are expected to work together in a coordinated way, they need to share a common image of the system of which they are a part (Senge, 1995, p.o. 3).

Team learning is shared by all designs for developing learning organizations and is at the heart of many learning organization discussions. The process of learning in teams to many organizations is natural because much learning in today's organizations takes place through interpersonal interactions on the job (Marsick & Watkins, 1996, p. 19).

Human relations training supports this because

One of the universal needs of adults is to learn how to take responsibility for their own learning through self-directed inquiry, how to learn collaboratively with the help of colleagues rather than to compete with them, and especially, how to learn by analyzing one's own experiences (Knowles, 1970, p. 45).

"Clearly, the social relations of work are not reorganized to accommodate training. Instead, training is embedded in the preexisting system" (Scriber & Sach cited in Sorohan, 1993, p.o. 4). Inquiry and dialogue are at the heart of team learning and are already a natural part of the climate in many organizations (Marsick & Watkins, 1996,

p. 2). Teams mutually create new knowledge through a continuous cycle of thinking and acting, using the new ideas to challenge current assumptions and testing the new assumptions which leads back to creating new knowledge

(p. 19). Team learning involves dialogue among the employees of the organization in both formal and informal structures.

Much of the team learning takes place outside of a formal structure through routine interactions with coworkers (Marsick, 1987, p. 4). The real payoff for organizational learning may lie in the informal networks. However, the power of informal networks can be difficult to tap because they cannot be mandated into existence nor can they be controlled; they must evolve on their own (Senge, 1995, p.o. 2). Learning must take place in teams where they can join together to create mutual knowledge (Marsick & Watkins, 1995, p. 18) that is better than anything that could have been created individually (Peters, 1993, p.o. 2).

Organizational learning is more than the sum of the learning of the individuals. Organizational learning involves enhancing the long term capacity of the organization to

respond to change in the environment (Marsick & Watkins, 1995, p. 20).

Creating a learning organization can be difficult in larger, older organizations because of the strongly embedded culture that has evolved over many years (Bencivenga, 1995, p.o. 3). Learning organizations require changes at all levels of the organization; this is especially so at the top of the organization (p.o. 4). The role of leaders of learning organizations differs dramatically from that of the traditional structure. These leaders need skills in the ability to build a shared vision, challenge old mental models, and foster system thinking (Senge, 1994, p.o. 1), and they must model and support learning at the individual, team, and organizational levels (Marsick & Watkins, 1995, p.o. 1).

Complex organizations must move away from hierarchical models and move toward systems that are able to learn from their own experience and modify their structure to reflect what they have learned (Morgan & Ramirez, 1983, p. 4). Ford Motor Company has developed "learning laboratories" that are part of their product development process and are focused

around their belief that it is possible to design core business processes that are continually developing a better theory of how they develop products (Senge, 1995, p.o. 1). The learning organization is effective because it brings to the surface important business assumptions and issues where they can be examined and modified (Wishart, Elam & Robey, 1996, p.o. 2).

The key to a successful learning organization is not just learning but remembering what was learned. How does an organization remember? The culture of the organization, its formal and informal structures, reflects what was learned and changed. These structures serve as the organization's memory. If the formal or informal structure within an organization is incapable of changing, the organization will not be able to learn (Peters, 1993, p. 4). Some organizations have literally begun to use computer databases to store and "remember" their organization's learning. Ernst and Young found that 90% of their employees learning was on-the-job through such means as self-study, coaching, and project teams, and they set out to provide an organizational environment that promoted and supported further informal

learning within their organization. One of their goals in this process was to record the learning within the organization, which was accomplished via a database of business problems and experiences that employees could search if they encountered a new challenge or problem (Sorohan, 1993, p. 8). Kathy Weldon, the director of education for Ernst and Young stated that "we're a world of experts," however given today's competitive realities, we must slow down enough to embrace the values of learning and reflecting.

Part of the challenge of creating a learning organization is creating a climate where it is all right not to know but where the resources are available for learning (Sorohan, 1993, p.o. 8). Organizational learning is the future, and its impact will ultimately force a paradigm shift in how management approaches many different issues of the organization (Birkner & Birkner, 1996, p.o. 2).

Adult Learning

Adult education is receiving more and more emphasis as the adult population continues to grow. The present and anticipated growth of lifelong learning in the United States can be attributed to three influences: demographic factors, social change, and technological change (Smith, 1982, p. 3).

Demographic changes in the population have prompted the attention of many areas of society including government, industry, and education (Cross, 1981). For the first time in society, adults outnumber youth, people are more educated, and there is more diversity among the population (Merriam & Caffarella, 1991, p. 6). By 1987, more Americans were over the age of 65 than under 25 years of age (Spear & Mocker cited in Merriam & Cunningham, 1984, p. 641). The United States has moved from a predominantly youth-centered society to being a predominantly adult-centered society and is rapidly becoming a predominantly older-adult-oriented society (Knowles, 1984, p. 422). Demographics alone will not shape the future growth of adult education but so will technological and social factors (Darkenwald & Merriam, 1982). "If deep-rooted technological and social changes

continue to transform modern societies through the end of the century, the future of adult education will surely be one of continued growth" (p. 213).

In a society that continues to change due to technology and other factors, adults continue to require learning. There is increasing recognition of the need for education throughout the life span. No longer will the learning from childhood provide the skills needed to function throughout a lifetime (Merriam & Caffarella, 1991, p. 5). People are living and working longer and require learning throughout life including into their older years. Society is recognizing this increased need through such things as tuition waivers for older citizens and programs such as elderhostel (p. 9). These programs may very well be having an effect as The National Center for Educational Statistics reported that adult participation in formal learning activities increased from 32% in 1991 to 40% in 1995 (Department of Education, 1995, p.o. 1). Although prior to that time, adult participation in educational programs also increased significantly by 79% between 1969 and 1984 (Hill in Imel, 1988, p.o. 1).

