

THE UNIVERSITY OF CALGARY

LEARNING IN THE WORKPLACE

by

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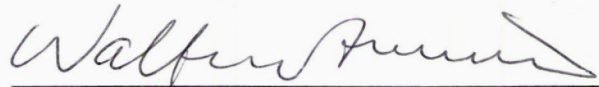
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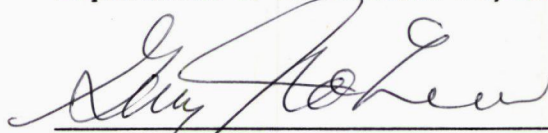
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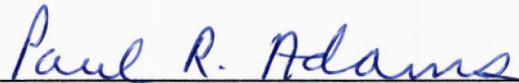
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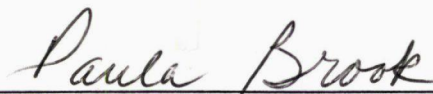
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ABSTRACT

There is a need for employees to engage in continual learning. After reviewing models of adult education, self-directedness in employees was suggested as desirable however the current paradigm in Human Resources Development is grounded in theories that are inconsistent with that direction. In order to facilitate a shift in paradigms, more needs to be known about adult learning in the workplace. This study focused on exploring the relationships between self-directed learning activities, orientation of self as learner, organizational climate and job involvement.

Factor analysis resulted in three factors. The first included use of nonprint resources, willingness to seek information, organizational climate, importance of performance to self-esteem and lack of hopelessness. It was suggested that this factor could represent approval seeking behavior and/or a need to socialize. The second factor was defined by use of both print and nonprint resources and seeing self as learner. This factor was interpreted as learning for the sake of learning, an internal event not as dependent on other influences such as job involvement and organizational climate. The third factor included a lack of hopelessness and psychological identification with their job.

Perceptions of future trends were also obtained. Persons who perceived their work as constantly changing reported more self-directed learning activities and were more likely to see themselves as a learner. Those who felt that their employer is responsible for educating them when changes occur were less likely to use nonprint resources.

The results included: (1) seeing self as a learner, as measured by Motivational Orientation, was associated with higher reported use of print and

nonprint resources, (2) higher Organizational Climate scores were associated with higher reported use of nonprint resources and willingness, (3) the importance of work performance to self-esteem (Psychological Identification) and a lack of hopelessness were associated with higher reported use of nonprint resources and willingness, (4) there was an association among perceiving work as constantly changing, all job related learning measures, 2 of the 3 Job Involvement measures, and seeing self as learner, as measured by Motivational Orientation, (5) perceiving employee training as an employer responsibility was associated with lower use of nonprint resources, lower Psychological Identification, and a less positive organizational climate.

It was concluded that (1) the relationship between orientation of self as learner, organizational climate, job involvement and learning in the workplace warranted further research, (2) use of print resources may reflect learning for the sake of learning while nonprint may also reflect a need for approval or a need to socialize, (3) the relationship between a persons perception of their work as constantly changing and learning activities should be explored.

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To those who participated in this research, I apologize for reducing you to mere numbers. I know you are more than that, much more. Your hopes and dreams, pain and suffering, joy and love, values and beliefs, along with the unique contribution to the world that only you can make, are not represented here. I also caution the reader to keep this mind while reading and possibly extending this research. While research has a value in reducing complex systems into smaller pieces, it has the inherent danger of reducing too much, of overshadowing the unique humanness of the phenomenon being studied.

I would like to acknowledge those few who knew about my illness and supported me through it. Shaun Collins, who was always there for me, provided safety and friendship. Laverne Martin-Forbes' professional advice and personal interest served as an anchor as we entered uncharted waters. And finally, my husband John, who, as I look back, must have suffered greatly.

Dedicated to those who survived.

In memory of those who did not.

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CHAPTER I

Introduction

There is an apparent need in our society and movement in adult education for adults to become life-long learners. (Blazez & Davison, 1990; Dole, 1989; Galagan, 1990; Gayle, 1990; Kannel, 1989; Masuda, 1980; Naisbitt, 1982; Naisbitt & Aburdene, 1990; Savage, 1989; Toffler, 1980) Life-long learners are assumed to be self-directed. Creating life-long learners, then, requires adults to become more self-directed. Becoming more self-directed, however, may require certain individual and environmental conditions. This study explores the relationship among three conditions that are considered important for learning : (1) learning goals that are consistent with self, (2) a nonthreatening environment, and (3) seeing self as a learner, and the self-reported self-initiated use of learning resources.

Chapter 1 first reviews the need for life-long learners in the workplace. Next, the models of adult learning reviewed in Chapter 2 are summarized and the relationship between life-long learning and self-directedness explored. The three conditions being investigated are then defined operationally as *Job Involvement*, *Organizational Climate and Motivational Orientation*. The chapter concludes with a problem statement, need for the study, limitations, delimitations and definitions.

Need for Life-long Learning

Every week dozens of unemployed, underemployed, or unhappily employed adults attend career workshops in the hopes of finding a satisfying career. Most of them have two characteristics in common: they lack the skills necessary to compete in today's job market and they are unable or unwilling to return to school to acquire the needed skills. Their circumstances illustrate some basic needs for adults in the work force today: the need to continually acquire new skills and the need to learn new skills without the expense of formal full time training. (Houle, 1961,1969,1980; Oddi, 1987)

The need for new skills is a result of changing technology, economic pressures requiring new forms of organization, and the nature of the work force itself. (Marsick, 1988; Naisbitt & Aburdene, 1985; Toffler, 1985). New technology requires new skills, either to continue in your present job or to acquire a new job to replace the one made obsolete by automation. Secretaries, clerical staff, typists, and even managers, need to learn word processing. Artists need to master computer assisted design and draftpersons are using computer assisted drafting systems. Typesetters are becoming obsolete, replaced by computers that can quickly redo copy. Silent robots on tracks select stock in a warehouse and carry materials to the automated assembly lines. "Lights out" manufacturing is no longer a distant dream. Increased competition demands highly skilled workers who can solve problems, make decisions and find more efficient ways to do their

jobs. The basic skills are now thinking, learning and creating. A reduction in middle managers requires workers who can function independently. Adult education is required to help workers acquire the new skills.

Adult Education

Adult education represents a variety of learning opportunities in a multitude of settings that serve many diverse groups of students: evening classes in decoy carving offered by the local school board, weekend assertiveness training workshops run by private organizations, management development diploma programs sponsored by universities and colleges, workshops run by an organization to instruct its own employees on using the computer system and apprenticeship upgrading programs sponsored by the government.

A formal definition of adult education is provided by UNESCO and has wide-spread acceptance:

The entire body of organized educational practices, whatever the content, level and method, whether formal or otherwise whether they prolong or replace initial education in schools, colleges, or universities, as well as in apprenticeships, whereby persons regarded as adult by the society to which they belong, develop their abilities, enrich their knowledge, improve their technical or professional qualifications or turn them into a new direction and bring about changes in their attitudes or behavior in the twofold perspective of full personal development and participation in balanced and independent social, economic and cultural development (Occasional Paper 34, Canadian Commission for UNESCO, Ottawa, 1980, p., 3)

Adult Education and Industry

One area in which adult education has become increasingly important is industry. In today's world of changing technology, economic pressures and a diverse work force, adult education has become a vital part of organizational, industrial and employment survival. (Galagan, 1990; Marsick, 1988; Mackie, 1982; Ostry, 1989; Savage, 1989) Workers need to be continually trained and retrained. (Galagan, 1990; Savage, 1989) New technology may require workers to be retrained in order to use the new equipment, an event experienced by thousands of secretaries as their comfortable typewriters were replaced by ominous looking computers that did not look or act like their predecessor, the typewriter. The old technology may have smudged a few lines but it never gobbled an entire document. Alternatively, new technologies may reduce the number of workers required. The displaced workers, such as those who used to work on assembly lines before robots were hired, need to be retrained for other jobs. While the company that has just displaced the worker may not accept direct responsibility for retraining, retraining must still occur.

Assembly line workers are not the only ones who have lost jobs to technology. Middle managers are also disappearing. As industry moves into the information age, workers are more likely to be hired for brain not brawn. (Gayle, 1990) Work that used to be outer-directed, mechanical and easy to supervise is being replaced by mental tasks. (Naisbitt & Aburdene, 1990) A supervisor can walk the row of desks as he or she would walk an assembly line but may only see people staring at a computer screen or into space.

Supervisors are often left with administrative duties and many of those are being eliminated by computers. (Naisbitt & Aburdene, 1985)

Workers, faced with increased competition from baby boomers and women entering the work force, need to upgrade and diversify to stay competitive. They need the latest technical and transferrable skills. With rapidly changing knowledge, transferrable skills such as problem solving and leadership, have become increasingly important. Economic pressures call for a more highly skilled work force in order to compete in world markets. (Blazey & Davison, 1990; Dole, 1989; Galagan, 1990; Gayle, 1990; Ostry, 1989; Savage, 1989) We cannot compete with the low labor costs that are so readily available in developing countries, so Canada and other western nations need to sell knowledge and skills in the international market place. We do not have cheap labor, but we can have highly skilled labor, so mass produced goods that make use of un- and semi-skilled workers are giving way to the service, information and technology industries where workers are increasingly in need of higher skill levels. (Savage, 1989) The DeGrandpre report states that over 64% of jobs in the year 2000 will require education beyond high school, compared to only 44% in 1986. (Savage, 1989) Even the low end service industries require greater technical, numeracy and literacy skills. Alberta Tourism is initiating a project to increase the skill level of its workers.

But the provision of adult educational services is no guarantee that adults are learning. In order to provide effective education it is necessary to understand how adults learn and incorporate these learning theories and models into adult education programs. As discussed in the literature review, current

practices in organizations are not adequate for training workers in the new workplace. New models must replace the behaviorist paradigm prominent in most organizations. This is especially challenging for organizations because most do not have an adult education system. They must find ways to accommodate the learning efforts of their employees without having an elaborate education department.

Retraining adult workers is also an expensive venture. Use of full time training systems, such as technical schools, colleges and universities, requires considerable resources, both in terms of money and time. Some predict that formal institutions cannot handle the load. (Joblin, 1988) Few people can afford to quit work for two or more years to acquire new occupations. The preliminary cost to society of a student being in a post secondary institution is also high.

Organizations, then, must find ways to help their employees learn without elaborate systems and without formal full time training. The models of adult learning reviewed provided a framework.

Models of Adult Learning

In the literature review newer models of adult learning that could replace the current behaviorist based models favoured by most businesses are discussed. The researcher concluded that the newer models are more appropriate for adult learners and more consistent with the new role of the independent worker who is able to think, learn, create, make decisions and solve problems. The three major theory groups reviewed shared the following views of adult learners:

1. Adults are seen as complex beings that interact with their environment.
2. Adult learners are grounded in the present. Their roles, tasks, problems and dilemmas influence the decision to learn.
3. Adult learners are influenced by many factors, internal and external, that include prior experiences and knowledge, expectations of others, external barriers, assumptions, beliefs and values.
4. Adult learners are independent, responsible and unique beings.
5. Adult learners need at least some control over the learning process.

Both the new workplace and the adult learning models require people who are independent, self-directed and have an ability to learn. The uniqueness of each individual is recognized by both. The role of the trainer and the new manager is that of facilitator, teacher and consultant.

Changing an organization's basic paradigm to one that reflects adult learning theories is not easy. Introducing a learning model based on unique, independent, self-directed learners in an organization that resembles a POW camp may be less than successful. Such a major shift requires an understanding of the factors

involved in the new paradigm so that the necessary structures, systems, attitudes, beliefs, values and assumptions can be in place.

The factors in adult learning theories that differentiate them from the behaviorist based paradigm can be described in terms of the nature of the learner, and why, how and what adults learn. The following list reviews these factors.

1. NATURE OF THE LEARNER

- a. complex beings that interact with their environment
- b. independent, responsible and unique
- c. influenced by many internal and external factors that include prior experiences and knowledge, expectations of others, external barriers, assumptions, beliefs and values.
- d. capable of being self-directed

2. WHY ADULTS LEARN

- a. to improve performance in areas relevant to their life roles; the need to improve performance is based on the learner's perceptions
- b. to solve current problems or dilemmas identified by the learner

3. HOW ADULTS LEARN

- a. use a natural process seen in self-directed learning; guided by the learner not the teacher
- b. use a variety of methods; each learner is different

4. WHAT ADULTS LEARN

- a. knowledge and skills necessary to improve performance to the level they have chosen

- b. knowledge and skills needed to solve the learner's current problems or dilemmas

In other words, adults tend to learn what they want, when they want in whatever way they want. We can force adults into letting others teach them, but they will only learn what they want, when they want. Whether or not this is different than children is debatable. It is often assumed that children are less independent than adults and therefore require more direction from a teacher in order to learn. The difference is probably more accurately described as a continuum from dependent to independent learners, with adults more likely than children to be independent. For the purpose of this research, however, the applicability of the above factors to children is not of issue.

Self-Directed Learning

Self-directed learning requires that the learner take the initiative, with or without the help of others, to initiate and carry out a program of learning.

(Knowles, 1975) Self-directed learners do not wait for others to tell them what and how to learn but make those decisions themselves. Many adults have learned a hobby, sport or household chore by being self-directed. For example, adults who learn how to ski make the decision to learn, find a resource on how to ski, practice, and evaluate their progress. No one makes them learn to ski, makes them hire a private instructor instead of attending group lessons, reading how to ski books and/or having a friend instruct them, and tests them. The individual makes those decisions. Even if an adult is advised, and the key word is advised, to ski or

undertake other physical activity for health reasons, the adult still makes the final decision.

It was through observing how adults naturally learn things, without formal intervention, that Knowles (1975) identified the following process of self-directed learning:

1. Diagnose learning needs.
2. Formulate learning goals.
3. Identify human and material resources.
4. Choose and implement learning strategies.
5. Evaluate.

Adults diagnose their own learning needs and formulate learning goals appropriate to their own unique situation. Adults come to the classroom with an idea of what they need to learn and why they need to learn it. It may be to learn enough to complete requirements for a job or degree, or it may be personally relevant. Learning that is seen as personally relevant is more likely to be retained than that which is "crammed" in to pass a test for the sole purpose of a degree. If there is no test but an adult is required to attend a workshop that he or she does not consider personally relevant, little or no learning will occur, unless the instructor can convince the participant that the material is relevant.

The importance of adults' diagnosing their own learning needs is also reflected in models of change. (Loucks & Melle, 1982)) The first step to change is an awareness of the need to change. If I do not think that being shy is causing me any negative consequences, why would I want to change? If I do not believe that I could work more efficiently by learning how to use my computer graphics software, then why would I

want to give up my colored pencils and stencils and learn to use a software package? Resistance to change is often at this level: people are not aware of the advantages.

Adults routinely identify possible learning resources and implement the one or ones most appropriate for them. Self-directed learning does not exclude formal training but rather places it as one possible activity that adults can choose to help them attain their learning goals. If the classroom is not preferred or if that option is not viable because of expense, distance and/or timing, numerous other resources are available such as books, videos, computer based instruction, journals, manuals, experience, and other people who can be a learning partner or instructor. In many cases learning requires the use of more than one resource. A person may take a class, read a couple of books, and watch a friend before actually attempting to drywall the basement.

Adults evaluate their own progress, for example by deciding if further information or practice is required. Do I know enough to try watercolors or should I spend more time drawing with pencil? Can I cash out by myself or do I still need someone around, just in case? Should I spend more time at the driving range? Am I really ready to give a presentation or should I spend a few more months at Toastmasters? Even if testing is part of a formal training program, participants may still decide they need to learn or practice more. An "A" in Introduction to Bookkeeping does not necessarily mean the goal of being a bookkeeper has been achieved.

While adults may not be aware of the self-directed learning process, or be able to articulate it, their behavior illustrates its use. They are usually quick to challenge the content if it does not match what they perceive they need. One method

of challenging is to exercise their adult right to leave the program. Some directly question the instructor while others will "tune out" the parts with which they do not agree or think they need. Adults tend to be self-directed even in formal teacher centered situations. They will pick and choose what they remember and use. Material that appears irrelevant will be ignored. What ever the method, the result is the same: adults will not learn that which they perceive as not necessary.

Self-directedness can also be seen in the wide variety of resources used by adults. While training programs are popular, many adults have acquired skills without ever taking a course in the area. (Tough, 1971; Tough, 1979) Adults have learned how to build garages, wire basements, sew, crochet, play racquetball, give speeches, raise children, use computers, stay married, and write poetry, all without the benefit of formal training.

It would be beneficial in our changing workplace if more adult workers could become "self-directed" and learn new skills as required. By keeping current with changing skill levels, the cost of formal training can be minimized. Instead of having to return to school full time to train for new occupations, employees who keep learning are ready for changes in the workplace and do not need to be replaced.

In addition to providing a resource efficient method of learning, self-directed learning is regarded by some as the best way for adults to learn. Self-directed learning parallels andragogically based models used in adult education. Andragogical models assume the learner is self-directed as opposed to dependent on the teacher to guide content and process. Both recognize that adults bring knowledge and experience to the learning process that can be used to direct what is to be learned, in what order it would be best learned, and what learning strategies are required.

Job Related Self-Directed Learning

A self-directed worker would decide what new skills or knowledge were required for his or her job, identify the learning goals, research potential learning resources such as courses, books, tutors, on-the-job training and practice opportunities, select the most appropriate resources and learning strategies, and decide when the goals have been accomplished. While others may assist in the process, the worker takes the main initiative. Translated into the working world, for example, it would look like this:

1. The employee decides that public speaking skills are becoming increasingly important to his or her job.

2. The employee then decides that he or she needs to be able to give a presentation to large groups (50 or more people) without excessive nervousness, using a variety of visual aids and maximizing audience understanding of the topic.

3. Next the employee identifies a variety of courses, books, clubs and public speaking opportunities.

4. Realizing that he/she learns best by doing but needs some theory first, the employee decides on the following program:

- a. Read 3 books on public speaking recommended by a friend
- b. Take a weekend workshop on giving presentations
- c. Attend Toastmasters
- d. Gain more practice by volunteering to give a series of lectures in the community
- e. Continue to look for opportunities to practice

5. Decides that learning goals will be accomplished when he/she agrees to make a keynote speech at the company's annual international convention.

While it would be beneficial, to workers and their employers, if employees in the work force today engaged in self-directed learning, such initiative is not always present. If self-directed learning is the most effective process for adult learners, and if continual learning is required for employees, then why do so many workers fail to take the initiative to learn on the job?

Self-directed Learning and the Workplace

Enhancing Job Related Self-Directed Learning

Even though self-directed learning may be viewed by some adult educators, such as Knowles (1975), Tough (1971, 1979) and Mezirow (1981), as the best model for adult learning, being an adult does not guarantee that self-directed learning will occur with any regularity or that it will result in learning. As concluded from the literature review, self-directedness requires learning goals that are valued and consistent with self-concept, an environment that is perceived as providing trust relationships and freedom from threat, and an orientation of self as learner.

Work and Self Concept

The literature review implied that the more congruent the job is with self-concept, the more likely the employee is to engage in job related self-directed learning. In order to explore work self-concept and self-directedness, a measurement was necessary. Previous research to operationalize the concept of job involvement, described in detail in Chapter 3, provided the three measurements used in this study: Psychological Identification, Performance-Self-Esteem and Hopelessness.

Psychological identification is a dimension of job involvement derived from factor analysis. (Blau, 1985; Lodahl and Kejner, 1965; Saleh and Hosek, 1976) It is the extent to which individuals feel that their job represents the core of their identity or self-image. Statements such as "Most of my interests are centered around my job" and "I consider my job to be very central to my existence" were

included in the items devised by Kanungo (1982). A strong tie between work and self-image suggests congruency between job and self and was therefore used as a measure to explore work self-concept and self-directedness.

A second dimension of job involvement that had been identified through factor analysis was the importance of job performance to self-concept. (Blau, 1985; Saleh and Hosek, 1976) Items included "I feel good when I perform my job well" and "How well I perform on my job is extremely important to me." The relationship between performance and self-concept suggests that learning to improve performance would enhance or protect self-esteem.

A third dimension, identified by Lodahl and Kejner (1965), described a hopeless quality. Items included "I used to be more ambitious about my work" and "Quite often I feel like staying home from work." Lodahl and Kejner suggested that this dimension may describe people for whom original high expectations have been blunted and replaced with indifference. Whether such an attitude would effect job related self-directed learning is unknown.

Work Environment

The literature review suggested that adults with a higher self-esteem and a more positive self-concept are more ready to accept change. (Klopf et al., 1969) Therefore it is necessary to provide an environment that will at a minimum protect self-esteem and self-concept and if necessary, increase it to a level where employees are able to accept the changes that result from learning. In addition, the environment must be able to accept the risk and mistakes that accompany learning.

Nine subscales were selected from two Organizational Climate questionnaires as measures of environmental conditions. The subscales selected were ones that appeared to reflect a supportive and non-threatening environment. Subscales included warmth, support, reward, and considerations

Orientation of Self as Learner

Learning is a risk; our first attempts at something new often result in failure. To some persons such failure is an acceptable part of learning, to others it is not. Dweck's (Dweck and Bempechat, 1983) model of motivation suggests a continuum on which individuals can be placed according to their willingness to accept failure as an outcome of learning attempts. For persons at one end of the continuum, the goal is to look smart and not make mistakes. Individuals at the other end tend to see themselves as learners and therefore accept the failures that often accompany learning. Although the model was originally derived from the previous work of Crandall, Katkovsky and Crandall (1965) done with children, the model has been applied to adults (Dweck & Bempechat, 1983; Zelman, 1986) and used to explain learned helplessness behavior as described by Seligman (1975). Dweck maintains that as children we have the potential to be at either end of the continuum but often drift towards the orientation of looking smart as a result of a school system which often promotes that orientation.

Dweck's model assumes that a person's theory of intelligence directs behavior. A person's motivational orientation depends on whether intelligence is attributed to stable or changeable causes. An entity orientation is a belief that intelligence is a stable and global trait that is judged by other people. People with an entity

orientation are concerned with looking smart and not making mistakes. They tend to choose performance goals where they can work at things they already know how to do. An incremental orientation is a belief that intelligence is a dynamic repertoire of skills that can expand and be improved through effort. They tend to choose learning goals and are often disappointed with tasks they already know how to do.

The Problem

The purpose of this research was to explore factors that might influence job related self-directed learning. To date, research in the area of self-directed learning has emphasized the quantity of self-directed learning projects that a person engages in. (Brookfield, 1984; Hassan, 1981; Leean and Sisco, 1981; Peters and Gordon, 1974; Oddi, 1987; Tough, 1971; and Tough, 1979) No studies were found that attempted to identify the factors that account for individuals displaying differing amounts of self-directed learning in the workplace.

If continual learning is essential, and returning to postsecondary institutions too expensive, then it is necessary to find ways to increase self-directed learning in the workplace. In order to do that, the factors that inhibit job related self-directed learning need to be understood. The following areas were explored using statistical factor analyses:

1. Motivational Orientation as an indicator of an individual's belief that learning is worth risk taking and failure.
2. Job Involvement as an indicator of the congruence between the job and the person's self-esteem.

3. Organizational Climate as an indicator of an organization's ability to protect and/or enhance self-esteem and to allow employees to take risks and fail.
4. Self-directed Learning as an indicator of tasks or activities that would form part of the process of self-directed learning.

Data were also collected on the participants agreement or disagreement with statements that reflected the view that the world is constantly changing and people must be able to continually learn.

The Need for the Study

A survey conducted by the Canadian Federation of Independent Business indicated a shortage of skilled workers. Of the companies responding, almost half indicated that shortages of qualified labor represented a serious problem and more than one third had restricted expansion because suitable workers were not available. (Savage, 1989) By the year 2000 it is predicted that 64.3% of jobs in Canada will require some post secondary training. There are fewer young people entering the work force so the demand for skilled workers will have to be largely met by training existing workers. (Ostry, 1989)

To date, methodologies in adult education have failed to provide a structure and process for the ongoing education of Canada's work force. Current methods are expensive, time consuming and do not always provide the knowledge and skills required in today's workplace. If Canada is to meet the challenge of ongoing education for its workers, we must find suitable, and affordable, means of so doing.

Limitations

- (1) The use of Likert scales does not guarantee that the intervals between ratings are equal. (Best; 1981)
- (2) The use of Likert scales does not guarantee that equal scores obtained from different people are of equal value. (Best; 1981)
- (3) Use of volunteers for the survey may have resulted in a biased sample.
- (4) The study was confined to employees in the greater Edmonton area which limits generalizability to other geographic locations.
- (5) This is an exploratory study and therefore no generalizations from the data are possible, but it is a necessary first step to help describe an area and generate future hypotheses.

Delimitations

The potential factors that affect self-directed learning have been restricted to organizational climate, motivational orientation and job involvement even though other factors may influence self-directed learning.

Self-directed learning was measured using self-reported use of resources and willingness to seek solutions. These activities by themselves may not fully reflect self-directedness.

The study excluded persons who were self-employed. Organizational climate is not a factor for self-employed persons.

Definitions

Adult Educator An adult educator is defined as any person involved with the training or retraining of adults in either vocational or avocational areas.

Andragogy Andragogy is a model of teaching that is based on certain assumptions about the learner. These assumptions are presumed to apply to adults in most learning situations. The assumptions are:

1. The learner is not dependent on the teacher to direct the content and process of learning. The learner can, and will, take control of some aspects.
2. The learner brings prior knowledge and experience to the learning experience. He or she is not a blank slate but knows at least some of the knowledge and skills. The teacher's role is to help the learner identify what he or she already knows and integrate that knowledge into the new learning.
3. Adults cannot be told to learn. They will learn when ready, which means they need to relate the new material to a life task or problem.
4. Learning should be centered around the task or problem at hand. In other words, an application for the new knowledge must be identified.
5. Motivation is internal; adults will not learn for a gold star on their paper.

Learning is viewed as transforming knowledge, skills, strategies and values through experience. The role of the educator is to provide student-directed learning that is problem or task centered. (Knowles, 1984)

Education/Training Training and education refer to the techniques and delivery systems used to transmit knowledge, skills and attitudes. The focus is on the instructor and what is taught, which may not be related to what is learned.

(Marsick, 1988) Training usually refers to specific knowledge, skills and attitudes while education is a broader concept referring to several training experiences over a number of years.

Job Involvement Job involvement is the degree to which the job situation is central to the individual and his identity (Blau, 1985) It describes the extent to which a person's job, not career or organization, is central to self-esteem and consistent with self-concept.

Job Related Self-Directed Learning Job related self-directed learning refers to self-directed learning activities that are directly related to a person's job and not mandated by an institution. Excluded are learning projects mandated by the employer, and projects that are related primarily to a person's profession, career and other commitments, such as diploma or degree programs.

Job Related Self-Directed Learning Activities Activities that would be included are reading job related books, periodicals, trade journals and so forth, finding out how to do things rather than relying on a set of procedures or other people to direct them, seeking out courses that will improve job related knowledge, skills and attitudes, seeking non specific knowledge and skills that can be applied to a job task or problem, discussing problems and critical incidents with peers and local experts, asking questions, asking others for feedback on progress and engaging in experimental behavior in order to discover information.

Learning Learning is the acquisition, interpretation, organization and assimilation of knowledge, skills and attitudes. Learning focuses on the student. If the student acquires new knowledge, skills and attitudes, then learning has occurred. The presence of training delivery systems is not required for learning to occur (Marsick, 1988) Learning is independent from the existence of formal or informal educational programs. (Barer-Stein & Draper, 1988)

Motivational Orientation Motivational orientation describes a person's theory of intelligence which is assumed to direct behavior. An entity orientation is a belief that intelligence is a stable and global trait that is judged by other people. People with an entity orientation are concerned with looking smart and not making mistakes. They tend to choose performance goals where they can work at things they already know how to do. An incremental orientation is a belief that intelligence is a dynamic repertoire of skills that can expand and be improved through effort. They tend to choose learning goals and are often disappointed with tasks they already know how to do. (Dweck & Bempechat, 1983; Dweck & Elliot, 1983; Elliot & Dweck, 1981)

Organizational Climate Organization climate is the employees' perception of their environment and becomes an intervening variable that mediates organizational factors and motivational tendencies. (Sims and LaFollette; 1975)

Self-Directed Learning Self directed learning describes a process where individuals initiate and carry out a learning project. The person decides what learning is required, formulates specific learning goals, identifies potential resources, chooses and implements a learning strategy and evaluates the outcome. In addition to the process, self-directed learning includes an attitude of wanting to learn, and a set of skills required to carry out the process. The skills may include planning, listening, evaluating, writing, meta learning, decision making, problem solving and communication. (Knowles, 1975; Knowles, 1980; Knowles, 1984)

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of the literature review is to describe the current trends and practices in human resource development and determine what future needs will be, review models of adult learning and select the ones that would best meet organizations' future needs, and identify the factors that could enhance or inhibit the use of appropriate models.

Human Resource Development

All organizations, even small ones, are involved in the ongoing process of human resource development. While small to mid-size firms rarely offer formal training, they do use informal processes, on-the-job training and perhaps formal courses provided by outside institutions and agencies in an attempt to "teach" the employee. (Ostry, 1989) Larger organizations may have departments that help organize the effort and provide on-site training. But whether the company has one employee or thousands, the goal is the same: to stay competitive (read make a profit) in today's marketplace. And today's marketplace is very different than yesterday's.

Toffler (1980) called it The Third Wave. Just as the Industrial Age radically transformed a previously agricultural society, The Third Wave will, as we move into the Information Age, change our institutions, values, and assumptions. Naisbitt (1982, 1990) referred to Megatrends: fundamental shifts in direction that will change the basic fabric of our society. Regardless of the name, the message is the same: change is inevitable. For companies, that means changing the way they do business. For employees it means being capable of adapting to the new way.

This section of the literature review looks at the new workplace and the type of worker required, examines current trends and practices in human resource development and explores future directions.

While some of the material on the new workplace and the new worker is derived from the work of futurists, such as Toffler and Naisbitt, there are also numerous examples of current evidence to support the general direction predicted by them. And while predictions of specific events are often inaccurate, predictions of trends are often more precise. For example, Naisbitt (1982) accurately predicted trends toward increased globalization, networking, participatory democracy (while we don't have this, much of the electorates' discontent appears to focus on the need for more participation), the increasing use of computers, and the self-help movement.

The New Workplace

As the Alberta government advertisements say, "Welcome to Science City." In Calgary, a new plant will manufacture state-of-the-art cellular products using high-speed pick and place robots, fine-line printed circuit assemblies, flexible and automated final assembly techniques and an automated materials delivery system. Another Calgary manufacturer, Standens Ltd., has a flexible work cell and robot. The robot does the work of three people. (Venture, Winter, 1990, p. 16) A new mail sorting plant in Edmonton uses automated carts and high-tech sorters. One machine can sort 40,000 9x14 envelopes in an hour. An Edmonton software company beat out multi-nationals such as IBM in a \$2-million sale of its hospital information system to North York General Hospital in Ontario. (Venture, Winter, 1990, p. 12) Technology-intensive industries are expected to account for nearly 25% of the value of Alberta's manufacturing shipments in the year 2000. (Venture, Winter 1990, p. 11)

There is little room for unskilled labor in these ventures; rote tasks have been automated. The increased use of technology has reduced the number of unskilled workers required and increased the need for workers with scientific and technical skills. Technology is also responsible for work tasks changing from outer-directed, mechanical and easy to supervise to mental tasks requiring a higher skill level. (Naisbitt & Aburdene, 1990; Savage, 1989)

Technology brings with it the information society, a society that will be radically different from the industrial period. Knowledge, not products, will be the centre of our productive power. Values and institutions will change accordingly. Workers will be involved in mental not manual tasks. To survive in the workplace,

we are forced to deal with an expanding body of knowledge. (Gayle, 1990; Masuda, 1981; Naisbitt & Aburdene, 1982, 1985, 1990; Ostry, 1989; Toffler, 1981; Wurman, 1989)

While government advertisements promote science and technology, the service industry is also a large part of our economy. During the 1980's, 80% of the new jobs in Alberta were in the service sector. Tourism has been targeted for high growth in the 1990's; revenues are expected to triple by the year 2000. Tourism related jobs will double during the same period. (Venture, Winter, 1990, p. 20) Employment in the service and trade sector is more than 70% of total Canadian employment. (Ostry, 1989) According to the Economic Council of Canada, while the service industry provides good jobs, many jobs in retail, personal services and food services are bad jobs: the pay is low and there is little job security. The good jobs are mostly in transportation, communication, financial and business services, areas based on information services.

Welcome also to competition, and not just from the company down the street. With increased globalization, businesses now compete with companies all over the world. "Lean and mean" is the current jargon describing the ideal company in today's market. Fewer employees do more work and do it better. Survival depends on employees who can find better ways to do their jobs, whether it is serving customers in a restaurant or designing Local Area Networks. Companies need to constantly search for ways to improve products and service, reduce costs, and increase productivity. The worker who can think, learn and create is highly valued in such an environment. (Dole, 1989; Naisbitt & Aburdene, 1985)

Management style is also changing. Naisbitt and Aburdene (1990) identified a dominant shift in organizations today from "management in order to control an enterprise to leadership in order to bring out the best in people and to respond quickly to change." (p. 218) Masuda (1981, p.100) predicted that managers will change from an authoritarian class which has the right to give directions to a functional class that has the job of management. This is a leadership style that, according to Naisbitt and Aburdene (1990), encourages self-management, autonomous teams, and entrepreneurial units. They believe that this shift in management style is required for many reasons, but basically has occurred because organizations need people who engage in mental tasks. Such workers are difficult to supervise, are free to leave, think for themselves, and question authority. Managing these workers requires a leader who acts as teacher, facilitator and coach.

The traditional pyramid structure of organizations is starting to sag in the middle as the number of managers decrease. Staff managers who manage people are being replaced by workers who can manage themselves. Line managers who manage systems are being replaced by computers. (Naisbitt & Aburdene, 1985, 1990) In the computerized work place, the manager can receive accurate data with which to make decisions. The manager does not have to inspect first hand what is happening in the workplace. A report on the manager's desk will quickly alert him or her to changes in productivity, costs, attendance and so forth. This same information can also be made directly available to the workers so that they can make the necessary changes without management intervention. Supervision is giving way to self-management.

Self-managed employees take responsibility and initiative, monitor their own work, and use managers in the new role of facilitators, teachers, and consultants. (Naisbitt & Aburdene, 1985)

The need for flexibility in work force size has reduced stability for workers. Companies are starting to use contract labor, workers hired for a specified time to complete a specified task, instead of keeping regular staff. This gives the companies the option to readily expand or contract the size of their staff to meet their current needs. (Naisbitt & Aburdene, 1985, 1990)

The new workplace uses technology, is likely to be involved in service, and is engaged in global competition. New management styles and organizational structures are evolving to accommodate the changes.

The New Worker

In the new information society, people have replaced money as the strategic resource. Human resources are the new competitive edge. (Dole, 1989; Galagan, 1990; Savage, 1989) Employees, along with the customer, are now recognized as the two most important people in an enterprise. (Naisbitt & Aburdene, 1985) To see the reduced importance of product, check out your local shopping center. Block after block of stores are carrying identical or similar products. Without customers, these businesses will not survive. But in order for the customer to be gained and kept, the employees must find ways to get customers in the store and give them good service so that they return. A sales clerk who only stock shelves and takes money will not help the organization to survive.

Companies in the information society need an educated, skilled work force. A survey conducted by the Canadian Federation of Independent Business in 1988 indicated a shortage of such skilled workers. Of the companies responding, almost half indicated that shortages of qualified labor represented a serious problem and more than one third had restricted expansion because suitable workers were not available. (Savage, 1989) To be skilled, employees need to be literate and not just in language. Science and technological literacy are also important. (Dole, 1989; Gayle, 1990) Basic skills have gone beyond the 3Rs to what Naisbitt and Aburdene (1985) referred to as TLC: thinking, learning and creativity. Problem solving and decision making are also high on the list. (Blazey & Davison, 1989; Caissy, 1989; Dole, 1989; Grossman, 1982; Sutton & McQuigg-Martinetz, 1990) In addition, workers have to be prepared to move between employers and jobs, and have the ability to manage themselves. (Ostry, 1989; Naisbitt & Aburdene, 1985, 1990)

The cost of illiteracy is high, both for business and society. In the industrial age it was possible for assembly line workers to perform their job without being able to read and write. Those jobs are becoming fewer and fewer. A recent Hudson Institute Study predicted that future jobs will require postsecondary standards of literacy. (Gayle, 1990) The Ontario Ministry of Skills Development estimated that fewer than two per cent of existing jobs can be performed by illiterate or semi-literate workers. (Ostry, 1989) For many illiterate adults, unemployment is a constant condition. And if they are employed, with so many tasks based on information, misreading

that information can be costly. One medium sized manufacturing company estimated it loses \$250,000 per year because of mistakes by poorly educated, illiterate people. (Naisbitt & Aburdene, 1985) Literacy is also necessary to keep pace with new information. (Wurman, 1989) An illiterate employee will have trouble reading directions and instructions when new equipment and processes are implemented.

We are solidly in the information society and rely heavily on science and technology. Many of today's jobs use at least some scientific and technical knowledge and skills. Autobody mechanics are using lasers. Retail outlets are computerized. Each day housewives face an assortment of devices and tasks that twenty years ago would have sent even the most fearless scrambling for cover: electronic toasters, sorting garbage for recycling, computerized sewing machines, calculating the grams of fat per serving of supper, automated bank tellers, and microwave ovens. The use of science and technology will continue to increase requiring employees to have increasingly higher skill levels. With the rapid change of science and technological knowledge, required skill levels include the capacity to learn and acquire new skills. (Caissy, 1989)

Companies need employees who can think, learn and create. (Dole, 1989; Galagan, 1990; Sutton & McQuigg-Martinetz, 1990; Naisbitt & Aburdene, 1985) The rote tasks of the industrial age are giving way to more complex information laden jobs that require employees to think not rotely respond. Computers have taken over the tasks of storing information, leaving the thinking tasks to people. Recruitment officers sort through data on prospective employees, categorizing, synthesizing, generalizing, and selecting

the best candidate. Advertisers make use of demographic data and sales records to determine appropriate campaigns. Airline reservation clerks check dozens of options to find the best flight for a customer. Ordering personnel are no longer hidden in rooms meticulously writing out purchase orders. Instead they must predict expected delivery times and ensure that the required inventory arrives exactly when needed, not too soon, and definitely not late.

In addition to thinking, employees must be able to learn or they will quickly become obsolete. (Caissy, 1989; Gayle, 1990) If employees can learn new skills, they can adapt to technological, social or economic changes. There must also be a willingness to learn. The fishery workers in the Maritimes may have the ability to learn but if they lack the willingness they will not want to learn new skills. But insisting on jobs in an industry that has none is unlikely to result in employment. Employees in today's world must be willing and able to learn and change occupations.

The demise of rote tasks has also increased the need for creativity. While there was no creativity or individuality on the assembly lines, today's companies are increasingly in need of creative answers. (Dole, 1989; Galagan, 1990) The retail clerk who continues to stock shelves and take money while business is decreasing will eventually be unemployed: the company he or she works for will not survive. The clerk who suggests a creative new display or marketing plan to increase business will be around a lot longer.

Problem solving and decision making skills are no longer reserved for researchers, technicians and management. While factory and office workers in

the past were not expected to solve problems and make decisions, in today's workplace such skills are required to process vast amounts of information, use new technologies and compete in the new marketplace. Blazey and Davison (1990), in their comparison of American and Japanese factories, pointed to the increased need for production workers to problem solve and make decisions. In Japan, workers diagnose and fix problems and suggest methods of improvement, functions that require problem solving and decision making skills. Referring to all workers, Dole (1989), the U.S. Secretary of Labor, suggested that workers need problem solving and decision making skills to raise productivity, improve customer service and develop new applications and markets for existing products and services. The City of Calgary recently offered problem solving and leadership courses to many of their employees, white and blue collar, as part of a Service Improvement program. Service Improvement teams were encouraged to identify problems and suggest solutions in order to improve productivity. Esso Resources is implementing a self-managed work team concept to give employees more control over their day-to-day work environment, reduce the number of decision making levels and increase corporate productivity. Using this concept, bosses assume the role of coach not ruler. (Calgary Herald, Oct 21, 1989; Alberta Report, Nov. 27, 1989)

Caissy (1989) in her analysis of the impact of the information age on curriculum, suggested that problem solving skills are necessary to deal with today's complex societal problems such as nuclear waste disposal and acid rain. On a more individual level, decision making skills are required because people

today have more options from which to choose and more information on which to base their decisions.

Sutton and McQuigg-Martinetz (1990), in a study of management development at New York Telephone, reported that the groups surveyed consistently included decision making and problem solving on the list of twenty skills rated "most important".

In order to adapt to organization's changing needs, workers need to be flexible, adaptable and mobile. That could mean changing jobs within an organization as demand changes, changing organizations or becoming a contract worker. The Ontario Ministry of Skills Development predicted that workers will have to train for as many as eight different jobs in a lifetime. (Ostry, 1989) This is a change from past practices where employees may have spent their entire working lives in the same job with the same company. Mobility is risky for people with limited skills. Today's worker often has to earn security and stability with increased knowledge and skills.

As outer-directed tasks become mental tasks, employees need to be more self-managed. Self-managed employees take responsibility and initiative, monitor their own work, and use managers in their new role of facilitators, teachers, and consultants. They need to be independent, confident and competent. (Naisbitt & Aburdene, 1985)

Not only are the needs of the companies changing, the workers themselves are different. The baby boom generation workers are better educated, concerned about personal growth, want to balance career and family, and have the outrageous expectation that work should be fun and fulfilling. (Naisbitt &

Aburdene, 1985, 1990) They are not, like their parents, as willing to commit themselves to lifelong employment. Personal growth is often more important than company loyalty. (Naisbitt & Aburdene, 1985)

In addition to these changes in values, there are changes in numbers and composition: there are expected shortages of workers and the white male worker is becoming a minority group. Declining birthrates will mean fewer young people, and therefore fewer white males, entering the work force. (Savage, 1989) Labor force projections suggested that the 15 - 24 year old age group will make up only 17% of the labor force in 2001, compared to 25% in 1974 and 20% in 1980. (Savage, 1989) As the supply of young workers dwindles, the skilled workers of tomorrow will increasingly have to come from those already in the labor market. According to Venture (Winter, 1990, p. 19), a publication of the Alberta government, by the year 2000, Canadians over 50 years old will comprise 40% of the population. Alberta, which traditionally attracts younger workers, will be about 10 years behind the trend. As the baby bust generation hits the workplace, companies will face a shortage of workers. They will have to compete to hire qualified workers and then move to training less qualified workers. Workers will include not only the traditional white male, but women, immigrants, natives and the disabled. The Alberta government projects that a large percentage of new labor market entrants in Alberta in the 1990s will be native. (Labour Market Trends and Human Resource Issues, Sept, 1989)

The new worker, then, is one who can think, learn and create, solve problems and make decisions. He or she is better educated, literate, has at

least basic knowledge and skills in science and technology, and is independent and self-managing. Personal growth, a balanced life, and work that is fun and fulfilling are valued. He may be a she, non-white, over 65, disabled or otherwise non-traditional. The new role for managers is that of facilitator, teacher and consultant.

Current Practices in Human Resource Development

If all companies are involved in the process of human resource development, what is it that they are doing? No studies were found that attempted to answer this question so an indirect method of gathering information was used. For companies with a Human Resource Development department, it was assumed from the books and journals published in the area what processes are usually involved. For firms without a department, the researcher's personal experience as a consultant and small business owner, was used to suggest training and development processes in small to mid-size companies.

Human Resource Development departments, subsequently referred to as HRD, follow three basic steps identified by Kidd (1973) when developing training programs -- planning the curriculum, establishing the learning situation and evaluating. Translated into HRD language that means : (1) conducting a needs assessment to identify areas where training is required and develop learning objectives, (2) planning and implementing strategies and programs to reach the objectives, and (3) evaluating the results. These three steps are carried out within the constraints and boundaries imposed by the organization. This section of the literature review will look at how each of these steps can be carried out and describe the constraints and boundaries that can exist.

The needs assessment is where HRD staff start the process. The objective of the needs assessment is to identify what training is required within the organization. Beyond this standard definition of outcome, HRD departments will vary widely on how the assessment is actually conducted, from formal to informal, detailed to general, and company centered to employee centered.

Performance based needs assessments look at the tasks required for a job and determine if performance is acceptable. (Mirabile, 1990; Kannel, 1989) Laird (1985) uses an equation to describe the process: $M - I = D$, where M is what the employee must do, I is the inventory of what the employee is doing and D is the deficiency. HRD staff using this process can either collect information on what each employee must do and is doing, and use the resulting deficiencies to design training programs or they can look for symptoms that indicate that a deficiency may be present. If the symptom method is used it is necessary, once the deficiency has been identified, to determine what the employee is doing and should be doing.

The information needed for performance based needs assessments can come from a variety of sources, including written job descriptions, interviews with or surveys of supervisors and workers, performance appraisal reviews, observation, assessment centers, critical incidents (things that were effective or ineffective), customer feedback, testing, and production data. (Laird, 1985; Watson, 1985) There is a danger that the information collected will be subjective and not indicative of an actual deficiency. For example, a supervisor may indicate during an interview that Joe isn't performing up to standards. Subsequent questioning may reveal that Joe is achieving the required outcomes but the supervisor, a neat and tidy person himself, is unhappy because Joe does not clean his desk top each night. Even if there is a justifiable reason for cleaning off the desk (at IBM for example all employees are required to clean off their desks for security reasons), training is not the solution.

Employee development based needs assessments focus on the employee, often within the context of performance reviews or career management. Using

performance reviews, the supervisor and employee negotiate any discrepancies in performance. This approach has the advantage of reducing subjectivity by giving the employee an opportunity to respond. It is hoped that the supervisor can justify any claimed deficiencies with specific examples. Once the deficiencies, or areas needing improvement, have been agreed upon the supervisor and employee negotiate a plan to improve performance. Training may or may not be a part of the solution. Career management is a similar process but includes future jobs as well as the current one. The resulting development plan could include actions to improve current performance as well as to prepare for future jobs. Both approaches allow the assessment to go beyond acceptable performance to superior performance and to include areas that may be more important for personal growth than job performance. For example, an employee may be meeting current expectations in her job as staff trainer but may feel that training in conflict resolution would make her job less stressful and contribute to her overall professional development. Such training opportunities would be missed using performance based assessment procedures. Only two reports of employee development based needs assessments were found in the literature so it is assumed that the system is not in wide spread use. (Kannel, 1989; Sutton & McQuigg-Martinetz, 1990)

Once the needs have been identified and objectives written, HRD departments must plan and implement a strategy to meet the objectives. If the needs have been identified with a performance based assessment, the department must first decide if a training or nontraining solution is required. When using employee development based assessments, that decision is usually made by the employee and supervisor. The HRD department, however, may review the decision.

Non-training solutions include providing opportunities for practice, arranging for an on-the-job tutor or mentor, job rotation, self-study of manuals and other materials, designing and installing feedback mechanisms, adjusting the reward system, simplifying complex jobs or enriching impoverished ones and intervening in the environment. (Laird, 1985; Watson, 1985) Some or all of these functions may be handed over to an organizational development department.

Training solutions mean formal learning activities, usually centered in the classroom but can also include computer assisted instruction, programmed instruction and other prepackaged individual study programs. When training is centered in the classroom, HRD departments can choose from a wide range of strategies and activities including lecture, demonstration, discussion, field trips, panel discussions, skill practice, skits, brainstorming, in-baskets, role play, reverse role play, case studies, buzz groups, simulations, games, T-groups, team tasks, and the incident process. (Laird, 1985; Watson, 1985) The activities range from teacher centered to student centered and selection depends on the subject material, learning objectives, time available, values, beliefs and assumptions of the HRD department and the company about learning, level of participants, number of participants and knowledge of or experience with the various strategies.

Prepackaged individual study programs, such as computer assisted instruction, may be used in a classroom setting as all or part of the program, or employees may work through the material on their own, perhaps with a tutor available if assistance is required.

After the training has been implemented, HRD departments want a measure of effectiveness so that they can make necessary changes and justify the expenditure.

Watson (1985), after reviewing the main evaluation models, suggested five areas for evaluation:

1. the reactions of participants to the learning experience and those who presented it.
2. measures of changes in attitudes, knowledges and skills as reported by the trainee.
3. an assessment of how the trainees behaved differently on the job as a result of their training.
4. changes in organizational performance, both attitudinal and behavioral, which can be attributed to the training.
5. additional outcomes, such as impact on self-esteem, achievement of personal goals and social value of training, that are not measured in the other five areas. (Watson, 1985, pp. 271-272)

Sources of information include surveys or tests to be completed by the trainees at the end of the workshop and/or after returning to the job for a period of time, surveys completed by the trainees' supervisor after they have had some time to use the new skills, analyses of records and performance data and observing the trainee on the job. (Laird, 1985; Watson, 1985)

The predominant paradigm in HRD is based on behaviorism and organizational structures typical for organizations in the industrial age. (Darkenwald & Merriam, 1982; Marsick, 1988; Smith, 1983) The goals are usually stated in behavioral terms, such as producing a behavioral change. Behavioral objectives that specify the conditions, behavior and criteria are favored. Many programs use humanistic techniques such as human potential seminars and nondirective counseling, however

they remain philosophically and in practice a closed system based on behaviorism. (Darkenwald & Merriam, 1982; Kannel, 1989; Watson, 1979) For example, a training program that has been planned and implemented using traditional techniques may include a self-assessment component within the program. When used this way, the self-assessment is really a pre-test of the knowledge and skills that have already been established. There are times when behavioristic training is appropriate, for example when learning a precise technique that has no variation. HRD departments however have been slow to use nonbehavioristic training except for management development programs where answers are not as clear-cut. (Marsick, 1988)

Realistic training plans must account for the constraints and boundaries that are a part of all organizations. Most obvious are resource constraints such as time and money, and attitudinal constraints. (Watson, 1985) As little time as possible and when it is least disruptive is preferred. As training departments do not generate an income, they must rely on profits from other areas for support. If profits are down, so is money for training. Attitudes such as indifference and unwillingness to try new practices can reduce the support needed for training programs. Union agreements, hours of work, location of workers and government regulations may place boundaries on the training provided even when the resources and attitudes exist. For example, workers in Alberta can not receive training for work performed by an electrician unless they are registered with the Alberta government as an apprentice.

For companies without a Human Resource Development department, training tends to be organized and implemented to meet specific needs or developments. Most small businesses use on-the-job training as opposed to

formal training courses. (Verduin, Miller & Greer, 1986) There are however numerous courses available through educational institutions and community agencies. While it is known that many people have taken these courses, it is not known if their employers supported the training. No research was found to indicate to what extent these resources are used by companies and whether use was initiated by management or employees.

It has been the researcher's personal experience as a business owner and training consultant that small to mid size companies often ignore formal training or approach it in a non methodical manner. For example, a brochure comes to the office, someone thinks it looks interesting and off an employee goes for training. There is little discussion of employee or company needs and expectations.

Current practices in HRD then are for the most part based on a paradigm that is grounded in behaviorism and compatible with organizational structures typical of the industrial age. While some non-mechanistic methodologies are used, they are inserted within the existing paradigm. Organizational needs drive the programs and behavioral objectives are favored. Organizations without a HRD department rely on outside courses or on the job training and lack a system for identifying and meeting training needs.

Human Resource Development and The New Workplace

Do current practices in HRD reflect the needs of the changing workplace? Many argue that they do not but differ in their solutions to the mismatch. Some suggest the solution lies in changing the dominant paradigm away from behaviorism.

Knowles (1984) proposed that while mechanistic models are appropriate for fairly stable, slow-changing organizations, fast changing ones require other models.

Marsick (1988) suggested that due to changes in the external environment, technology and the work force, all organizations must change and therefore move away from "the mechanistic orientation which fostered and encouraged tightly controlled behavioristic learning." (p. 190) For Marsick, the new paradigm should be one that has a broad focus on learning, integrates personal and job-related development, focuses on group as well as individual learning, uses critical reflectivity and problem solving, emphasizes informal learning and recognizes the organization as a learning environment. Kannel (1989) stated that some of the most important objectives in the new workplace -- creativity, innovation, caring, responsibility, flexibility -- are not easily stated in behavioral terms and therefore receive haphazard or no attention. She suggested a new model using problem solving groups. The language of the old systems -- product, objectives, system, assessment -- would be replaced with words like process, network, linking and generating.

Others are content to leave basic systems in place, but call for a change in content to include higher level skills, such as problem solving, decision making, and creativity. IBM has attempted to combine higher level skill training within a mechanistic model. Their new training system recognizes the need for higher level skills but uses a mechanistic approach to planning design and delivery. Based on anticipated skill and knowledge requirements, the system will reduce the gap between current and needed skill levels. It even has a "just-in-time" delivery system. And while IBM boasts that employees have "control", the control is limited

to when the computer assisted models are used. (Galagan, 1990) What is yet unknown is the effectiveness of the approach.

Both of these groups would agree that training needs to shift focus to include higher level skills but disagree on the need to move away from the current paradigm based on behaviorism and industrial age organizations. The question then becomes, what system is best for adult learners given the new knowledge and skills required in the information society? In an attempt to answer that question, the next section of the literature review looks at models or theories of adult learning.

Adult Learning

Providing adults with the opportunity to learn through education and training programs does not guarantee that learning will occur. Training and education are only delivery systems. Learning, as defined by Marsick (1988, p. 192) is "the way in which individuals or groups acquire, interpret, reorganize, change or assimilate a related cluster of information, skills and feelings." The failure to learn could result from a lack of motivation to learn, not knowing how to learn, or the application of inappropriate learning theories in the program design. In addition, people do learn in the absence of, or in some cases in spite of, education or training programs. Many adults have acquired knowledge and skills without the aid of formal instruction. (Brookfield, 1981; Tough, 1979) While such learning is often more visible in non work areas such as cooking, sports, recreation, computers, home repairs and maintenance, and so forth, a study at Honeywell (Zemke, 1985) found that only 20% of the ways in which managers learned to manage came from training. Challenging job experiences accounted for 50%, and relationships with others in the organization for 30%. The education of workers, then, should include all learning experiences not just those provided by formal or informal training programs.

If training does not equal learning, then it is necessary to explore how and why adults learn and determine what strategies would be most effective in helping workers acquire new knowledge and skills. In addition, when training programs are part of the worker's learning experience, these programs need to reflect the ways in which adults learn.

As Merriam (1987, p. 187) noted in a review of adult learning theories, "theory building in adult learning is in its infancy". A complete theory of adult learning would describe or prescribe the nature of the learner, and why, how and what adults learn. From that knowledge it could be predicted when and how learning will occur. The predictions can then be used by the practitioner to arrange for its occurrence. (Houle, 1974; Merriam, 1987)

We have yet to develop a universally accepted set of interrelated principles that describe how adults learn. We do have many explanations that contribute to the understanding of adult learning. These explanations may be more appropriately called models that describe one aspect of adult learning rather than theories, or as many authors call them, attempts at theory. Unfortunately, adults are complex mechanisms that do not lend themselves to single, static, and non-overlapping models. For the sake of research, however, one such model must be chosen for a theoretical framework. The goal of this section of the literature review was to select a model that provides the most flexibility and scope in describing adult learning. To accomplish this, a selection of models will be described and discussed in terms of their ability to describe, prescribe and predict adult learning. Appropriateness of application for adults learning in the workplace was also considered.

Learning Theories

Knowles (1984), Bigges (1982), Bower and Hilgard (1981) and Bowd, McDougall and Yewchuk (1982) divide learning theories into two groups. While they vary slightly in division and definition, the basic groups are behaviorist and cognitive. Behaviorist theorists assume the learner is basically reactive and passive. Learning is seen as conditioning: the formation of associations between stimuli and responses. What is learned is a habit. Behaviorist theories include those of Thorndike, Pavlov, Guthrie, Hull and Skinner. Some contemporary psychologists, such as Bandura, Gagne and Glasser, have orientations similar to behaviorism and are often classed as neobehaviorist. Cognitive theorists assume the learner is a purposive person who is in an interactive relationship with his or her environment. Learning is defined in terms of reorganizing the learner's perceptual or psychological world. What is learned is a cognitive structure. Definitions of this second group vary widely, however they do have one thing in common: they are not behaviorist.

There is nothing in the definition of these groups, or most of the theories within them, about adult learners. Knowles (1984) pointed out that all the scientific theories of learning have been based on the study of animals and children. In recent years, more attention has been given to the uniqueness of the adult learner. Merriam (1987) has classified attempts at theory building in adult education into three categories: (1) those that focus on changes in consciousness, (2) those that emphasize the adult's life situation or roles, and (3) those that are based on adult learner characteristics. One major theory in each of the categories will be reviewed.

Perspective Transformation

Perspective transformation is referred to by Merriam as one of the theories based on changes in consciousness. While other theory groups emphasize adult characteristics or adult roles, in this group of theories the focus is on mental construction of experience and inner meaning.

Developed by Mezirow and based on the writings of German philosopher Habermas, Mezirow (1981) began with three distinct but interrelated learning domains: the technical, the practical and the emancipatory. The technical domain is associated with work and refers to the way in which a person controls and manipulates his or her environment. The actions or tasks undertaken are based on empirical knowledge and technical rules. The practical domain involves interaction or "communicative action." Communicative action is governed by mutually understood norms which define the conditions for communication and interaction. The third domain, emancipation, is characterized by an interest in self knowledge and self-reflection to gain insights. (Merriam, 1987). It is this third domain that Mezirow equates with perspective transformation.

Perspective transformation is "the learning process by which adults come to recognize their culturally induced dependency roles and relationships and the reasons for them and take action to overcome them." (Mezirow, 1981, p. 6-7) Mezirow referred to this process as critical reflectivity. It is a process of examining and revising the assumptions we hold about our self, others, and our culture (psycho-cultural assumptions) in order to resolve a disorienting dilemma. It is an adult capacity and therefore unique to adult education.

From research on re-entry women, Mezirow (1981, p. 7) identified the following elements of perspective transformation:

- (1) a disorienting dilemma
- (2) self examination
- (3) a critical assessment of personally internalized role assumptions and a sense of alienation from traditional social expectations
- (4) relating one's discontent to similar experiences of others or to public issues -- recognizing that one's problem is shared and not exclusively a private matter
- (5) exploring options for new ways of acting
- (6) building competence and self-confidence in new roles
- (7) planning a course of action
- (8) acquiring knowledge and skills for implementing one's plans
- (9) provisional efforts to try new roles and to assess feedback
- (10) a reintegration into society on the basis of conditions dictated by the new perspective.

The trauma of the disorienting dilemma will effect the probability of a transformation. The death of a mate, a divorce or sudden loss of physical capabilities are more likely to result in a perspective transformation than the prospect of an empty nest. In addition, two paths to perspective transformation are suggested: a sudden insight and a series of transitions that result in eventual transformation.

The disorienting dilemma results from the inability to assimilate the current situation with psycho-cultural assumptions. One must then assess self and the

assumptions. Mezirow (1981) identified two dimensions of our psycho-cultural assumptions that must be brought into critical consciousness before transformation is possible. The first is internalized cultural assumptions. We judge ourselves based on how well we fit the cultural model that defines our roles. For example, stereotyped sex roles describe what a good and successful woman looks like. These assumptions are often strongly held and dictate a woman's definition of self.

Dilemmas that result from a clash with this rigidly held role require an examination of the role and its appropriateness. Indeed, if one's self definition is based solely on a culturally defined role, mental health is threatened. (Mezirow, 1981, p. 10)

The second set of psychological assumptions in need of examination are unresolved childhood dilemmas. We need to identify leftover childhood assumptions and replace them with assumptions more appropriate to adulthood. It is now becoming widely accepted that children who were raised in alcoholic families or experienced abuse, either verbal, physical or sexual, bring inappropriate assumptions to their adult roles. One of the basic assumptions that these adult children often hold is that they are not worthy. Some respond by constantly trying to achieve in order to prove their worthiness. Failure, which unfortunately is inevitable for humans, presents a dilemma. If the failure is severe enough, it may provoke an examination of the childhood assumption: I, as a person, am not worthy; I must do something in order to be worthy. Others respond by living out their assumption: they assume that they do not deserve anything so they do not ask or strive for anything. If by chance they do find happiness, love, success, and other signs that they are worthy, they have a dilemma: how did I acquire these things that

I am not worthy of? Again, the dilemma may result in an examination of the childhood assumption.

In addition, such assumptions often represent barriers to changing sex role stereotypes and other cultural myths. Little girls are reprimanded for being rough like the boys and little boys are ridiculed for being "sissies". The resulting assumptions -- if I'm too assertive (women) or if I talk about feelings (men) I won't be accepted by others -- keeps everyone nicely in their assigned places.

Each domain has its own learning goal (learning for task related competence, learning for interpersonal understanding and learning for perspective transformation) and therefore its own methodology. Mezirow suggested that our current mechanistic methodologies are more appropriate in the technical domain. That we need different approaches for the domains involving social interaction and perspective transformation should be evident to most adult educators. When training word processing skills, for example, a list of commands, what each will accomplish and when each is best used is an appropriate activity. There is no need to have a group discussion on the matter. When you push that button, this will happen, If it doesn't happen, you must have pushed the wrong button. Try again. After three unsuccessful attempts, phone the technician. Imagine such an approach working in social interaction, for example a communication skills course. There are no lists of commands, no standard buttons to push; each individual has his or her own unique set of buttons that respond to a unique set of commands. There is no technician to call if it does not work.

Adult educators do, however, continue to use methodologies from the technical domain when dealing with social interaction and perspective transformation. These

educators believe that the skills required for all domains are learned in the same way. The only difference is that they acknowledge that practice in the social and emancipatory domains requires the use of hypothetical situations such as role plays.

Mezirow maintained that working in the practical domain "calls for an educational approach which focuses on helping learners interpret the ways they and others with whom they are involved construct meanings, ways they typify and label others and what they do and say as we interact with them." (Mezirow, 1981, p.18) When working in this domain, adult educators can help adults learn to take the role of others and develop competence in areas of human relations such as conflict resolution, listening, expressing, asking questions, philosophizing, discussing, leading and so forth. (Mezirow, 1981) In other words, we help learners acquire the competencies necessary for learning, rather than teaching the learning directly. Learners should acquire the tools to help them interpret social interactions, not have the interactions interpreted for them. Reverse-role play, case studies and group discussions are all appropriate strategies in this domain.

Perspective transformation requires the educator to lead learners to an understanding of psycho-cultural assumptions and self. Mezirow suggested beginning with the problems and perspectives of the learner and developing a set of instructional materials that pose hypothetical dilemmas in the areas of concern to the learner. The next step is to provide an environment conducive to examining the dilemma, challenging the underlying assumptions and understanding the options. (Mezirow, 1981) Some of the same strategies from the practical domain still apply. Reverse-role play, case studies and discussion can help the learner identify the dilemma, examine the assumptions and test the options. In addition to these

strategies, however, the environment must protect confidentiality and support the learner.

Even though perspective transformation is different from other domains, it is impossible to separate them. We often take assumptions about our roles into technical training. Beliefs such as "I can't do math" and "Men don't type" have kept many people from acquiring computer skills. These assumptions also affect communication and social interactions: "Women should be passive" and "Men don't express feelings" have harmed many relationships and restricted the development of leadership skills. Perspective transformation affects an adult's attempt to learn in other domains and becomes important as a way to identify barriers to learning.

Mezirow continued by linking the three learning domains to self-directed learning. He maintained that self-directed learning is an accepted goal and method of adult education and that together with perspective transformation forms the essential elements of a comprehensive theory of adult learning and education.

Using Mezirow's model we can make the following statements about adult learners:

1. Adults learn differently in each of the three domains and therefore each domain requires different strategies on the part of the learner and the educator. One methodology does not fit all.
2. Critical reflectivity is an essential component of learning and perspective transformation. This is an adult capacity and is a distinguishing feature between child and adult learning. It is required for all the domains but can not be "taught" in the same way we teach

other domains. Instead, an environment that encourages and supports critical reflectivity is needed.

3. Adult learning involves more than acquiring knowledge and skills. In fact, the acquisition of knowledge and skills is only one of the ten elements of perspective transformation. The elements combined lead to restructuring of existing knowledge.
4. Adult learners bring prior knowledge, experiences, beliefs and assumptions to the learning process. Learning is the attempt to integrate these with the present.
5. It is impossible for an educator to define, direct and supply answers for all ten elements. An educator can suggest possible dilemmas, but cannot impose them. An educator can not tell me who I am, I must examine myself. An educator can not "see" my internalized role assumptions, only I can. Therefore, the learner must have at least some control of the process.

Mezirow's model answered the question of what adults learn by suggesting that learning occurs in three domains: the technical, practical and emancipatory. In terms of learning content in the technical and practical domains, the model predicts that learning will be in areas requiring technical competence and increased interpersonal understanding. The model predicts that learning in the emancipatory domain will center around a disorienting dilemma. If you know the dilemma, you can predict what will be learned. Knowledge of what learning domain the adult is learning in helps the practitioner predict what conditions and strategies would best enhance learning.

Mezirow addressed the question of why adults learn. In the technical domain, adults learn to increase competency. He suggested that a needs assessment would be appropriate in the technical domain for identifying learning objectives. The effectiveness of objectives determined by others can, however, be questionable. Telling adults that they should learn something does not guarantee that the advice will be taken. We cannot become totally proficient in all that we do; priorities must be set. I may decide, for example, to continue offending my family's ears with my piano playing, even after being advised that I could improve, and improve my art skills instead. Adults, then, can and do identify areas in which they want to improve competency. Professionals can play a role by identifying possible areas for improvement.

In the practical domain, adults learn to increase interpersonal understanding. As in the technical domain, other people can point out potential areas for improvement but the adult must agree with the learning before it will be undertaken with a serious intent to learn.

For perspective transformation, Mezirow suggested that a dilemma would be the starting point. For some people, a divorce will supply the necessary motivation for self examination; for others, nothing seems to be major enough to entice them to look inside. In order for educators to effectively use dilemmas as a starting point for learning, they need to understand the relationship between the dilemma and the potential learner.

Applying Mezirow's model in an organization would present some problems. If the popular writers, such as Naisbitt, Toffler and Peters, are correct, then organizations need to consider intangible factors such as human values, new forms of

social interaction, commitment, a service orientation, risk-taking, independent thinking, integration among units within the organization and creativity. (Marsick, 1988) The current emphasis on the technical domain needs to be broadened to include the practical and emancipatory domains. Unfortunately, many organizations prefer the precise and measurable learning objectives that result from the mechanistic approach favored for the technical domain. Training departments do not earn revenue for the organization and are constantly under pressure to prove results for the money spent. Proof in the form of increased productivity, fewer customer complaints and a reduction in staff turnover find more favor with senior executives than some vague, or what technical people often refer to as "touchy-feely", statements about increased understanding of self and others. Senior managers may want to see training programs that include role playing to practice new skills not group discussions of the assumptions that underlie the new skills, as Mezirow's model would recommend. There needs to be a process or system to translate learning in the practical and emancipatory domains into the practical language favored by some organizations.

Another problem in applying Mezirow's model in an organization is the perception of what training is. For many, especially non educators, training means conveying information, usually in the form of "how to": how to prevent blow outs on drilling rigs, how to use Wordperfect, how to interview job candidates or how to settle a conflict. The underlying assumption is that if people are told the proper steps, or recipe, they can carry out the instructions. Mezirow would disagree with this expectation for learning, especially in the non-technical domains, and point out that learning often requires an examination of assumptions. For example, when

working with adults to develop assertive expression skills, the adults will resist using the "recipe" for assertive expression unless they hold the underlying assumption that they are worthy of being listened to and have a right to ask for what they want. Training in this area, then, should include an examination of the assumptions one holds about oneself. The assumptions of the person receiving the assertive expression are also important. If that person believes the sender has no right to express him or herself, then the expression, no matter how technically correct, will not be received. Training in this area, then, should further include an examination of the receiver's assumptions and the role the sender plays in forming those assumptions (for example, the sender's body language may be responsible for the receiver discounting the importance of the message).

Even in the technical domain, the assumptions of the person learning the skill are important. If a male manager believes that keyboarding is typing and therefore women's work, he may resist learning about computers. The computer, however, has no such underlying assumptions. It does not care if the operator is male or female. Persons responsible for technical training courses should consider the need to deal with the learner's perceived role in relation to the technical area being taught. This could be especially important in dealing with nontraditional workers, such as women in technologies. Even traditional workers faced with new technologies may benefit from an exploration of how the new equipment will fit their assumptions about their role. New technology often reduces the amount of skill or strength required for a task. If the skill or strength being reduced is important to the worker's definition of a successful worker, then they may resist using the new equipment.

In summary, Mezirow's model is explained adults' motivation to learn, identified three distinct learning domains, one of which is uniquely adult, the need for different strategies for different types of learning, the role of values and assumptions in learning, the importance of prior experience, the need for the learner to control at least some of the process and is general enough to apply to any situation. Application in an organizational setting, however, does present some difficulties. Organizations would have to change their perceptions of what training is and broaden the range of methodology used.

Proficiency Theory

Knox's Proficiency Theory is one of a group of theories grouped by Merriam (1987) as being based on an adult's life situations or roles. It is based on the notion of a discrepancy between current and desired proficiencies. Knox attempted first to addresses the question of why adults learn and then derived from those concepts some necessary conditions for adult learning.

Knox maintained that adults pursue learning when they wish to increase their proficiency in a given area. They may want to improve job performance, acquire a hobby, improve their marriage, learn a sport or help in a volunteer project. It is this close relationship between learning and doing that distinguishes adult education from children's preparatory education. (Knox, 1980) Desired levels of proficiency change with current life situations and so learning must occur if the current and desired level of proficiency are to be equal. Proficiency is defined as "the capability to perform satisfactorily if given the opportunity . . . proficiency

entails some combination of knowledge, skills, and attitudes" (Knox, 1980, p. 378).

Major adult life roles determine the tasks for which adults seek to become more proficient: worker, family member, citizen, user of leisure, or member of an organization or religious institution. (Knox, 1980) Individuals have an expectation of their performance level and will seek improvement until the expected level is achieved. Individuals decide on their desired performance level. These expectations are often influenced by general societal expectations and the expectations of specific other people. For example, a husband's desired performance for doing household chores will be shaped by many people, some of whom he has never met. His wife, parents, friends, society and advertisers all influence the chosen performance level. He will be less likely to follow dominant societal role stereotypes if he recognizes alternatives and knows people who are following such alternatives.

Adult role performance is also influenced by physical condition and personality. Loss of energy, vision or hearing are examples of physical conditions that can interfere with learning. Personality characteristics, such as values and self-concept, can mediate relationships between physical condition and performance. (Knox, 1980) Persons with low self-concepts are more likely to abandon an activity when physical conditions cause even a slight decline in performance. Other personality characteristics that influence performance are self-concept, need for achievement, willingness to take risks, openness to new experience and self-directedness. Persons low in self-concept and need for achievement may set performance expectations that are too low. Persons who are unwilling to take risks,

are closed to new experience and not self-directed may not be willing to undertake the necessary activities to close the gap between their current and desired performance.

For effective adult learning to occur, the learner must assess the current level as being less than the desired level. Learners may over or under state the discrepancy. For example, a newly appointed supervisor may assess his or her current proficiency level as the desired level and therefore would not seek to learn new knowledge, skills, or attitudes. Another person may assess the discrepancy as so large that they would refuse the promotion. What is important is the accuracy of the assessment. The new supervisor may be overly confident, and the worker who refused the promotion too apprehensive.

Adults are motivated to learn when they decide that their current performance is less than their desired performance. (Knox, 1980) The learner must first identify his or her current and desired proficiency level. The desired performance, as already discussed, is influenced by adult roles, general societal expectations and the expectations of specific other people, physical conditions and personality. The resulting levels may be lower than the optimal or highest possible level, in which case it is useful to have specific role models identified or formally stated standards of exemplary performance. This is especially relevant in a work setting.

Knox (1980) identified several ways in which a facilitator can assist potential learners in assessing discrepancies and promote motivation to reduce the discrepancy. As mentioned earlier, the role of the supervisor in the new workplace includes facilitator so the tasks identified by Knox could be undertaken by the supervisor instead of an adult educator.

One role of the facilitator is to help the learner clarify the discrepancy. If the facilitator helps to confirm an accurate self assessment, the self confidence of the learner will be increased. If the self assessment appears to be inaccurate, the facilitator can encourage the learner to explore the assessment. Finally, it is useful to point out procedures to assess proficiency so that learners may become more independent. In a work setting, asking both the worker and supervisor to describe the worker's recent and desired performance can help the worker identify accurate performance levels. Marriage preparation workshops often ask couples to list, separately, their goals, needs and values. The couple can then compare the lists and through exploring the differences, identify their current and desired performance levels. Several years later, a marriage counsellor may repeat the process.

Facilitators must also understand that the desired performance level is affected by groups other than the learner and that those groups can inhibit or enhance learning. Trying to get a manager, for example, to accept a counselling model of leadership will be difficult if his peers adhere to a more authoritative style. Use of role models who can be imitated and stating standards of exemplary performance can help to overcome these limitations.

In some cases, because of previous unsatisfactory experiences, the potential learner does not recognize the importance of enhanced performance. The facilitator can play a role by exploring these previous experiences and helping the potential learners to build on past successes and strengths. (Knox, 1980)

Other factors may also influence the learner's motivation to decrease the discrepancies. High levels of interest in education are typically produced by "commitment to enhanced proficiency combined with the belief that learning

activities will enhance proficiency and optimism that enhanced proficiency will lead to more satisfactory and satisfying performance and recognition." (Knox, 1980, p. 390) A lack of confidence and unwillingness to take risks will reduce motivation to learn. Facilitators should help learners recognize personal and situational influences on their participation in learning so they can reduce barriers.

Future orientation also plays a role in determining interest in learning. Adults who are optimistic about future prospects are more likely to participate in education than those who are not optimistic. (London, Wenkert, and Hagstrom, 1963) High levels of optimism and unrealistic expectations, however, can discourage persistence. (Anderson and Niemi, 1969; Mezirow, Darkenwald and Knox, 1975)

Once the discrepancy has been identified and the learner is motivated to reduce it, Knox (1980) suggests that facilitators can encourage the learner to engage in effective learning activities. He suggested the following guidelines:

1. Encourage the learner to assume responsibility for what is to be learned and how.
2. Encourage the learner to practice.
3. Encourage the learner to sequence activities from overview to specific, simple to complex.
4. Assist the learner to evaluate the learning process and results.

Using Knox's Proficiency Theory, the following statements can be made about adult learners:

1. Adults learn to improve performance. This close tie of learning to action is different from preparatory education for children.

2. Major adult life roles, such as worker, family member, citizen, user of leisure, or member of an organization or religious institution, determine the tasks for which adults seek to become more proficient.
3. Role performance (what tasks you do), and current proficiency (how well you do them) are influenced by societal and role expectations, other people, physical condition, and personality
4. Desired performance level is influenced by role expectations, other people and knowledge of optimal and alternative performance levels.
5. The decision to learn is made when the adult recognizes that current proficiency is less than desired proficiency, provided that any barriers to learning and increasing proficiency have been dealt with. These barriers include lack of reference support group, lack of opportunities to perform, previous unsatisfactory experiences, pessimism about future prospects, lack of confidence, unwillingness to take risks, physical conditions and aspects of personality such as aspirations, attitudes and values.
6. Facilitating adult learning is a complex process that requires the facilitator to consider the roles, discrepancies and barriers of each learner.

Proficiency Theory described why adults learn: to improve performance. The need to improve performance results when current performance is perceived as less than desired performance. The existence of barriers to learning and increasing proficiency might inhibit learning. Knox identified some potential barriers as lack

of reference support group, lack of opportunities to perform, previous unsatisfactory experiences, pessimism about future prospects, lack of confidence, unwillingness to take risks, low anticipated benefits in exchange for high cost and risk, physical conditions and aspects of personality such as aspirations, attitudes and values. Once the discrepancy between current and desired performance is established it can be predicted that the adult is ready to learn. Actual learning requires the removal of any barriers.

Proficiency Theory also describes what is to be learned: knowledge, skills and attitudes in a task related to a life role in which increased proficiency is sought. For an adult, learning is directly related to actions. Content will be that which they can use in some aspect of their everyday life. Their major life roles indicate what would be part of their everyday life. A single man, for example, is unlikely to enroll in a course on childcare; it is not applicable to his current life role. Life roles, however, do not come with standard operating instructions. Each person will have a different description of the role and role performance. Proficiency discrepancies will be calculated accordingly. The individual description will be influenced by societal expectations and expectations of others. For example, men are not typically expected by society to be knowledgeable about childcare. If their parents, friends and spouse share that view, a man will tend to have only basic performance standards: changing a diaper in less than 10 minutes and heating up an already prepared formula. Some men are now breaking out of that standard role and assuming more responsibility for childcare. These men will learn more content in childcare than their stereotype bound counterparts.

In terms of predicting what adults will learn, knowledge of major life roles can indicate what general content area would be of potential interest. It is unlikely that senior citizens need to increase performance in resume writing, and most secretaries have little need for welding skills. One does, however, need to be aware of planned changes in life roles that could influence desired proficiencies. A secretary hoping to change to a trade occupation could very well be interested in welding school. Each individual's description of a role will also differ, resulting in variations of what is learned. A woman who sees cooking as a significant task in her role as wife and mother will strive for higher proficiency levels than a woman who views the kitchen only as a room in which the cats eat.

Knox acknowledged learner characteristics but rather than describing or prescribing a finite list of characteristics, he asked "what are the circumstances and procedures under which adults with various characteristics learn effectively?" Instead of assuming consistency among adult learners, Knox viewed learners as being different and therefore the issue is not what characteristics make an adult learner but rather how can formal education best accommodate the differences. He did, however, specify some characteristics that can enhance or inhibit learning. His list included openness to new experience, intelligence, stamina, physical disabilities or limitations, integrated personality, needs, values, self-concept, need for achievement, willingness to take risks, self-directedness, interest in solving problems and pursuing opportunities, previous experience and requisite knowledge, commitment to enhanced proficiency, a belief that learning will enhance proficiency, optimism that enhanced proficiency will lead to higher satisfaction and future opportunities, enthusiasm, and an assumption of personal responsibility for one's

life. The educator's role is to be aware of these characteristics in learners and to adapt the learning activities accordingly. Because the model assumes variable learner characteristics, there is no predictive component, except for the mention of possible characteristics associated with older learners, such as decreased physical capabilities.

How adults learn was not directly stated but can be inferred from Knox's discussion on the teaching-learning transaction. He described the education process as being one of providing the learner with (1) an exploration of the learner's past relevant experience, (2) the essential features of the desired area of proficiency (advance organizers), (3) a series of learning activities to enhance proficiency, (4) an opportunity to practice, (5) feedback on performance in the form of praise, reinforcement and clarification of standards and, (6) attention to consequences, applications and commitment to use of the increased proficiency. Knox also recognized that each adult has their own learning strategy and it is the facilitator's role to clarify the best learning strategy and guide the process. It seems, however, that the use of individual learning strategies is constrained by the six steps listed above.

In terms of organizational application, the emphasis on improving performance would fit most organizations view of training, as long as the proficiency being improved was work related. However, training for work related performance may not be the best policy. Motivation for learning could be higher if the performance being targeted for improvement was applicable to other roles, both present and future. Persons learn best when their own identity and growth are recognized as integral to the learning. (Marsick, 1988) Applying the model would also require

organizations to identify potential barriers to improving performance, especially those that are related to the organization. The barriers mentioned by Knox that could be organizational are lack of reference support group, lack of opportunity to perform, poor future prospects, low benefits from improved performance and low risk taking.

In determining what is to be learned, organizations would have to consider the employee's description of the role and role performance. Knox (1980) clearly stated that adults are motivated to learn when they decide that their current performance is less than their desired performance. If an employee does not agree with the organizations assessment of areas needing improvement, then training efforts may be ignored. Organizations would have to make sure that the assessment of a specific employee's learning needs was accurate and then convince the employee of that. Mandatory attendance at training programs does not meet that requirement.

Knox did not describe or prescribe learner characteristics but rather acknowledged the variety of characteristics with which trainers must work. The educator's role is to adapt learning activities to the various characteristics. (Knox, 1980) Organizations would have to ensure sufficient flexibility in training programs to accommodate learner differences. In order to be consistent and/or save resources, organizations often use systems or procedures that reduce flexibility, (such as prepackaged programs that must be used "as is"), trainers who are not well trained in the various methodologies, and strict adherence to a specified instructional or program design system.

In summary, Proficiency Theory described all the relevant areas: what, why and how adults learn and learner characteristics. Adults learners are viewed as

complex beings that interact with and are influenced by their surroundings and experiences, and change over time. They learn to improve performance in areas that are consistent with their major life roles. The decision to improve performance is influenced by many factors. Barriers to learning may prevent an adult from achieving improved performance. Because there are so many factors that influence the decision and ability to learn, there is little predictive power in Knox's model. Educators must be prepared to use a variety of techniques and strategies. Application in an organization setting would require identifying barriers that arise from the organization, securing agreement with the employee on current and desired proficiency levels, and maintaining sufficient flexibility to deal with the broad range of learner characteristics and barriers.

Andragogy

Andragogy, the well known model of Malcolm Knowles (1974, 1980, 1984), is based on several assumptions about adult learners. While many writers identified four assumptions, as Knowles (1980) himself has done, The Adult Learner: A Neglected Species, Third Edition (1984, pp. 55-61) identified the following six assumptions:

1. *The need to know.* Before adults will learn something they need to know why it is needed.
2. *The learners' self-concept.* Adults see themselves as independent and responsible for their own lives.
3. *The role of the learners' experience.* Adults bring a wide range of experiences to learning that can be used as a resource. These

experiences also result in a greater range of individual differences than is usually seen with children.

4. *Readiness to learn.* Readiness to learn for adults occurs as a result of real-life situations, such as moving from one developmental stage to the next. They learn what they need in order to cope effectively.
5. *Orientation to learning.* Adults are problem or task centered as opposed to subject centered. They are motivated to learn when learning will help them perform tasks or deal with problems in their real lives.
6. *Motivation.* Adults are more likely to be motivated by internal motivators such as increased job satisfaction, self-esteem, and quality of life, than by external motivators such as better jobs, promotions, and higher salaries.

Knowles (1984) developed an andragogical model of human resource development based on the above assumptions that can incorporate features of various prevailing theories. Knowles emphasized that his model is a process. It provides learners with procedures and resources to help them acquire information and skills. Traditional education uses content models: they transmit information and skills.

The process developed involves the following elements:

1. establishing a climate conducive to learning;
2. creating a mechanism for mutual planning;
3. diagnosing the needs for learning;
4. formulating program objectives, or content, that will satisfy the identified needs;
5. designing a pattern of learning experiences;

6. conducting the learning experiences with appropriate techniques and materials; and
7. evaluating the learning outcomes and rediagnosing the learning needs.

Within this process, and limited by the assumptions, other theories are used to determine specifics, such as the type of climate that is conducive to learning, the appropriate learning experiences and evaluation methods. (Knowles, 1984)

Basic to the andragogical process is the notion of self-directedness. Self-directedness is implied in the assumption that the adult learners' self-concept is one of increasing independence and responsibility for their own lives. The adult's self-concept is one of self-directedness. Knowles (1980) believes that adults can use their self-directedness to engage in what he, and others such as Tough, see as the natural process of learning. Knowles described the andragogical process as natural; it is what the learner does in the absence of formal training.

Knowles (1980, 1984) recognized that self-directedness is a continuum and not all adults are self-directed enough to assume total responsibility for their learning. He suggested that teaching should have as one of its goals the creation of self-directed learners. Self-directed learners "take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating outcomes". (Knowles, 1975)

Schuttenberg and Tracy (1987) suggested that self-directed learning, as defined by Knowles, is a set of skills, an instructional mode or process, and an attitude. The skills required include planning, listening, writing, meta learning or learning how to learn, decision making, problem solving and communication. The process is the

one described above as the andragogical model and involves a collaborative endeavor between the learner, the adult educator and other learners. The attitude required is one of actively pursuing change.

Knowles (1975, 1980, 1984) suggested a learning contract as a way to help learners structure their own learning. It is especially useful for job related learning that must take into account the needs of the organization, profession and society. He sees learning contracts as a way of negotiating the differences between these external needs and the learner's needs and interests, and increasing ownership of and commitment to the plan by including the learner in the process.

Unlike the two previous models reviewed, Knowles started with a list of assumptions, or characteristics, of adult learners. Working from those learner characteristics, a process for learning was identified and the concept of self-directedness was developed. The only unique strategy mentioned was the learning contract. All other strategies came from other theories.

Knowles answered the question of what adults learn: they learn what they need to know in order to cope effectively in real-life situations. They are centered in problems and tasks as opposed to subjects or theory. If you know what problems the learner has or what real-life situations they are in, you can predict what they would choose to learn. There is no need in the model, however, to predict: the process includes the rather novel notion of asking the learner.

According to Knowles, adults' motivation to learn is rooted in internal factors such as increased job satisfaction. They are also motivated to learn when "they perceive that it will help them perform tasks or deal with problems that they confront in their life situations." (Knowles, 1984, p. 59)

How adults learn was also stated. Using Tough's research, Knowles stated that the andragogical process reflects a natural process, the way adults learn in the absence of formal intervention. The process goes beyond the acquisition of knowledge, skills and values to include events that lead up to the decision to acquire them and methods for evaluating the outcomes. Acquiring knowledge and skills is only one step in the process. For each step, Knowles has suggested that activities and methods can be chosen regardless of their theoretical bases as long as the assumptions are not violated. For example, it does not matter what form the program objectives take as long as the learner freely chooses them as being relevant to his self-diagnosed needs. Learning experiences derived from mechanistic models, such as linear teaching machine programs, will be used proactively by a self-directed learner; the learner will extract the useful components from the program and disregard the rest.

What Knowles appeared to be saying is that the learner, given the opportunity along with some guidance, can decide on how he or she best learns and design the learning experience accordingly. He was also saying that the resources, such as workshops, computer assisted instruction and lectures by experts, do not, as many believe, constitute learning. They are only resources to be used by the learner. An example will be used to illustrate the relationship between learning resources and learning.

John decided that in order to be considered for a promotion at work, he would have to reduce the number conflicts and arguments in which he was involved. He noticed that his employer was offering a 1 1/2 day workshop in conflict resolution skills so he signed up. During the workshop he discovered that his attitude towards other people may need to be changed, and that he needed to learn less aggressive ways of expressing himself. Back on the job he tried a few of the ideas from the workshop. His attempts confirmed the need for an attitude adjustment and expression skills as well as the need to stay calmer. At the library, he found some books on stress reduction and communication skills. He read them, tried some of the ideas and decided that physical activity reduced his stress and helped him stay calmer. He started playing racquetball three times a week before work and power walking in the evening. Once his stress level went down, he found it easier to implement the conflict resolution skills. Expressing himself was still a problem, so he tried another workshop offered by his employer. He thought it was good but too short. He found a thirty hour program offered at night through the local college so he signed up for it. At that course, several people recommended Toastmasters as a good group for learning communication skills, so he started attending.

The story of John could go on forever, for John is involved in the ongoing process of learning. Formal training programs are only one component; they are resources used during the process of learning. They are like a wheel within a wheel: while the formal training program may be designed using a learning theory, it will be used within the learning theory of the learner.

Knowles (1975, 1980, 1984) addressed the issue of organizational application by explaining how the andragogical process can be used. He presented a human resources development system that allows considerable flexibility for both the learner and the organization. He gave several examples of successful applications in organizations. Such success stories, however, appear to be the exception. Based on the literature review, organizations tend to prefer more traditional approaches.

One reason that organizations reject Knowles system may be that they do not like to recognize needs other than their own. For example, when using andragogy, the needs assessment would include individual, organizational and society needs.

Performance based needs assessments, the apparent favorite of many organizations, tend to concentrate on organizational needs. Employee development based systems, which are not widely used, focus on an individual's needs as well as their perceived needs in relation to their job. Societal perceptions can be obtained from relevant technical and professional literature, professional organizations or licensing standards. In the absence of licensing standards or a strong professional organization, such information tends to be ignored.

Another problem with organizational application is extending the concept of training beyond the classroom. While many articles were found on applying andragogical principles in the classroom, extending beyond the classroom to include integration with performance reviews, task forces for needs assessments, learning contracts and alternate resources for learning was only mentioned in the theoretical literature. The practitioners' journals continued to emphasize only classroom applications. Either HRD staff are not aware of applications outside the classroom or management is not supportive of the applications. It has been the researcher's personal experience in working with organizations that both factors are responsible. HRD staff may not be aware and even if they are, management often resists such a dramatic change to the way things are usually done.

Even within the classroom, application may be difficult. The hierarchical nature of most organizations gives the power to decide on classroom methodologies to management not learners, which in itself is a violation of Knowles basic assumptions. The trainers may not have a say in the selection either. Many techniques favored in the andragogical classroom are viewed with disdain by managers with ingrained mechanistic models.

Successful application in the workplace is also dependent on workers who are capable of being self-directed. Knowles admits that many adults are not yet ready for self-direction and that moving them towards that end should be a goal of education.

Andragogy emphasizes process over content, an approach that clashes with the behaviorists concern for content leading to a change in behavior. Organizations still in the industrial age are concerned with workers learning specific job tasks and may resist the notion that process is important. The process does not teach how to do a specific job task.

The bottom line is that application of the the andragogical process requires that organizations accept the basic assumptions and resulting process as outlined by Knowles. Many organizations still operate from the industrial model where employees are not independent, responsible and unique beings. These assumptions are not, however, valid for the new worker in the information society. As organizations move into the new era, andragogy should become more consistent with their philosophies. In the meantime, only more progressive organizations will fully embrace the concepts of andragogy as Knowles applied them to the workplace.

Comparative Summary

Mezirow concentrated on what is learned: learning occurs in three domains that are separate but interdependent. Knox emphasized why adults decide to learn: to improve performance in areas relevant to their life roles. He also acknowledged the barriers that may prevent an adult from carrying out the decision. Knowles looked at how adults learn and presented a process that he believes is a natural one people

follow in the absence of intervention, as well as a list of assumptions about the adult characteristics that support the process. Despite the differences in emphasis, the three theorists have the following common elements in their work.

1. Adults are seen as complex beings that interact with their environment.
2. Adult learners are grounded in the present. Their roles, tasks, problems and dilemmas influence the decision to learn.
3. Adult learners are influenced by many factors, internal and external, that include prior experiences and knowledge, expectations of others, external barriers, assumptions, beliefs and values.
4. Adult learners are independent, responsible and unique beings.
5. Adult learners need at least some control over the learning process. It is difficult for a teacher of adults to totally direct and control learning. Self-directedness was explicitly stated by Mezirow and Knowles. Knox encouraged self-directedness within the framework of formal training.

The three theories or models are not mutually exclusive. In fact, it is possible to combine the major elements into one model, using Knowles' process as a base.

Knox and Mezirow's models elaborate on the elements of the process.

1. *Establish a climate conducive to learning.* Mezirow would point out that a conducive climate is one that supports and encourages critical reflectivity. Knox would suggest a climate that supports risk taking and reduces barriers.
2. *Create a mechanism for mutual planning.* Knox suggested that it is necessary for the learner to be involved as it is they who decide if a performance deficiency exists. He further suggested that individual,

organizational and societal standards and expectations be considered.

Mezirow supported mutual planning to identify the problems and perspectives of the learner.

3. *Diagnose the needs for learning and formulate program or learning objectives.* Mezirow suggested identifying dilemmas, problems and perspectives. Knox looked at roles and performance deficiencies.
4. *Design and conduct a pattern of learning experiences.* Mezirow warned that one methodology does not fit all learners. The learning experiences will depend on the learning domain, prior knowledge, experiences, beliefs and assumptions. Knox agreed and noted that the roles, discrepancies and barriers of each learner will influence the learning experiences.
5. *Evaluate the outcomes and rediagnose the learning needs.* Mezirow would emphasize the need for the learner to be involved in the evaluation of outcomes, especially in the non-technical domains. For Knox, evaluation involves comparing actual and desired performance levels. He suggested that facilitators assist the learner to evaluate the process and outcomes.

For all three the role of the facilitator is one of guiding not controlling learners. They may however disagree on the formality of training. Knox clearly sees a classroom environment led by a facilitator for all phases while Knowles has suggested a more informal structure with learning occurring also outside of the classroom using a variety of resources. The learning contract is Knowles method of

guiding the process. It allows each learner to develop a personal learning program based on their own needs and characteristics.

All three approaches would require a change away from the behaviorist paradigm currently favored by HRD practitioners. First, the learners would need more control and would be included in assessment, planning, and evaluation. The individual and societal needs would be added to organizational needs when assessing learning needs. Second, flexibility would ensure programs that accommodate learner differences. A wide range of methodologies would be available and selected on the basis of learning objectives and learner characteristics. Ideally, the learner would be involved in the selection. Third, precise and measurable learning objectives may not be useful for all learning. Finally, the definition of what training is would be broadened. The examination of self and one's assumptions, beliefs and values would be seen as valuable objectives. Roles other than work would be considered when assessing needs. Training would move outside the classroom to include performance reviews, learning contracts, and alternate resources such as local experts, other workers, job rotation and self-study.

Adult Learning and the New Workplace

At the end of the section on human resource development was the question of what system would be best for adult learners given the new knowledge and skills required in the information society. Can organizations use mechanistic models to teach new skills or is a move away from the behaviorist paradigm required? The review of adult learning suggested that the behaviorist paradigm now evident in organizations should be replaced by newer models or

theories. Not only are the newer theories more appropriate for adult learners, they are consistent with the new role of the independent worker who is able to think, learn, create, make decisions and solve problems. Both adult learners and the new worker require independence, self directedness, and an ability to learn. The uniqueness of each individual is recognized by both adult learning theorists and the new workplace. The role of the trainer and the new manager is that of facilitator, teacher and consultant.

Implementing new adult learning theories will require changes by both organizations and workers. A major shift in paradigm does not occur easily, nor quickly. In order to support such a shift, it is necessary to have an understanding of the requirements of the new paradigm. What values, assumptions, and beliefs are consistent with the new paradigm? If a worker believes that his or her learning is the organization's responsibility and the organization believes that workers should behave like robots, the new paradigm will not find a happy home.

To date, little is understood about adult learning in the workplace. What is needed is systematic study of the factors involved in the new paradigm. This study focused on one of the factors: self-directedness.

Self-directedness

Self-directed learners take the initiative to initiate, plan, implement and evaluate their own learning. Other people, such as trainers, may be involved in the process. Self-directedness requires a set of skills, a process and an attitude. (Schuttenberg and Tracy, 1987) The skills include, but are not

limited to, planning, listening, writing, meta learning or learning how to learn, decision making, problem solving and communications skills. The process is a collaborative endeavor between the learner, an adult educator and other learners. The attitude is one of actively pursuing change both at a personal and societal level. The learner, according to Long (1990), must accept control of the learning process rather than abdicate the responsibility to others.

Self-directedness is not an absolute state but rather one end of a continuum from dependent to independent learning. Adult learning theories do not assume that adults are totally self-directed but consider increasing self-directedness as a valid goal of adult education. Self-directedness then refers to the extent to which adults can initiate, plan, implement and evaluate their own learning.

Self-directedness, or self management, is fundamental to both the new worker and adult learning. If we are to move away from mechanistic models of learning, adults must assume more responsibility for their learning. While being an adult provides a basis for self-directedness, it does not guarantee it. We all know adults who are lacking in this trait. Other individual and environmental conditions must exist. The next section of the literature review looks at the preconditions for self-directedness.

Preconditions for Self-directedness

While theories of adult learning make assumptions that are generally true for adult learners, being an adult does guarantee self-directedness. Other individual and environment conditions will influence self-directedness. The

conditions considered in this research involve protecting and enhancing self-concept and self-esteem.

Self Esteem

Self-concept is a descriptive list of roles, skills, knowledge, attitudes and values that define who you are. Self-esteem is a person's evaluation of the description: I like myself, I don't like myself. The evaluation is based on a person's values which indicate what is good and bad. (Branden, 1985) For example if the descriptive list indicates that the person is highly competitive and this trait is valued then self-esteem will be positive. The person who values cooperation rather than competition will have a lower self-esteem.

The individual's current and idealized self-concept must be congruent with any change inferred by learning. The adult's self-concept is already formed and any change must maintain self-esteem or the change will be rejected. (Brundage and MacKeracher, 1980; Tough, 1971) This implies that the more congruent the job is with self-concept the more likely the employee is to engage job related learning.

Adults with a higher self-esteem and a more positive self-concept are more ready to accept change. (Hiemstra, 1985; Klopf et. al., 1969) Therefore it is necessary to provide an environment that will at least protect self-esteem and self-concept and if necessary increase it to a level where employees are able to accept change.

The adult must also see self as a learner and value learning. (McClusky, 1970) Workers must have an orientation that allows learning to be seen as a

worthwhile and desirable endeavor. Otherwise, even if the change is congruent with self-concept and self-concept is positive enough to accept change, the learning required will be avoided.

The environmental conditions that protect and enhance self-esteem are a result of conditions unique to adults. Adults are more threatened in learning situations than children. For children the self-concept is in the process of forming. Learning may vary the structure but it cannot fragment or destroy what has not been fully formed. The adult self-concept is formed and learning has the potential to fragment or partially destroy it. Adults therefore must be assured that any proposed change in self-concept will lead to positive results. Adults are also threatened in learning situations because of the consequences of failing. If the adult fails at learning then self-esteem may be reduced. Many adults would prefer not to try at all and therefore appear to resist learning. (Brundage and MacKeracher, 1980) As a result of the threats to self-concept and self-esteem the environment must be structured to help protect and support the adult. In general this requires that the learner perceive the environment as providing trust relationships and freedom from threat. (Brundage and MacKeracher, 1980; Knowles, 1975)

In order to protect and/or enhance self-esteem, self-directedness requires learning goals that are valued and consistent with self-concept, an environment that is perceived as providing trust relationships and freedom from threat, and an orientation of self as learner.

Summary

The new workplace uses technology, is likely to be involved in service, and is engaged in global competition. New management styles and organizational structures are evolving to accommodate the changes. As we move from the industrial age to the information age, workers will be required to have different skills than those typically required on the assembly line. The new worker will be one who can think, learn, create, solve problems and make decisions. He or she is better educated, literate, has at least basic knowledge and skills in science and technology and is independent and self managing. Personal growth, a balance life, and work that is fun and fulfilling are valued. He may be a she, non-white, over 65, disabled or otherwise nontraditional.

Current practices in human resource development, whether part of an HRD department or a small business owner's personal practices, are grounded in behaviorism and compatible with organizational structures typical of the industrial age. The newer theories of adult learning are more consistent with the emerging worker. Shifting paradigms, however, is a long slow process that requires an understanding of the factors involved. In order to support such a shift, it is necessary to have an understanding of the requirements of the new paradigm. What values, assumptions, and beliefs are consistent with the new paradigm?

To date, little is understood about adult learning in the workplace. What is needed is systematic study of the factors involved in the new paradigm. This study focused on one of the factors: self-directedness.

Self-directed learners take the initiative to initiate, plan, implement and evaluate their own learning. Self-directedness, or self management, is fundamental to both the new worker and adult learning. If we are to move away from mechanistic models of learning, adults must assume more responsibility for their learning. While being an adult provides a basis for self-directedness, it does not guarantee it. We all know adults who are lacking in this trait. Other individual and environmental conditions must exist. The conditions considered in this research involve protecting and enhancing self-concept and self-esteem.

It was suggested that in order to protect and/or enhance self-esteem, self-directedness requires learning goals that are valued and consistent with self-concept, an environment that is perceived as providing trust relationships and freedom from threat, and an orientation of self as learner.

The purpose of the research was to explore the relationship between the factors identified as important for supporting self-directedness and specific behaviors that are indicators of self-directedness in the workplace.

CHAPTER III

METHODOLOGY

The Sample

The sample consisted of persons with paid employment exceeding thirty hours per week. Volunteer subjects were recruited from associations and organizations in the Edmonton area. A total of 70 people participated in the study.

Pilot Study

Preliminary questionnaires were administered to colleagues and co-workers of the researcher in an informal setting. The results and comments were used to improve wording and oral instructions for completing the questionnaire and estimate completion time.

As a result of the pilot study the order of the various sections was changed, the categories for indicating personal information revised and oral instructions regarding the nature of the forced choice questions added. Completion time averaged twenty minutes.

Questionnaire

The questionnaire was designed to collect data to be used in the exploration of factors that might influence job related self-directed learning. The factors identified in the literature review as potentially important to self-directedness were:

1. Job Involvement: learning goals that are valued and consistent with self-concept.
2. Organizational Climate: an environment that is perceived as providing trust relationships and freedom from threat.
3. Motivational Orientation: an orientation of self as learner.

Job involvement measures were used to indicate the value and consistency of learning goals and self-concept. The environment was measured using an organizational climate scale. Orientation of self as learner was measured using motivational orientation. In addition, data were also collect on perceived future trends and job related learning activities.

Job Involvement

As discussed in the literature review, a person may be more likely to engage in self-directed learning if their job is congruent with their self-concept. For example, John may see himself as an artist who only works as an accounting clerk in order to pay the bills. He would be more likely to engage in self-directed learning in art as opposed to accounting. Mary, also an artist working as an accounting clerk, perceives accounting as an profession and art as a hobby. She would be more likely to engage in job-related self-directed learning.

The relationship between self-concept and work has been explored through the concept of job involvement. Pinder (1984) stated that:

people are involved in their job if they: (1) actively participate in it; (2) holds it as a central life interest; (3) perceive performance as central to their self-esteem; and (4) see performance as consistent with self-concept. (p. 107)

While there has been no consistent agreement among theorists as to the appropriateness of this or any other definition, there has been considerable research generated in an attempt to explore measures and operationalize job involvement. A summary of some factors derived from several studies are summarized below.

Hopelessness or indifference	Lodahl & Kejner, 1965
Decision influence	Blau, 1985
Skill utilization	Blau, 1985
Performance-self-esteem	Blau, 1985; Saleh & Hosek, 1976; Jans, 1982
Psychological identification	Blau, 1985; Saleh & Hosek, 1976; Jans, 1982; Lawler & Hall, 1970; Cummings & Bigelow, 1976
Active participation	Saleh & Hosek, 1976
Career involvement	Jans, 1982

For the purpose of this research, questions were selected by identifying the factors that appeared to best reflect a relationship between self-concept and work. Three factors were chosen as meeting this definition: Psychological Identification, Performance-Self-esteem and Hopelessness.

Psychological Identification defines job involvement as the degree to which a person's job is central to psychological identity. For this study, the nine items from Blau's (1985) factor analysis of the job involvement scales designed by Lodahl and Kejner (1965), Kanungo (1982) and Lawler and Hall (1970) were used. They included statements such as "I live, eat and breathe my job," "The most important things that happen to me involve my present job," and "I like to be absorbed in my job most of the time."

Performance-Self-esteem defines job involvement as the degree to which a person's job performance is central to self-esteem. The three items from Blau's (1985) factor analysis were used: performance extremely important to self; feel badly if don't perform well; feel good when perform job well.

Hopelessness emerged from Lodahl and Kejner's (1965) factor analysis of a 40 item scale. The factor appears to describe a person who has given up caring about work. The three items were: "I used to be more ambitious about my work," "I avoid taking on extra duties and responsibilities," and "Quite often I feel like staying home work,"

All items used a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Item responses were averaged to yield an individual's scale score for each of three job involvement areas.

Organizational Climate

In the literature review it was suggested that self-directedness requires an environment that is perceived as providing trust relationships and freedom from threat. Organizational climate scales were chosen to measure the environment in the workplace. Scales from two tests were used: the Organizational Climate Description Questionnaire and the Litwin and Stringer Organization Climate Questionnaire. Both tests defined organizational climate as the perception that employees have of certain measurable properties of the work environment that are assumed to influence motivation and behavior.

The Organizational Climate Description Questionnaire was developed by A. Halpin and D. Croft (1963) for the purpose of describing the organizational climate of a school. Using three models or classifications of the attributes of leadership and group behavior, Halpin and Croft developed 1000 items to measure the perception of the theoretical classifications. Items were drawn from other instruments, the experiences of graduate students in education and in-depth interviews with teachers. The initial screening for clarity and redundancy eliminated 400 items. The remaining 600 questions were divided into four different but similar preliminary forms and administered to a heterogeneous sample of 17 elementary schools. Three types of analysis -- differentiation among schools, cluster analysis and analysis of intrinsic content -- were used to reduce the set to 160 items. Form II, with 160 items, was administered and along with the responses for the same 160 items on Form I analyzed. Eighty items along eight dimensions survived and were used to compose Form III which was administered to 66 schools. Using Form III results along with the 80 items from the administration of Form II, item correlations and

cluster analysis were used to test the fit of the items and dimensions. The resulting 64 items comprised the final form.

Form IV was comprised of eight subtests, four defining teacher's behavior and four defining the principal's behavior. Of these eight subtests, four were chosen for this research project. The subtests chosen were ones that reflected the presence or lack of trust relationships and freedom from threat: esprit, production emphasis, thrust and consideration.

Esprit refers to "morale." It is the perception that social needs are being satisfied and that they are enjoying a sense of accomplishments. (10 items; Split-half Coefficient of Reliability: .75)

Production emphasis refers to leader behavior that is characterized by close supervision. Leaders are perceived as being highly directive. Communication tends to go in only one direction and leaders are not sensitive to employee feedback. (7 items; Split-half Coefficient of Reliability: .55)

Thrust refers to leader behavior that motivates through example. The leader tries to move the organization not by directing but by working with employees. (9 items; Split-half Coefficient of Reliability: .84)

Consideration refers to leader behavior which is perceived as "humanly". The leader tries to do something extra for employees in human terms. (6 items; Split-half Coefficient of Reliability: .59)

The items used were reworded by the researcher for use by non-teachers. The 4-point Likert scale was retained. Items were averaged for each subtest.

The Litwin and Stringer Organization Climate Questionnaire (LSOCQ)

The LSOCQ is a measure of employee's perceptions of organizational climate. It contained 50 statements about an organization on nine scales. Five of these scales were used in the current research: responsibility, reward, warmth, support and identity. Each of the scales is defined below and the Split-half Coefficients of Reliability from a previous study (Muchinsky, 1976) listed.

Responsibility is the feeling of being your own boss and not having to double-check all your decisions. (7 items; Split-half Coefficient of Reliability: .46))

Reward is the feeling of being rewarded for a job well done, the perceived fairness of pay and promotion policies and emphasis on positive rewards instead of punishment. (6 items; Split-half Coefficient of Reliability: .81)

Warmth is the feeling of general good fellowship that prevails in the work-group atmosphere with the emphasis on being well liked and the prevalence of friendly and informal social groups. (5 items: Split-half Coefficient of Reliability: .81)

Support is the perceived helpfulness of the managers and other employees with an emphasis on mutual support from above and below. (5 items: Split-half Coefficient of Reliability: .77)

Identity is the feeling that you belong to a working team. (4 items; Split-half Coefficient of Reliability: .81) (Muchinsky, 1976; Rogers, 1980; Sims & LaFollette, 1975)

The 4-point Likert scale was retained. Items were averaged for each subtest. The average score from all nine subtests were averaged to calculate a composite score

Motivational Orientation

After reviewing the literature, it was suggested that an orientation of self as learner would be necessary for self-directed learning. The motivational orientation dichotomy was selected as a tool for differentiating learning goals from performance goals. It was assumed that persons who choose learning goals would see themselves as a learner.

Motivational orientation characterizes a person's view of intelligence as either stable or changeable which in turn influences behavior. (Dweck and Bempechat, 1983) An entity theorist believes that intelligence is a stable and global trait that is judged by other people. They are concerned with looking smart or not making mistakes and therefore tend to prefer tasks that are easy or will make them look competent. Incremental theorists believe that intelligence is a dynamic repertoire of skills which they can expand or improve through their own effort. They are concerned with how much they will learn and are often bored or disappointed with easy tasks.

Confidence level will also affect actions. An entity theorist with low confidence will engage in helpless behavior to avoid negative judgments. Persons displaying helpless behavior do so when events are perceived as being uncontrollable. They do not initiate behaviors that could control the events but instead become passive and accepting. The more important the event the more likely it is to produce helplessness. (Alloy and Seligman, 1979; Seligman, 1975)

Entity theorists with high confidence will engage in mastery oriented behavior. Incremental theorists of both high and low confidence also engage in mastery oriented

behavior. But while the behavior is the same the goals are different: performance versus learning. Therefore two mastery patterns emerge: a performance oriented one and a learning oriented one. The difference between the two patterns is most apparent in difficult situations where there may be repeated failure. Incremental theorists focus on finding better strategies while entity theorists demonstrate helpless patterns which interfere with learning. (Dweck and Bempechat, 1983; Zelman, 1985)

The original conceptualization of and research in motivational orientation involved children. Using The Intellectual Achievement Responsibility (IAR) scale (Crandall, Katkovsky & Crandall, 1965), children were divided into two groups based on the extent to which they assumed responsibility for positive events versus blame for negative events (mastery versus helpless). The two groups were assessed while solving problems. Two patterns emerged, one organized around evaluations of ability and the other around the acquisition of ability. Most of the children in the group assessed by the IAR as helpless reacted to difficulties in the tasks by interpreting their errors as indicative of insufficient ability and as predictive of future failure. For many, the statements implied generalized incompetence (e.g. "I'm not smart enough"). The mastery group focused on how to overcome errors and were more positive about future successes. The mastery group also recalled more successes and fewer failures than the helpless group, even though each group experienced the same number of successes and failures. Similar results have been reported by Bandura and Dweck (1981), Dweck and Elliott (1983), Elliot and Dweck (1981) and Dweck, Tenney and Dinces (cited in Dweck & Bempechat, 1983). The first scale to identify entity and incremental learners was

developed by Dweck and Leggett (1985) and consisted of ten forced-choice items. The scale was later revised by Zelman (1986) for use with adults. Zelman recommended changing the forced-choice questions to a Likert scale. It has been the researcher's experience through administering the Myers Briggs Personality Type Indicator and other psychological tests that adults will answer forced-choice questions if the nature of such questions is explained first. Zelman also reported problems with items and suggested further rewording. For this study, the questions used were reworded, for example "smart grown-ups were usually smart kids" was reworded to "intelligent adults were usually intelligent children". Additional questions were developed by the researcher based on the characteristics of each group. For example "Learning something new makes me feel intelligent" and "Completing a task correctly makes me feel intelligent". A total of 17 forced-choice questions were used. The responses were averaged.

Job Related Self-Directed Learning

Self-directed learners take the initiative to initiate, plan, implement and evaluate their own learning. They require a set of skills, a process and an attitude. (Schuttenberg and Tracy, 1987) The learner must accept control of the learning process rather than abdicate the responsibility to others. (Long, 1990)

For the purpose of this exploratory study, the measurement sought was one that would indicate behaviors associated with self-directed learning in the context of the workplace. To date, measurement of self directed learning has focused on the number of self-directed learning projects, readiness for self-

directed learning and the personality characteristics of self-directed learners. (Brockett, 1985; Oddi, 1986; Oddi, Ellis & Roberson, 1990; Tough, 1979) Neither of these approaches were considered appropriate for this study. Asking employees to identify learning projects implied a large scale learning endeavor with a definite beginning and end. If job-related self-directed learning is an attitude of actively pursuing change and accepting responsibility for learning, then such learning will not necessarily have a beginning and an end but will be ongoing. Also, employees will, for the most part, be familiar with the major components of their jobs. Learning therefore will be focused on improving competency, acquiring new knowledge and skills in areas of their job that are changing, or preparing for an eventual job change. Again, such learning cannot be easily identified as a project but is more ongoing in nature, reflecting the basic assumption of employee responsibility for learning. The instruments based on personality characteristics, such as the Oddi Continuing Learning Inventory and the Self-Directed Learning Readiness Scale, do not measure actual self-directed learning behavior.

As no instrument to measure self-directed learning behaviors in the workplace was available, the researcher compiled a list of behaviors or actions that would indicate self-directedness. The behaviors were based on the self-initiated use of print and nonprint resources and willingness to seek solutions and ask questions. The survey consisted of 15 items, five of which were reverse scored. Respondents used a 5 point Likert scale to rate frequency of use from 1 (never) to 5 (constantly).

Future Trends

This research was based on the assumption that continued learning, especially in the workplace, is important and necessary. It was considered useful to check if employees shared this assumption. Eleven statements that reflect the view that the world is constantly changing and people must be able to continually learn were written by the researcher. Respondents were asked to rate the extent to which they agreed or disagreed with each item using a 5-point Likert scale.

Data Collection

Subjects were recruited from organizations and associations in the Edmonton area. A list of associations and organizations was made from the Yellow pages of the telephone directory. Associations were asked if a researcher could attend a regular meeting of the group and ask members to complete the survey at that time. This approach ensured that all surveys distributed were completed. It was decided to use associations, as opposed to recruiting within companies, so that a wider variety of organizational climate scores could be obtained. Also, it was felt that persons would be feel more comfortable answering questions about their employer when the employer was not known to the researcher. After a brief explanation of the research and the survey design, participants completed the survey in a group setting and returned the completed survey to an assistant of the researcher.

Data Analysis

Organization Climate, Motivational Orientation, Job Involvement and Job Related Learning

As this is an exploratory study, factor analysis was chosen as the primary analytical technique. Factor analysis can help locate and identify common properties, or latent variables, that underlie tests and measures. It tells the researcher what measures are together in order to aid understanding the pattern of interrelationships among the variables. (Kerlinger, 1979; Kerlinger, 1986) In exploratory factor analysis, the results provide a tool for consolidating variables and for generating hypotheses about relationships. If factor analysis suggests that the tests used in this research measure

something in common, then further research in the area would be warranted in order to explore more rigorously the underlying common properties and to test hypotheses suggested by those common properties. Factor analysis, then, is a first step in exploring an area to determine if there is any basis for further study and if so, what hypotheses could be tested.

Data were averaged to compute a single score for motivational orientation, organization climate, and job related learning. For job involvement three scores were averaged: psychological identification, performance-self-esteem and hopelessness. Organizational climate was also broken down into nine subscales: esprit, production emphasis, thrust, consideration, reward, support, identity, responsibility and warmth. Job related learning was also divided into three scores: print resources, non-print resources and willingness to seek solutions and ask questions.

Measures were analyzed using principal component analysis and varimax rotation. Tabachnick and Fidell (1983) have suggested principal component analysis and varimax rotation as methods used by many researchers in beginning or exploratory studies. Nunnally (1978) has suggested that if principal component analysis and varimax rotation does not provide a clear factor solution, then it is unlikely such a solution would be obtained through other methods. Principal component analysis transforms the given set of variables into a new set of composite variables that are uncorrelated to each other. The maximum amount of variance is extracted as each factor is calculated with the result that the first factor extracts the most variance, the second the next most variance, and so on. The principal component method,

unlike common factor analysis, does not require any assumptions about the underlying structure of the variables but simply asks what the best linear combination of variables would be. The first factor then is the one that accounts for the most variance. The second factor is the second best linear combination with that factor being orthogonal to first. That is to say, the second factor accounts for variance not accounted for by the first one. The alternative extraction method considered was classical-factor analysis. For this method, it is assumed that any correlation between two variables is due to common factors and that the unique portion is not related to any other variable or to that part of itself which is due to the common factor. (Harman, 1976; Kerlinger, 1986; Nie, et. al., 1975) Due to the exploratory nature of this research, the researcher was not prepared to accept those assumptions.

Varimax rotation is one of three commonly used orthogonal rotations that maintains the independence of the factors. Varimax rotation tries to maximize the variance of loadings and results in components that are easier to identify in terms of the original variables but harder to interpret in relation to other components. After rotation, the first factor no longer accounts for the maximum variance. Quartimax rotation has the opposite effect: it is easier to relate the components to each other but harder to related the components to the original variables. Equamax rotation tries to compromise the preceding two. (Harman, 1976; Nie et.al., 1975) Varimax was chosen for ease of interpretation of the factors.

Future Trends

Frequency of responses for each of the Future Trends items was calculated and reported as percentages. The 1 - 5 Likert scale was compressed to three categories: Disagree (1-2), Mid (3) and Agree (4-5). The Future Trends items were classified into two groups. The first group, containing 7 items, include items that directly related to work. The second group, with 4 items, contained general items. Items were arranged from most agreement to least agreement.

In order to see if agreement or disagreement with the Future Trends items was related to Job Related Learning, Job Involvement Organizational Climate and Motivational Orientation measures, the mean score for each of these scales by response to the Future Trend item was calculated. Only items where no response category was 5 or less was used, leaving five items to be included. In order to explore if the differences were significant, an one way analysis of variance was used with significance determined using a randomization test procedure. This procedure determines significant differences based on the properties of the sample groups as opposed to using published significance tables which require assumptions to be made about the population from which the sample was drawn.

CHAPTER IV

ANALYSIS OF DATA

Screening the Data

Missing Data

With the exception of Future Trends, all measurements were the average of the items answered for that measurement, so there were no missing data. The number of missed items was extremely small so it was felt that the average of items answered was adequate.

Outliers

Univariate outliers were detected by standardizing all measures. Using the criteria suggested by Tabachnick and Fidell (1983), a standard score of ± 3 was used as a cutoff point for outliers. Three cases involving different measures were identified. These cases were changed to a standardized score of 3 as recommended by Tabachnick and Fidell (1983). The factor analyses were repeated with only minor changes (less than .20) in loadings so the original scores were used for the final analysis. No method was available for testing for multivariate outliers.

Sample Size

Seventy subjects participated in the study. It is recognized that the size was small, however with the exception of the first factor analysis, the sample size meets what Kerlinger (1986) refers to as a loose but not bad rule-of-thumb: ten subjects for each variable.

Factorability of R

Inspection of the correlation matrices revealed several correlations in excess of .30. Although most correlations were not very high, it was felt that due to the exploratory nature of the research the analysis would continue.

Normality and Linearity

As stated by Tabachnick and Fidell (1983) assumptions regarding the distributions of variable are not required as long as the factor analysis is being used to describe a sample or to summarize the relationships in a set of observed variables. Normality will, however, enhance the solution. The skewness of each measure was examined. Using the standard error for skewness and the z distribution, it was determined that a skewness value exceeding .77 in absolute value would be skewed. One measure, esteem, had a skewness value of -0.854. Visual inspection of the distribution confirmed moderate negative skewness. Following the procedures recommended by Tabachnick and Fidell (1983) the measure was "reflexed" to a positive skewness and transformed using the square root. Because of

this procedure a higher esteem measure reflects less importance of job performance to self-esteem.

Factor Analyses

FA1: JRL, Job Involvement, Organizational Climate Subscales and Motivational Orientation

In the first factor analyses, all measures being explored were entered into the analysis. Four factors were extracted. The correlation matrix, Eigenvalues, loading matrix with communalities and percents of variance are reproduced in Table 1. Variables were well defined by the solution as can be seen from the communalities. Using loadings in excess of .45, no variables were excluded from the solution. None of the variables were complex. The percent of total variance explained by the four factors was 70.

Factor 1, which explain 37% of the variance, has eight of the nine Organizational Climate (OC) subscales loading with Job Related Learning just below the cut-off point, loading moderately (.400). The only OC subscale not present is productivity.

Factor 2, which explains 13% of the variance has the three Job Involvement scales loading with Job Related Learning failing to load (.387). The different direction for Hopelessness and Esteem is because lower scores reflect higher Job Involvement.

Only two variables load on Factor 3, Motivation and Job Related Learning. The correlation between Motivation and Job Related Learning

Table 1

**Factor Analysis 1: JRL, Job Involvement, Organizational Climate
Subscales and Motivational Orientation**

MATRIX TO BE FACTORED

	RESP	JRL	PSYCHID	HOPELESS	MOTIVAT
JRL	0.197	1.000			
PSYCHID	0.007	0.252	1.000		
HOPELESS	0.023	-0.355	-0.356	1.000	
MOTIVAT	0.089	-0.371	-0.046	0.034	1.000
IDENTITY	0.402	0.398	0.005	-0.327	-0.144
CONSID	0.334	0.417	0.174	-0.254	-0.011
ESPRIT	0.421	0.321	-0.174	-0.118	-0.082
PRODUCT	0.022	0.094	0.066	0.115	0.012
REWARD	0.333	0.389	0.030	-0.278	0.030
SUPPORT	0.296	0.384	0.065	-0.263	-0.083
THRUST	0.260	0.294	-0.069	-0.116	0.046
WARMTH	0.372	0.318	-0.093	-0.133	0.013
ESTEEM	-0.012	-0.212	-0.159	0.328	-0.034

	INDENT	CONSID	ESPRIT	PRODUCT	REWARD
CONSID	0.574	1.000			
ESPRIT	0.705	0.615	1.000		
PRODUCT	-0.328	-0.037	-0.164	1.000	
REWARD	0.524	0.683	0.703	-0.029	1.000
SUPPORT	0.748	0.683	0.689	-0.264	0.669
THRUST	0.572	0.803	0.715	-0.140	0.709
WARMTH	0.650	0.542	0.674	-0.296	0.567
ESTEEM	-0.126	-0.162	-0.028	0.035	-0.149

	SUPPORT	THRUST	WARMTH
THRUST	0.692	1.000	
WARMTH	0.663	0.706	1.000
ESTEEM	-0.130	-0.239	-0.198

EIGENVALUES

1	2	3	4	5
5.568	1.769	1.220	1.186	0.905
6	7	8	9	10
0.799	0.626	0.421	0.373	0.332
11	12	13	14	
0.296	0.236	0.160	0.109	

ROTATED LOADINGS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	h ²
JRL	0.400	0.387	0.611	0.215	0.725
IDENTITY	0.741	0.131	0.252	-0.358	0.758
CONSIDERATION	0.819	0.251	0.047	0.117	0.750
ESPRIT	0.872	-0.122	0.128	-0.127	0.808
RESPONSIBILITY	0.545	-0.121	-0.051	0.170	0.343
REWARD	0.827	0.172	0.006	0.095	0.723
SUPPORT	0.809	0.164	0.157	-0.241	0.764
THRUST	0.872	0.089	-0.087	-0.066	0.780
WARMTH	0.789	0.034	-0.002	-0.300	0.714
PSYCHOL. IDENT.	-0.089	0.695	0.137	0.223	0.559
ESTEEM	-0.117	-0.646	0.178	0.096	0.472
HOPELESSNESS	-0.131	-0.775	-0.135	0.172	0.666
MOTIVATION	0.052	0.059	-0.912	0.069	0.843
PRODUCTIVITY	-0.096	-0.026	0.018	0.910	0.838
Percent of					
Varlance					
Explained	37.203	13.084	9.935	9.372	

is low (.371) and while motivation is not correlated with any other variables, Job Related Learning has similar correlations with other variables. These patterns make the factor difficult to interpret, however for the purpose of exploring the variance shared with JRL, this factor can be labeled as Motivational Orientation.

Factor 4 is limited to one variable, Productivity, suggesting that it is a separate construct, not related to the other variables.

All but one Organizational Climate scale loaded on Factor 1, the three Job Involvement scores loaded on Factor 2, Motivational Orientation loaded on Factor 3, and the remaining Organizational Climate Score on Factor 4. The Job Related Learning score loaded on Factor 3. Factor 1 can be defined as Organizational Climate and Factor 2 as Job Involvement. The remaining two factors are difficult to interpret as two or less items loaded. Motivational Orientation clearly loading on Factor 3 with JRL gives some evidence that the two variables share variance. The solution, however, may not be reliable because of the small sample size in relation to the number of variables.

FA2: JRL, Job Involvement, Organizational Climate Composite Score and Motivational Orientation

In order to enhance the solution by reducing the number of observed variables, in the second factor analysis the OC subscales were replaced by a composite score that reflects the average of the subscales. Three factors were extracted. The correlation matrix, Eigenvalues, loading matrix with communalities and percents of variance are reproduced in Table 2.

Table 2

**Factor Analysis 2: JRL, Job Involvement, Organizational Climate
Composite Score and Motivational Orientation**

MATRIX TO BE FACTORED

	JRL	PSYCHID	HOPELESS	MOTIVAT	ORGANCL
PSYCHID	0.252	1.000			
HOPELESS	-0.355	-0.356	1.000		
MOTIVAT	0.371	-0.046	0.034	1.000	
ORGANCL	0.446	-0.002	-0.234	-0.029	1.000
ESTEEM	-0.212	-0.159	0.328	-0.034	-0.164

EIGENVALUES

1	2	3	4	5
2.085	1.179	1.021	0.769	0.561
6				
0.385				

ROTATED LOADINGS

	FACTOR 1	FACTOR 2	FACTOR 3	h ²
JRL	0.350	0.574	-0.565	0.771
PSYCHOL. IDENT	0.808	0.191	0.245	0.749
HOPELESSNESS	0.743	-0.023	0.288	0.636
ESTEEM	0.546	0.261	0.372	0.505
MOTIVATION	0.029	-0.906	0.016	0.822
ORGAN. CLIMATE	0.023	0.057	-0.893	0.801
Percent of				
Variance				
Explained	27.099	20.995	23.323	

Variables were well defined by the solution as can be seen from the communalities. Using loadings in excess of .45, all variables were included in the solution with Job Related Learning being complex. The percent of total variance explained by the three factors was 71.

Factor 1, which explains 27% of the variance, has the three Job Involvement variables loading: Psychological Identification, Performance-Self-Esteem and Hopelessness. The opposite direction for Hopelessness and Performance-Self-Esteem is because lower scores reflect higher Job Involvement.

Factor 2, which explains 21% of the variance, had only two variables loading: Motivation and Job Related Learning. The correlation between Motivation and Job Related Learning was low (.371) and while motivation was not correlated with any other variables, Job Related Learning had similar correlations with other variables. These patterns make the factor difficult to interpret.

Factor 3, which explains 23% of the variance, had two variables loading: OC composite score and Job Related Learning. The correlation between OC composite and Job Related Learning was low (.446) and while OC was not correlated with any other variables, Job Related Learning had similar correlations with other variables. As in Factor 2, these patterns make interpretation difficult.

Given that Motivational Orientation and Organizational Climate clearly loaded on different factors, Factors 2 and 3 can be tentatively defined as Motivational Orientation and Organizational Climate, with JRL sharing some variance with each. Factor 1 appears to represent Job Involvement with JRL failing to load at .350. This solution suggested some evidence of an association between JRL and Motivational

Orientation and JRL and Organizational Climate. JRL also shared some variance with the Job Involvement factor(12%) but failed to meet the cut-off point.

FA3: JRL:Print, JRL:Nonprint, JRL: Willingness, Job Involvement, Organizational Climate Composite Score and Motivational Orientation

In the previous factor analysis, JRL was complex, loading on two factors. In an attempt to explore the possibility of a pure variable, the JRL variable was divided into three scores: Print (JRL:Print), Nonprint (JRL:Nonprint) and Willingness (JRL:Willingness). The Print variable is the average of the responses to questions describing behaviors that involve using print materials such as books, magazines, manuals and journals. The Nonprint variable involved other resources such as people and courses. Willingness included items about their willingness to seek solutions to problems and ask questions.

Three factors were extracted. The correlation matrix, Eigenvalues, loading matrix with communalities and percents of variance are reproduced in Table 3. Variables were well defined by the solution as can be seen from the communalities. Using loadings in excess of .45, all variables were included in the solution. Two of the variables, Hopelessness and JRL:Nonprint were complex. The percent of total variance explained by the three factors was 64.

Factor 1, which explains 25% of the variance, is defined by Hopelessness, Performance-Self-Esteem, Organizational Climate,

Table 3

Factor Analysis 3: JRL:Print, JRL:Nonprint, JRL:Willingness, Job Involvement, Organizational Climate Composite Score and Motivational Orientation

MATRIX TO BE FACTORED

	PSYCHID	HOPELESS	MOTIVAT	ORGANCL	PRINT
HOPELESS	-0.356	1.000			
MOTIVAT	-0.046	0.034	1.000		
ORGANCL	-0.002	-0.234	-0.029	1.000	
PRINT	0.310	-0.213	-0.345	0.368	1.000
ESTEEM	-0.159	0.328	-0.034	-0.164	-0.037
NONPRINT	0.174	-0.236	-0.329	0.351	0.517
WILLINGNESS	0.018	-0.455	-0.121	0.297	0.151

	ESTEEM	NONPRINT
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NONPRINT	-0.242	1.000
WILLINGNESS	-0.281	0.426

EIGENVALUES

1	2	3	4	5
2.654	1.340	1.121	0.878	0.724
6	7	8		
0.548	0.398	0.338		

ROTATED LOADINGS

	FACTOR 1	FACTOR 2	FACTOR 3	h ²
HOPELESSNESS	-0.616	-0.017	0.532	0.663
ESTEEM	-0.630	0.169	0.286	0.507
ORGAN. CLIMATE	0.578	0.354	0.189	0.495
NONPRINT	0.471	0.668	-0.062	0.672
WILLINGNESS	0.787	0.153	0.052	0.645
PRINT	0.130	0.797	-0.263	0.721
MOTIVATION	0.098	-0.731	-0.031	0.663
PSYCHOL. IDENT	0.020	0.172	-0.914	0.865
Percent of				
Varianc Explained	24.735	22.787	16.416	

JRL:Willingness and JRL:Nonprint. In this factor, Performance-Self-Esteem and Hopeless are in opposite directions indicating higher Job Involvement.

Factor 2, which explains 23% of the variance, is defined by Motivational Orientation, JRL:Print, and JRL:Nonprint. The opposite direction of Motivational Orientation indicates a more Incremental orientation with higher values of the other variables.

Factor 3, which explains 16% of the variance, is defined by Psychological Identification and Hopelessness.

As can be seen by comparing this factor analysis with the solution obtained from the second factor analysis, splitting JRL into components has resulted in only one of the three JRL scores being complex. One of the Job Involvement scores, Hopelessness, became complex and along with Performance-Self-Esteem had higher loadings with Organizational Climate than the remaining Job Involvement variable.

The first factor indicates that the JRL:Willingness and JRL:Nonprint scores shared variance with Organizational Climate and two of the job Involvement scores. The Willingness score indicates an employees willingness to seek solutions to problems and ask questions. Three of the four items that make up this score specify seeking solutions and the fourth item refers to asking other people. The JRL:Nonprint score involves interacting with the people and goes beyond the workplace to include people working for other companies and taking courses. Interacting with other people in the workplace means interacting with the environment and therefore the organizational climate. The negative Hopelessness score indicates an attitude of not having given up which is consistent with be willing

to seek solutions. The negative Performance-Self-Esteems reflects the important of job performance to a persons sense of self worth. JRL:Willingness and JRL:Nonprint, then, are associated with lack of a negative or hopeless attitude, a need to perform well in order to feel good about oneself, and a supportive climate. JRL:Nonprint is also included Factor 2 where it has a higher loading. It could be that it also appeared in Factor 1 because it shares with the some of the other variables the necessity of interacting with other people. Alternatively, Willingness and Nonprint may share something in common with Performance-Self-Esteem. The need to perform well to maintain self-esteem may be motivation behind willingness and use of nonprint resources. Employees may seek solutions and ask questions in order to improve performance which in turn maintains self-esteem. Employees may use Nonprint resources as a way of seeking approval or confirmation of good performance. Asking for feedback and taking courses, then, is not so much to learn as to verify that they already know.

While is not possible, based on this research, to establish cause and effect or to elaborate on the nature of the relationship between these variables, one could speculate that willingness and use of nonprint resources is more likely when the climate is positive, the employee has not given up and performance is important to self-esteem. Of course, it may also be that willingness in employees, use of nonprint resources and a need for high performance result in a more positive climate. There may also be a relationship between climate and hopeless with a more positive climate being less likely to result in hopelessness. Lack of hopelessness may also be the result of willingness and not effected by climate.

The second factor indicates shared variance between Motivational Orientation, JRL:Print and JRL:Nonprint. The opposite direction of Motivational Orientation indicates a more Incremental orientation with higher reported use of print and nonprint resources. This is consistent with the model of Motivational Orientation. Those with an Incremental Orientation are concerned with learning while those with an Entity orientation are concerned with looking good. When the concern is for looking good, learning that involves risks and possible failure will be avoided. Entity theorists are more likely to concentrate on doing a task right and avoid any changes that might bring failure. Learning that has not been specified by the employer may result in unnecessary failure when trying a new method. Learning may also take away time that could be spent doing more work. Incremental theorists are not worried about failing or producing more as long as they are learning, therefore they may be more likely to want to learn new things even if job performance suffers.

Factor 2 also supports the previous suggestion that JRL:Nonprint may be associated with Performance-Self-Esteem. It was suggested that use of nonprint resources may reflect approval seeking behavior in order to enhance or maintain self-esteem. Use of print resources, which is a solitary activity with no feedback or interaction with others, does not supply feedback from others. It could be that use of print resources is related to learning for the sake of learning, which is consistent with the Incremental orientation. Nonprint resources could be used for either purpose, hence the loading on both factors. Factor 2, then, may represent learning for the sake of learning while Factor 1 represents learning for the sake of maintaining self-esteem.

Factor 3, with only one item loading, is not interpretable but is important in that the item, Psychological Identification, failed to load with any of the JRL variables.

This factor solution suggests that Motivational Orientation is associated with using print and nonprint resources and that Organizational Climate and two of the Job Involvement measures are associated with an willingness to seek solutions and ask questions and use nonprint resources. It was suggested in the literature review that three conditions should exist for job related learning to occur: (1) seeing self as learner (Motivational Orientation), (2) learning goals that are consistent with self-esteem (Job Involvement), and (3) freedom from threat (Organizational Climate). This solution suggests that the first condition is associated with the use print and nonprint resources and could be viewed as learning for the sake of learning. The second and third conditions are associated with a willingness to seek solutions and ask questions as well as use of nonprint resources. Although it is not possible at this point to know the nature and direction of these relationships, it was suggested that it could be viewed as learning for the sake of maintaining or enhancing self-esteem. Organizational climate could be viewed as also supporting self-esteem or could be viewed as the result of the employees' efforts to maintain or enhance self-esteem.

FA4: Organizational Climate Subscales

The Organizational Climate Subscales were factor analyzed to examine their structure and determine if a subset of scales could be used for further analysis.

Two factors were extracted. The correlation matrix, Eigenvalues, loading matrix with communalities and percents of variance are reproduced in Table 4.

Except for Responsibility, variables are also well defined by the solution as can be seen from the communalities. Using loadings in excess of .64, one variable, Responsibility, was excluded from the solution. Factor 1 was defined by all but Responsibility and Productivity. Factor 2 was defined only by Productivity. The percent of total variance explained by the two factors was 71%.

As previous research has indicated that neither Responsibility nor Productivity are necessarily related to job attitudes, both these variables were dropped and a new variable (OrganFA) based on the remaining seven scales was calculated. (Waters, L.K., et. al., 1974)

Table 4

Factor Analysis 4: Organizational Climate Subscales

MATRIX TO BE FACTORED

	RESP	IDENTITY	CONSID	ESPRIT	PRODUCT
IDENTITY	0.402	1.000			
CONSID	0.334	0.574	1.000		
ESPRIT	0.421	0.705	0.615	1.000	
PRODUCT	-0.022	-0.328	-0.037	-0.164	1.000
REWARD	0.333	0.524	0.683	0.703	-0.029
SUPPORT	0.296	0.748	0.683	0.689	-0.264
THRUST	0.260	0.572	0.803	0.715	-0.140
WARMTH	0.372	0.650	0.542	0.674	-0.296

	REWARD	SUPPORT	THRUST
SUPPORT	0.669	1.000	
THRUST	0.709	0.692	1.000
WARMTH	0.567	0.663	0.706

EIGENVALUES

1	2	3	4	5
5.224	1.121	0.860	0.432	0.410
6	7	8	9	
0.367	0.272	0.187	0.125	

ROTATED LOADINGS

	FACTOR 1	FACTOR 2	h ²
IDENTITY	0.722	0.456	0.729
CONSID	0.860	-0.303	0.740
ESPRIT	0.846	0.198	0.755
REWARD	0.854	-0.041	0.731
SUPPORT	0.808	0.333	0.764
THRUST	0.870	0.111	0.769
WARMTH	0.741	0.390	0.701
RESP	0.504	-0.016	0.254
PRODUCTIVITY	0.006	-0.950	0.903
Percent of Variance			
Explained	54.657	15.851	

FA5: JRL:Print, JRL:Nonprint, JRL:Willingness, Job Involvement, Organizational Climate Factor and Motivational Orientation

FA3 was repeated using the new Organizational Climate variable OrganFA. Three factors were extracted. The correlation matrix, Eigenvalues, loading matrix with communalities and percents of variance are reproduced in Table 5. Variables were well defined by the solution as can be seen from the communalities. Using loadings in excess of .45, all variables were included in the solution. Two variables were complex: Hopelessness and JRL:Nonprint. The percent of total variance explained by the three factors was 64. This solution was virtually identical to the one produced with the Organizational Climate Composite score so no further discussion is warranted.

Summary of the Solutions

As a single score, JRL loaded with both Motivational Orientation and Organizational Climate. Dividing JRL into three scores resulted in Nonprint and Print loading with Motivational Orientation and Willingness and Nonprint loading Organizational Climate, Hopelessness and Performance-Self-Esteem. Psychological Identification failed to load with any JRL score. These results suggest evidence of a relationship between the JRL and all but one of variables explored. The results also suggest the need to separate type of resources used and the willingness to seek solutions and ask questions. It was suggested that Factor 1 could represent learning for sake of maintaining or improving self-esteem while Factor 2 might represent learning for the sake of learning.

Table 5

Factor Analysis 5: JRL:Print, JRL:Nonprint, JRL:Willingness, Job Involvement, Organizational Climate Factor Score and Motivational Orientation

MATRIX TO BE FACTORED

	PSYCHID	HOPELESS	MOTIVAT	PRINT	ORGANFA
HOPELESSNESS	0.356	1.000			
MOTIVAT	0.046	0.034	1.000		
PRINT	0.310	-0.213	-0.345	1.000	
ORGANFA	0.010	-0.258	-0.043	0.345	1.000
ESTEEM	0.159	-0.328	-0.034	-0.037	-0.173
NONPRINT	0.174	0.236	-0.329	0.517	0.331
WILLINGNESS	0.018	-0.455	-0.121	0.151	0.318

	ESTEEM	NONPRINT
NONPRINT	0.242	1.000
WILLINGNESS	0.281	0.426

EIGENVALUES

1	2	3	4	5
2.655	1.340	1.129	0.848	0.722
6	7	8		
0.567	0.401	0.338		

ROTATED LOADINGS

	FACTOR 1	FACTOR 2	FACTOR 3	h ²
ORGANFA	0.612	0.311	0.172	0.501
ESTEEM	-0.615	0.174	0.306	0.502
WILLINGNESS	0.791	0.151	0.042	0.650
HOPELESSNESS	-0.612	-0.014	0.534	0.660
NONPRINT	0.466	0.662	-0.081	0.662
MOTIVATION	0.076	-0.745	-0.056	0.564
PRINT	0.131	0.790	-0.273	0.699
PSYCHOL. IDENT	-0.038	0.172	-0.915	0.868
Percent of				
Varianc Explained	24.941	22.470	16.650	

Future Trends

Summary of Data

Future Trends items were divided into work and general items. Items were rated on a scale of 1 to 5 from strongly disagree to strongly agree. Responses were combined into three categories: disagree (rating of 1 or 2), mid (rating of 3), and agree (rating of 4 or 5). An examination of Table 6 data reveals three work items to which only 1% of the respondents disagreed. These items emphasized the need for employees to adapt to a changing workplace. As to the amount of change in their work and their ability to keep pace with pace, 26% disagreed that their work was constantly changing and 69% disagreed that they had difficulty keeping up with the changes. Only 41% agreed that their work was constantly changing and 5% agreed that they were having difficulty keeping up with the changes. So while they agreed with the need to adapt to changes, they did not see the amount of changes as especially high. The remaining two items reflected the extent to which employees or employers are responsible for workers adapting to the changes. While 79% agreed that employers prefer workers who can learn new knowledge and skills on their own, 55% agreed that employers have full responsibility for educating employees when changes occur. So it appears that even though learning on one's own is desirable, the employer is perceived as having the ultimate responsibility.

Table 6

**Future Trends: Agreement to Future Trends
in Work Related Items - percentage**

	Disagree	Mid	Agree
It is important for employees to keep up with changes in the work place.	1	3	96
In order to remain competitive, workers must be able to learn new knowledge and skills.	1	3	96
In order to remain competitive workers must be able to acquire new knowledge and skills with minimal direction and input from their employers.	1	3	96
Employers prefer workers who can learn new knowledge and skills on their own	4	17	79
Employers have the full responsibility for educating employees when changes occur that affect their work.	21	24	55
My work and the way I do it are constantly changing.	26	33	41
I find it difficult to keep up with all the changes in my work environment.	69	26	5

Examination of the Future Trends general items in Table 7 reveals few respondents who disagreed about the need to learn one's own. Only 4% disagreed that teaching children how to learn is more important than teaching specific content and 11% disagreed that the ability to learn on one's own is a prerequisite for living in our world. As for the pace of change, only 39% agreed that the world is changing so fast that people who cannot learn will not survive. Thirty-four disagreed while 27% choose the mid-range response. As with the work item "My work and the way I do it are constantly changing", responses were fairly evenly spread across the three categories. The item on the usefulness of what children learn in school today also had a spread of responses, with 46% who disagreed that what children learn today would not be useful in twenty years, 22 percent who choose the mid-range responses and 32% who agreed. Unfortunately, without knowing what they perceive is being taught, it is difficult to interpret the responses. As with the work items, then, the respondents agreed with the need the adapt to changes but did not perceive the amount the changes as being especially high.

Table 7

**Future Trends: Agreement to Future Trends
in General Items - percentage**

	Disagree	Mid	Agree
It is more important to teach children how to learn than to teach them specific content.	4	19	77
The ability to learn on one's own is a prerequisite for living in our world.	11	32	57
The world is changing so fast that people who cannot learn will not survive.	34	27	39
What children learn in school today will not be useful in twenty years.	46	22	32

Future Trends and Job Related Learning

The mean Job Related Learning scores for the disagree, mid and agree Future Trends response categories were calculated for items where no responses category had less than 5 respondents. Five items met that criteria, however the item concerning the usefulness of what children learn was dropped because of its ambiguity. Table 8 data shows the mean scores for Job Related Learning, JRL:Print, JRL:Nonprint and JRL:Willingness in each of the categories. Initial examination of the data reveals several differences in mean scores between the three response groups. In order to explore the differences, a one way analysis of variance and randomization test procedures were used to assess differences.

An examination of Table 8 data reveals two items for which future exploration might be useful. For the item "My work and the way I do it are constantly changing", the respondents who agreed had higher scores for all four job related learning measures, suggesting a relationship between the perceived amount of change and self-directed learning efforts. For the item "Employers have the full responsibility for educating employees when changes occur that affect their work" the respondents who agreed had lower scores for JRL and JRL:Nonprint than those in the disagree and mid ranges, suggesting that those who perceive the employer responsible may consider that they therefore have no responsibility.

Table 8

Mean Job Related Learning Scores by Response to Selected Future Trends Questions
Italics indicate $p < .10$

	Disagree	Mid	Agree	
My work and the way I do it are constantly changing.	N=18	N=23	N=29	
JRL	<i>3.078</i>	<i>3.033</i>	<i>3.529</i>	p = .09
PRINT	<i>2.622</i>	<i>2.748</i>	<i>3.357</i>	p = .01
NONPRINT	<i>3.028</i>	<i>3.030</i>	<i>3.369</i>	p = .05
WILLINGNESS	<i>3.722</i>	<i>3.533</i>	<i>3.982</i>	p = .03

Employers have the full responsibility for educating employees when changes occur that affect their work.

N=14 N=17 N=37

JRL	<i>3.410</i>	<i>3.502</i>	<i>3.072</i>	p = .02
PRINT	3.086	3.165	2.826	p = .42
NONPRINT	<i>3.357</i>	<i>3.539</i>	<i>2.928</i>	p = .01
WILLINGNESS	<i>3.893</i>	<i>3.868</i>	<i>3.671</i>	p = .39

The ability to learn on one's own is a prerequisite for living in our world.

N=8 N=22 N=40

JRL	3.100	3.194	3.309	p = .58
PRINT	3.150	2.927	2.944	p = .82
NONPRINT	2.729	3.198	3.244	p = .31
WILLINGNESS	3.594	3.648	3.865	p = .30

The world is changing so fast that people who cannot learn will not survive.

N = 22 N = 19 N = 27

JRL	3.252	3.316	3.200	p = .81
PRINT	3.148	2.905	2.844	p = .53
NONPRINT	3.144	3.246	3.136	p = .84
WILLINGNESS	3.652	3.934	3.741	p = .34

Future Trends and Job Involvement Scores

The mean Job Involvement scores for the disagree, mid and agree Future Trends response categories were calculated for items where no responses category had less than 5 respondents. Five items met that criteria, with the one item being dropped as for the JRL scores.

An examination of Table 9 data reveals two items for which the Psychological Identification scores differed across the three groups. Those who agreed that their work was constantly changing and disagreed that employers were responsible for training them had higher Psychological Identification scores. Those who agreed that their own work was constantly changing also reported lower Hopelessness scores. Performance-Self-Esteem differed on one item, indicating that those who felt that learning on one's own is a prerequisite for living in this world had higher Performance-Self-Esteem, as indicated by the lower score.

Future Trends and Motivational Orientation

As in the previous sections, four items were analyzed. Examination of Table 10 data reveals only one item for which the Motivational Orientation scores differed. Those who agreed that their work was constantly changing had a lower score, indicating a more Incremental response.

Table 9

Mean Job Involvement Scores by Response to Selected Future Trends Questions
Italics indicate $p < .10$

	Disagree	Mid	Agree	
My work and the way I do it are constantly changing.	N=18	N=23	N=29	
PSYCHOLOGICAL	<i>2.433</i>	<i>2.691</i>	<i>3.093</i>	$p = .01$
ESTEEM	1.218	1.218	1.211	$p = .72$
HOPELESSNESS	<i>2.611</i>	<i>2.290</i>	<i>1.774</i>	$p = .01$
Employers have the full responsibility for educating employees when changes occur that affect their work.	N=14	N=17	N=37	
PSYCHOLOGICAL	<i>3.243</i>	<i>2.694</i>	<i>2.661</i>	$p = .03$
ESTEEM	1.210	1.210	1.233	$p = .65$
HOPELESSNESS	2.167	1.902	2.281	$p = .24$
The ability to learn on one's own is a prerequisite for living in our world.	N=8	N=22	N=40	
PSYCHOLOGICAL	2.625	2.950	2.728	$p = .48$
ESTEEM	<i>1.343</i>	<i>1.249</i>	<i>1.170</i>	$p = .05$
HOPELESSNESS	2.417	2.242	2.068	$p = .55$
The world is changing so fast that people who cannot learn will not survive.	N=22	N=19	N=27	
PSYCHOLOGICAL	2.813	2.905	2.681	$p = .58$
ESTEEM	1.189	1.226	1.230	$p = .74$
HOPELESSNESS	2.130	1.912	2.370	$p = .23$

Table 10

Mean Motivational Orientation Scores by Response to Selected Future Trends Questions
Italics indicate $p < .05$

	Disagree	Mid	Agree	
My work and the way I do it are constantly changing.	N=18	N=23	N=29	
MOTIV. ORIENT.	<i>1.263</i>	<i>1.302</i>	<i>1.185</i>	<i>p = .04</i>
Employers have the full responsibility for educating employees when changes occur that affect their work.	N=14	N=17	N=37	
MOTIV. ORIENT.	<i>1.302</i>	<i>1.221</i>	<i>1.233</i>	<i>p = .35</i>
The ability to learn on one's own is a prerequisite for living in our world.	N=8	N=22	N=40	
MOTIV. ORIENT.	<i>1.199</i>	<i>1.238</i>	<i>1.257</i>	<i>p = .67</i>
The world is changing so fast that people who cannot learn will not survive.	N=23	N=19	N=27	
MOTIV. ORIENT.	<i>1.250</i>	<i>1.218</i>	<i>1.258</i>	<i>p = .25</i>

Future Trends and Organization Climate

Again, four items were analyzed. An examination of Table 11 data reveals one item that could be useful in future research. Those who agreed that employers have the full responsibility for educating employees had an Organizational Climate score of 2.577, while those who choose the disagree or mid response were 2.892 and 2.796 respectively. The higher Organization Climate scores, then, were found in the groups who did not perceive their employers as having full responsibility for educating them.

Items with JRL Ranks Differing

The two items for which JRL, JRL:Print, JRL:Nonprint or JRL:Willingness had different mean ranks between the response groups were examined for possible explanations of job related learning behavior.

The analysis of the item "My work and the way I do are constantly changing" reveals that for 7 of the 9 scales the three groups had different responses. Those who agreed with the item had higher Psychological Identification, JRL, JRL:Print, JRL:Nonprint and JRL:Willingness ranks, and lower motivational orientation and hopelessness ranks. Those persons who agreed then, indicated a higher frequency of job related learning activities, higher job involvement through a stronger indication that their job is central to their psychological identity and less hopelessness and a more Incremental motivational orientation . It is not possible at this point to determine causality or direction of these relationships. It does seem reasonable to suggest, however, that different levels of job related learning, job involvement and direction of motivational orientation are present for people who have different perceptions of the amount of

Table 11

Mean Organizational Climate Scores by Response to Selected Future Trends Questions
Italics indicate $p < .05$

	Disagree	Mid	Agree	
My work and the way I do it are constantly changing.	N=18	N=23	N=29	
ORGAN. CLIMATE	2.613	2.613	2.817	p = .42
Employers have the full responsibility for educating employees when changes occur that affect their work.	N=14	N=17	N=37	
ORGAN. CLIMATE	2.894	2.796	2.577	p = .05
The ability to learn on one's own is a prerequisite for living in our world.	N=8	N=22	N=40	
MOTIV. ORIENT.	2.462	2.677	2.756	p = .67
The world is changing so fast that people who cannot learn will not survive.	N=23	N=19	N=27	
MOTIV. ORIENT.	2.724	2.693	2.678	p = .25

change in their work. Inclusion of a variable that measures perceived change in a person's work could therefore enhance a factor analytic solution.

While the above data suggested that those who agreed that their work was constantly changing had higher JRL mean ranks than those who did not, the converse, that those with the highest JRL scores agreed that their work was constantly changing, can not be stated. In order to explore the converse relationship, the Job Related Learning scores were divided into three categories: high, mid and low. In the absence of any established criteria, the cut-off point used was one that roughly divided the subjects into equal groups. As can be seen in Table 12, of the 25 persons in the highest JRL group, 14 agreed that their work was constantly changing, 6 chose the mid range and 5 disagreed, suggesting that those with the highest JRL also tended to agree with the item. This finding is consistent with models of changes, such as the Concerns-Based Adoption Model (Hall and Loucks, 1978), that specify the first step to change or learning is the awareness of the need to change.

The analysis of the item "Employers have full responsibility for educating employees when changes occur that affect their work" reveals that 4 of the 9 scales had differences between response groups. Those who agreed with the item had lower JRL, JRL:Nonprint, Organizational Climate and Psychological Identification scores. The lower JRL and JRL:Nonprint scores are consistent with the underlying assumption of job related learning that employees are responsible for their learning. If the worker perceives that the employer is responsible for educating them, then they would be less likely to take courses and ask others for information. The lower Psychological Identification mean score is also consistent with assigning responsibility for learning to the employer. If an employee's job is not central to his or her identity, that is to say it is just a paycheck, then it is unlikely that he or she would assume responsibility for learning.

The failure of JRL:Print to differ indicates that perception of who is responsible does not affect using print resources. This further supports that previous suggestion that use of print resources may be learning for the learning: It does not matter if I have to, I will anyway. The failure of JRL:Willingness to differ suggests that willingness is not associated with perceived responsibility.

Because this item differentiates two of the JRL scores, Organizational Climate and Psychological Identification, inclusion of a variable that measures perceived responsibility for education could enhance a factor analytic solution

Comparison and Summary of Future Trends

Participants were divided into three groups based on their responses to the Future Trends items. For each of the three groups, the mean rank score for JRL, JRL:Print, JRL:Nonprint, JRL:Willingness, the three Job Involvement measures, Organizational Climate and Motivational Orientation were calculated. Differences among the groups for each the variables were assessed. Two items had responses on JRL, JRL:Print, JRL:Nonprint, or JRL:Willingness that were different across the response groups and were suggested for inclusion in future research. The first of these items indicated the potential importance of need in relation to job related learning, job involvement and motivational orientation. The second item provided support for the suggestion that learning for the sake of learning may underlie job related learning behaviors.

Job Related Learning

Print Resources

An examination of Table 13 data reveals that only 19 to 38% of the respondents used print resources a lot, with 20 to 38% indicating the mid range. The majority of respondents did, however, indicate that what they read was used to solve problems or improve performance on their job. An examination of Table 14 data reveals that almost half the respondents who sometimes read magazines and journals did not look up material in order to solve a problem (12 of 26). The same relationship can be seen in Table 15 for reading books and looking up material (11 of 25).

Only 19% of the respondents indicated that they used books to help them solve people problems a lot and 24% sometimes. As can be seen from Table 17 data, those who rarely used books to solve people problems were fairly equally distributed in their responses to reading job related books: 17 of 39 rarely read job related books, 11 of 39 sometimes did, and 11 of 39 read job related books alot. Also, those who used books in general sometimes (25/69) or a lot (22/69) did not appear to do so in order to deal with people problems. Of the 22 persons who responded that they read job related books alot, 11 said it was rarely to solve people problems, 4 responded in the mid range and 7 indicated they used books alot to solve people problems. Those who did use books for people problems, however, also indicated that they used books in general: only 1 of the 13 persons who used books to solve people problems alot reported that they rarely read job related books. This suggests that print materials are primarily used for technical or task specific learning as opposed to or in addition to solving interpersonal problems.

Table 13

Job Related Learning: Agreement to Use of Print Resources
Percentage of employees who responded

	Rarely	Mid	A lot
I read magazines and journals that are related to my job.	24	38	38
I read books that are related to my job	32	36	32
I use information that I have read to solve problems or improve performance on my job.	19	20	61
When I have a problem to solve on my job, I look up the subject in books and magazines (excluding manuals that are available at work.)	44	23	33
When I am having problems dealing with people at work, I try to find a course or book that can help me.	57	24	19

Table 14

**Frequency of Responses: Use Books and Magazines to Solve
Problems (rows)
by Read Magazines and Journals
(columns)**

	Rarely	Mid	A lot	Total
Rarely	13	12	5	30
Mid	1	7	8	16
A lot	3	7	13	23
Total	17	26	26	69

Table 15

**Frequency of Responses: Use Books and Magazines to Solve
Problems (rows)
by Read Job Related Books (columns)**

	Rarely	Mid	A lot	Total
Rarely	16	11	3	30
Mid	2	5	9	16
A lot	4	9	10	23
Total	22	25	22	69

Table 16

Frequency of Responses: Use Books to Solve People Problems (rows)
by Read Job Related Books (columns)

	Rarely	Mid	A lot	Total
Rarely	17	11	11	39
Mid	4	9	4	17
A lot	1	5	7	13
Total	22	25	22	69

Nonprint Resources

Examination of Table 17 data reveals that the nonprint resource used least was contacts in other companies. The resources used most were discussing problems and performance with co-workers and superiors. This suggests a preference for interacting with co-workers and superiors.

Willingness to Seek Information

Examination of Table 18 data reveals that a higher percentage of respondents indicated a general willingness to seek information than indicated a willingness to learn about changes. All respondents indicated that, at least some of the time, they tried to learn about things they did not know how to do however 28% indicated that they almost always waited for someone to explain new products or procedures. This suggests that the respondents react differently when a change is introduced, perhaps assuming that the employer is responsible when changes occur.

Table 17

Job Related Learning: Agreement to Use of Nonprint Resources
Percentage of employees who responded

	Rarely	Mid	A lot
I check the course calendars from local institutions for job related courses.	31	33	36
I take job related courses even if the company will not pay for them.	26	26	48
I have contacts in other companies that I can call for information, advice, and so forth.	57	14	29
I discuss work problems and ways to improve performance with my co-workers.	19	29	52
I ask my peers and superiors for feedback on my performance.	18	33	49
When I need information or advice, I go see the expert in the office rather than asking my boss.	31	29	40

Table 18

Job Related Learning: Agreement to Willingness to Seek Information
Percentage of employees who responded

	Rarely	Mid	A lot
Whenever a new product or procedure is introduced into my job, I do not wait for someone more knowledgeable than I to explain it to me.	28	30	42
I ask a lot of questions about how things work.	14	19	67
When I don't know how to do something, I do not rely on someone else to do it for me.	16	20	64
When I don't know how to do something, I try to learn about it.	0	13	87

Demographic Data

Demographic data were collected but because of the small sample size and several persons who would not complete the personal information section , it was not used for analysis. For the information of the reader, however, a brief description of the sample is provided.

Sixty percent of the respondents were female. Thirty-seven percent were age 20 to 29, 30% between age 30 and 39, 20% between 40 and 49. One person was over 49 years old and 8 declined to answer the question. The majority of the respondents earned between \$20,000 and \$39,999. Sixty-seven percent indicated that they had attained a postsecondary degree, diploma or graduate degree.

Summary of Results

1. Seeing self as a learner, as measured by Motivational Orientation, was associated with higher reported use of print and nonprint resources.
2. Higher Organizational Climate scores were associated with higher reported use of nonprint resources and willingness.
3. The importance of work performance to self-esteem (Psychological Identification) and a lack of hopelessness were associated with higher reported use of nonprint resources and willingness.
4. There was an association among perceiving work as constantly changing, all job related learning measures, 2 of the 3 Job Involvement measures, and seeing self as learner, as measured by Motivational Orientation.
5. Perceiving employee training as an employer responsibility was associated with lower use of nonprint resources, lower Psychological Identification, and a less positive organizational climate.

CHAPTER V

DISCUSSION

The Problem

The purpose of this research was to explore factors that might influence job related self-directed learning. It was suggested in the literature review that self-directedness requires learning goals that are valued and consistent with self-concept, an environment that is perceived as providing trust relationships and freedom from threat, and an orientation of self as learner. Using Motivational Orientation, Job Involvement and Organizational Climate scores as indicators of these factors, a series of factor analyses were used to determine any pattern of interrelationships among the variables.

Factors Influencing Job Related Learning

In the analyses, JRL as a single score loaded with both Motivational Orientation and Organizational Climate. Dividing JRL into three scores resulted in Nonprint and Print loading with Motivational Orientation and Willingness and Nonprint loading with Organizational Climate, Hopelessness and Performance-Self-Esteem. Psychological Identification failed to load with any JRL score. These results suggested evidence of a relationship between the JRL and all but one of variables explored. The results also suggested the need to separate type of resources used and

the willingness to seek solutions and ask questions. It was suggested that Factor 1 could represent learning for sake of maintaining or improving self-esteem while Factor 2 might represent learning for the sake of learning.

Organizational Climate, Performance-Self-Esteem and Hopelessness

Organizational Climate was used as an indicator of an environment that was free of threat. Performance-Self-Esteem and Hopelessness are two of the three measures of a person's job being consistent with self-esteem. Use of nonprint resources and a willingness to seek solutions was associated with a positive Organizational Climate, high Performance-Self-Esteem and lack of hopelessness. As noted previously, it is not possible at this point to establish the direction and nature of these relationships. Several possibilities, however, can be suggested.

- (1) A positive organizational climate and high job involvement may increase use of nonprint resources and willingness.
- (2) A positive organizational climate may increase both job involvement and the associated learning activities.
- (3) Use of nonprint resources, willingness and/or high job-involvement may result in a more positive organizational climate.
- (4) The learning activities may increase both job involvement and organizational climate.

It was suggested in the literature review that self-directed learning requires an environment free from threat and learning goals that are consistent with self-concept. To the extent that the Organizational Climate and Job Involvement scores measure these conditions, then it can be assumed that only (1) and (2) above would be valid explanations. Further research would be needed, however, to confirm those explanations.

The relationship between use of nonprint resources and organizational climate is consistent with the need for a nonthreatening environment for learning to reduce threat. Persons using nonprint resources, for example discussing work problems with co-workers and superiors, may need an organizational climate that is not perceived as threatening to reduce the risk of such interactions. One is unlikely to seek such information in a hostile environment. Using print resources, on the other hand, does not require interaction with others. It can be done in isolation regardless of the surrounding climate.

The inclusion of Performance-Self-Esteem on the Organizational Climate factor suggests that the behaviors associated with nonprint resources could be associated with approval seeking. Those with high Performance-Self-Esteem may be dependent on job performance for their sense of worth. They may require constant feedback that they are doing okay. If this is the case the behaviors identified as job related learning may not have been undertaken for the purpose of learning.

Kasworm's (1986) comparison of self-directed learning and lifespan development can be used to support the existence of learning based on approval seeking. She has suggested that stage of development influences use of knowledge. For example, using Kohlberg's stages of moral development, individuals move

through six stages for which Kasworm has identified a corresponding use of knowledge. (Good & Brophy, 1980) At the obedience-punishment and egoism stages, persons behave morally in a fashion which avoids punishment and achieves personal needs. The corresponding use of knowledge is as a means to concrete ends. At the third stage, the 'good-boy' orientation, moral decisions are made to obtain approval. Education would also be for approval: social approval, appearance, status and meeting the expectations of significant others. The fourth stage is adherence to authority. Morally the emphasis is on obeying the law. In terms of education, learning is for competence and to achieve standards of excellence. In the fifth stage, persons morally move beyond authority and rules to consider wider social contracts. Stage six is characterized by an adherence to internal consistent general principles of conscience which are distinguished from legality. The corresponding use of knowledge is for self-knowledge and self-development. The higher levels of development appear to be associated with learning for the sake of learning while the lower levels suggest learning for approval or to achieve performance goals. This suggests a possible relationship between developmental stages such as Kohlberg's Stages of Moral Development, Performance-Self-Esteem and Motivational Orientation.

An alternative explanation to approval seeking behavior is maintaining and enhancing self-esteem. In the literature review it was suggested that learning needs to consistent with self-esteem. There is a difference, however, between activities that are necessary for positive self-esteem and activities that are directed by or consistent with self-esteem. In the former, learning activities take place in order to receive the approval needed for positive self-esteem. In other words, positive

self-esteem is not based on the person's own assessment but is dependent on others saying "You are a good person." Such a position is usually found in persons with negative self-esteem and Tough (1979) found in his research that negative self-esteem, among other things, can be a barrier to learning. In the latter, self-esteem defines the amount of learning by designating appropriate learning goals. A person's self-concept is a description of their perceived roles and characteristics with self-esteem being the evaluation of those roles and characteristics. For example, a person's self-concept may include the roles of salesperson, parent, gardener and writer and the characteristics of co-operative, outgoing and conservative. Self-esteem is the evaluation and ranking of the roles and characteristics. Parent may be the most important role, with gardener, writer and salesperson following in that order. Learning goals should be consistent with those roles and if choices need to be made, for example do I spend Saturday at a sales seminar or take the kids to the museum, the activity that is consistent with the most valued role will likely be chosen. In this case, the person's self-esteem is not based on what others think, but is internally derived.

The three items comprising the Performance-Self-Esteem score do not differentiate between performance that is consistent with self-esteem and performance that is necessary for self-esteem. The question "I feel good when I perform my job well" could be agreed to by those who need the positive feedback for positive self-esteem and by those whose self-concept includes and highly values their job role. So while the factor analytic solution suggested a relationship between job related learning and performance-self-esteem, it is not known if the

relationship is due to learning that is consistent with self-esteem as was suggested in the literature review.

Examination of the correlation matrix suggests that Performance-Self-Esteem may not have the largest influence on JRL:Nonprint. Use of nonprint resources had a higher correlation with Organizational Climate than Performance-Self-Esteem. It could be that use of nonprint resources is a reflection of a need to socialize or interact with others, with a positive climate supporting such interactions. Willingness, with only one item that refers to asking other people, does not appear to be related to a need to socialize. This suggestion is consistent Houle's (1961) typing of individuals into three groups based on their purposes and values of continuing education. The *activity-oriented* group takes part in learning in order to interact with others. They tend to be nonreaders which would explain the lower reported use of print resources. The *learning-oriented* group seek knowledge for its own sake which is similar to the motivational orientation factor. The final group, *goal oriented* learners, engage in learning to achieve a specific objective, tend to limit reading to material relevant to their goal and use a variety of resources. Their use of a variety of resources suggests that they would be similar to the motivational orientation factor. What is unknown is if organizational climate affects goal oriented learners. For example, does a positive organizational climate create goal oriented learners? Does a negative organizational climate inhibit those who would otherwise be goal oriented learners?

Socializing, or interacting with others, as a part of the reported use of nonprint resources is also consistent with the Myers Briggs Personality Type dichotomy of Introvert and Extrovert. (Keirsey & Bates, 1984; Myers, 1977; Myers &

McCaulley, 1985) Introverts get their energy from being alone and tend to process information and ideas in their heads. Extroverts get their energy from being with people and tend to process information and ideas orally. Introverts, when dealing with a problem, will solve it in their head. Others around them may never know that a problem exists. Extroverts will solve the problem out loud. Only the deaf will be unaware of their situation. It could be, then, that Extraverts use more nonprint resources when the organizational climate is conducive to such activity while Introverts will prefer nonprint resources regardless of the organizational climate. This is not to suggest that one group will exclusively use one type of resources. The designation of Introvert and Extravert is not absolute but rather reflects a tendency, or preference, of varying strengths. As no one is just Introverted or just Extroverted, no one will use just one type of resource.

Motivational Orientation

The Motivational Orientation factor suggested that a more Incremental orientation was associated with using both print and nonprint resources but not willingness. Those with an Incremental Orientation focus on learning as opposed to those with an Entity Orientation who focus performance. It would be expected that Incremental theorists would engage in more learning activities. Entity theorists would likely spend that time to do more. For example, rather than reading a manual, an Entity learner may spend the time retyping a schedule that is covered with corrections, just as an Entity school child will spend time creating an elaborate cover page for a report.

Print resources only loaded with Motivational Orientation while nonprint resources loaded with both factors. It could be that use of print resources has no direct or visible pay back or feedback, a condition that would not bother Incremental learners as their concern is with learning not looking good.

Those with an Entity Motivational Orientation have a need to be successful however Motivational Orientation and Performance-Self-Esteem were not related. According to Motivational Orientation theory, the Entity theorists' need to look smart is based on their belief that intelligence is a stable trait that is judged by other people. Entity theorists with high confidence will seek positive judgements from others and will, unless faced with repeated failure, choose mastery patterns that are similar to Incremental Theorists. Entity theorists with low confidence will try to avoid negative judgements and engage in helpless behavior. Entity theorists with high confidence may therefore be expected to engage in learning activities for the purpose of seeking approval while those with low confidence would tend to avoid self-directed learning activities. If the Entity theorists in this research were mostly low in confidence, then that would explain why they were associated with non-use of resources and not approval seeking behavior.

Psychological Identification

Psychological Identification loaded on Factor 3 with Hopelessness also loading. While it is difficult to interpret a factor with only two variables, its lack of association with job related learning suggests that having strong ties to a job is not associated with job related learning. It is possible that having strong job ties is not related to self-esteem and therefore does not effect job related learning. Such

tendencies could reflect the so-called Protestant Work Ethic: I am expected to work hard and therefore my job is an important part of my life. Also, scores on this variable were low, indicating that most subjects did not have strong psychological identification with their job. If the mean score was higher, indicating more people with stronger ties, then this variable may have loaded with the JRL variables.

Implications for the Workplace

It is recognized that, because the findings of the research cannot be generalized to the population and the conclusions are tentative, changes in the workplace cannot reasonably be undertaken as the result of this study. However, a discussion of what those changes would look like if the findings are confirmed through later research is appropriate.

In terms of organizational climate, if one assumes that organizational climate affects job related learning the implication is obvious: a more positive climate may result in more willingness to seek solutions and more nonprint resources being used by those employees who are inclined to do so. While a comprehensive discussion of methods to improve organizational climate is beyond the scope of this research, the direction of the desired changes can be outlined. Organizational climate is the result of people interactions and systems. The people interactions include employee to employee and employee to superior. A positive climate would be one where such interactions are not threatening but instead encourage the honest, open exchanges necessary for learning and growth. In a workplace with the ideal climate for learning, an employee requesting performance feedback from a supervisor would receive objective remarks from a supervisor willing to help the employee overcome any deficiencies. For example, in the not ideal workplace, an employee may be told

that their attitude needs improvement and they had better "shape up or ship out". In an ideal climate, specific behaviors would be cited, for example "The last three projects you did were completed late and over budget", and the supervisor would engage in joint problem solving with the employee to decide how to overcome the problem. Such an approach requires a management philosophy that respects workers as responsible people who are willing and capable of learning and growing through their own self-direction and self-direction, or the so called Theory Y Management Philosophy. As noted by Knowles (1984), this is the management philosophy that is most compatible with organismic models of adult education. To implement such a philosophy supervisors should be well trained in listening skills, coaching and counseling techniques, and describing objective behaviors.

The systems that influence organizational climate include Performance Appraisals or Reviews, policies and procedures, wage negotiations, and promotional or hiring criteria. For a positive climate, these systems should be ones that recognize the individual's worth and allow employees an opportunity to communicate with management, not just receive instructions. Performance Review systems, then, need to allow for a two way exchange based on objective behaviorally based data. Policies and procedures must be flexible enough to allow for individual thought and action and open to challenge. Salaries and promotions should be based on objective criteria that is well understood by the employees, regardless of union involvement. Creating systems that are supportive of learning requires that the organization be willing to recognize the potential value of employee input and engage in two way communication. Once again, a Theory Y Management Philosophy is most consistent with systems that support self-directed learning.

Improving the organizational climate could result in more nonprint resources being used. While it has been suggested that not all people may want to use nonprint resources, improving the climate may allow those who do greater opportunity.

In terms of motivational orientation, the implications are less obvious. As motivational orientation is an individual characteristic, employers have little, if any, control over it. If, as suggested, those with a more Incremental orientation are more likely to use print and nonprint resources, unlike organizational climate there is nothing the organization can easily do to increase that trait in any particular person. Employers could use their recruitment procedures to try to hire people with a more Incremental orientation. For example, organizations could try to recruit people who have established a pattern of learning through hobbies, volunteer work and recreation. Otherwise, the only implication for the workplace is to make sure that sufficient resources are readily available for employees wishing to use them. Manuals, journals and other print materials should be readily available; a single copy kept in the supervisor's office does not allow adequate access. Assistance should also be provided to help people use the resources. For example, some people are not familiar with using an index to locate information and scanning the Table of Contents to understand the format of the book. Course calendars should also be available at the workplace. Employees should, at the least, not be discouraged from making contacts in other companies. Where feasible, companies could encourage employees to join professional associations or social groups that bring together workers in similar jobs. Opportunities for groups of workers to meet and discuss production problems would also be useful. Access to both print and nonprint resources may be reduced for employees working in remote or isolated situations.

Companies should ensure resources are available for those employees as well. Bringing field or night workers into the office on a regular basis will improve their access to nonprint resources. Print resources can easily be made available at remote sites. It is important to keep in mind, however, that not all employees will want to use all these resources. Those who prefer to use print over nonprint resources should have opportunity to do so.

Implications for Further Research

Given that the three JRL scores did not load together, the distinction among them should be maintained. It would be useful at this point to compile a set of items that reflect each of these three areas and administer them to a large enough sample so that the responses could be factor analyzed to see if the three areas are separate and to explore the possibility of other distinctions. The items could be compiled by first interviewing employees to request examples of learning activities that they engage in at work.

The reasons for nonprint resources loading on two factors while print resources loaded only with Motivational Orientation need to be explored. Two possible explanations were given for nonprint resources loading on different two different factors: use of nonprint resources reflects in part a need to socialize or reflects a need to maintain or enhance self-esteem, either instead of or in addition to learning. A measure of the need for approval would help determine the relationship of nonprint resources to Factor 1. Using the Myers Briggs Personality Inventory may help to identify the need to socialize.

Other factors that may influence the type of resources used and the amount they are used should be investigated. For example the Myers Briggs could be useful in

determining if selection of nonprint resources is influenced by factors other than the ones investigated in this research. The Myers Briggs Personality Inventory can also be used to suggest other explanations for job related learning and the use of print versus nonprint resources. The Sensor-Intuitive trait describes how a person takes in information. Sensors use the five senses. What they can see, touch, smell, hear and taste is what is real. They tend to stay grounded in the factual here and now, focusing on immediate reality. Their motto is often "If it ain't broke, don't fix it!" Intuitives take in information through a "sixth" sense, seeing possibilities, the future, and how things might be. They enjoy using models and theory, look at the big picture and often create their own unique solutions rather than finding one that someone else has already developed. Even if it "ain't broke", Intuitives will try to make it better. Sensors are doers while Intuitive are the dreamers and schemers. Given the Sensors' preference for the factual, hands-on, here and now, they may be more likely to use nonprint resources in pursuit of an immediate answer. Print resources may have too much theory, abstraction and information not directly related to what they want to know. Their hands-on nature may also lead them to "learn by doing" instead of reading about it. Using nonprint resources often makes it faster to get an answer and get back to "doing". Intuitives, on the other hand, like models, theories and the big picture. Print materials are often full of information from this perspective. They also do not want a single answer that someone else has declared as right, but like to create their own. This trait may also draw them to print materials as opposed to other people.

The third Myers Brigg's trait that may influence job related learning is the lifestyle preferences of Perception and Judgment. The Judgment preference is for a

structured, orderly lifestyle. Judgment types like to decide what is to be done, thought, believed, and so on, and then get on with it. The Perception preference is for a more spontaneous lifestyle. Whatever happens happens; there is no need to control life. Those with a Perception preference are also very curious and prefer gathering information about what is to be done, thought and believed over actually deciding. The Perceivers curiosity may lead them to do more job related learning, often going beyond what is necessary for the immediate goal. Judgers may restrict their learning activities to what they have decided is required. For example, if the goal was to learn how to use a word processing package to produce labels, the Judger might get the manual, read the appropriate section and commence producing the labels. A Perceiver may also read about merging documents, write a program on a data base package to do the same thing, and try different label sizes just to see how it works. Perceivers, then, may engage in more learning activities while Judgers will be more efficient in using resource. No evidence was found that supported one group using different resources, however the researcher's personal experience, having used the Myers Briggs with hundreds of participants in workshops, has been that more Judgers attend workshops, even though they comprise 50% of the general population. The reason may be that Perceivers do not like the structured format of classroom learning, preferring to wander on their own. It could be also be that due to their spontaneous lifestyle, which leads many with a Judgment preference to believe they have no concept of time, they never got around to signing up for the workshop.

Factor 2 was tentatively described as learning for the sake of learning. A measure of this tendency would be useful to clarify this interpretation. Asking

workers to identify their reasons for engaging in job related learning activities may help to clarify the existence of learning for the sake of learning.

Future research should differentiate high and low confidence subjects to determine if high confidence entity theorists display approval seeking behavior. This pattern, if present, would support the interpretation of factor 1 as being learning for approval or as necessary for self-esteem as opposed to learning that is consistent with self-esteem.

The direction of the relationships between Hopelessness, Performance-Self-Esteem, JRL:Willingness and Organizational Climate should be investigated. Monitoring the two Job Involvement scores and JRL:Willingness in an organization where the climate is being improved through direct intervention could supply useful information. The opposite treatment could also be tried. Attempts could be made to increase Job Involvement and JRL:Willingness with climate being the dependent variable.

Future studies with larger groups may result in a sample with a higher mean Psychological Identification score. Such a group is needed to determine if persons with higher Psychological Identification scores than the ones reported in this study engage in more job related learning.

Future Trends

Respondents were asked to indicate their amount of agreement or disagreement with eleven items that reflected the view that the world is constantly changing and people must be able to continually learn. Items were either directly related to work or more general in nature.

Work Items

An examination of the frequency of responses to the work related items reveals that while most respondents agreed with the need to adapt to changes they did not perceive the amount of changes in their work as being especially high nor did they agree that they had difficulty keeping up with changes. It is not known if the respondents' perceptions of the amount of changes were accurate. Under estimating could mean that employees are not attaching enough importance to changes, which could result in less effort to adapt to the changes.

Respondents were divided on who was responsible for educating employees when changes did occur. Fifty-five% agreed that the employer was responsible while 21% disagreed and 24% chose the mid range. So it appears that while employees recognized the need to change the employer was perceived as having the ultimate responsibility. Self-directed learning is based in part on the assumption that employees are responsible for their own learning. This suggests that attitudes towards responsibility need to change in order to increase job related self-directed learning.

General Items

As with the work items, respondents generally agreed with the need to learn but did not see the the amount of change as insurmountable. The lack of agreement with the amount of changes suggests that even though they agreed with the need to learn it may not have a high priority. The item "What children learn in school today will not be useful in twenty years" did not generate a high amount of agreement further supporting the view that the amount of change is not especially high. It is not known, however, what the respondents perceive is being taught in schools that will still be useful in twenty years. If they perceive that process and learning how to learn is being taught then that information would be useful in twenty years. If they perceive that content is being taught then assuming it will be useful in twenty years is to assume less change than the futurists. As indicated previously, this item needs to be reworded for future use in order to interpret responses.

My Work and the Way I Do It Are Constantly Changing

Participants were divided into three groups, disagree, mid and agree, based on their response to this item. The three groups were then compared on their mean score for each of the JRL, Organizational Climate and Job Involvement variables. The three groups differed for all but the Organization Climate and Performance-Self-Esteem scores.

The initial data suggested that who agreed that their work was constantly changing had higher JRL mean scores than those who did not. Further analysis reveals that those with the highest JRL score agreed that their work was constantly changing. The increased JRL scores for those who perceive their work as constantly changing

could be interpreted as the person engaging in more job learning activities because they perceived more need: I have to do these things to keep up with my changing job. Job related learning then becomes a reflection of the persons perceived need to learn.

It was suggested that this result is consistent with models of change that specify the first step to change or learning is the awareness of the need to change. This implies that employers need to ensure that employees are aware of and accept the need to change. Employees can participate in the implementation and testing of new procedures, the need can be demonstrated or explained, production or performance data can be compiled to highlight areas for improvement, and so on. Basically anything that allows employees to understand the reason behind the proposed changes or improvements should help increase the employees efforts to change. Employers can also raise the level of awareness of the need to learn by providing experiences that allow the employees to discover that their performance could improve. Knowles (1984) has suggested using appraisal systems, job rotation, exposure to role models and diagnostic performance assessments. A checklist of knowledge and skills required for expert performance is also useful. Such a checklist can be compile using task analysis or its newer version, life role analysis.

The Motivational Orientation for those agreeing was more Incremental than those who disagreed or chose the mid response. It could be that those with an Incremental orientation were more aware of the changes. It could also be that Incremental theorists, because of their focus on learning, introduce more changes to their jobs than those with an Entity orientation. It was not known if the changes rated were introduced by the employer or the employee. If Incremental theorists do introduce more changes, then organizations where change is required should prefer those with

an Incremental Orientation while those firms desiring to maintain the status quo should prefer Entity theorists. An interesting question for future research would be if Incremental theorists do introduce more changes to their job.

Hopelessness scores differed between the three response groups with those agreeing having the least feeling of hopelessness as indicated by the lower mean rank. This suggests that constant change was not responsible for the feeling of hopelessness. It could be that constant change reduces boredom which in turn reduces the hopeless feeling. Also, when jobs are constantly changing employees may have some chance to influence the type of change, giving them some sense of control over their job which may reduce hopelessness.

Psychological Identification was higher for those who agreed that their work was constantly changing. This variable was the only one that did not load with a JRL variable in the factor analyses. For people who agreed that their working is changing, however, JRL and Psychological Identification were higher than for the other groups, suggesting that Psychological Identification might be associated with JRL for those employees who perceive their work as constantly changing.

Employers Have the Full Responsibility for Educating Employees

Those who agreed with this item had lower JRL and JRL:Nonprint scores than the other two response groups, suggesting that assignment of responsibility for education to the employer reduced the amount job related learning. This is consistent with the underlying assumption of job related learning that employees are responsible for their own decisions, for their own lives. (Knowles, 1984) The

results suggest that changing perceptions of responsibility could be important to increasing job related learning.

The Organizational Climate scores also varied between the groups with those disagreeing having the highest mean score. This could reflect a situation where employees faced with a more threatening environment are less likely to assume responsibility. Alternatively, the responses could reflect the reality of the organization: the employer assumes responsibility for employee education, even though the employees feels he or she should be responsible. If the employer has assumed responsibility it could reflect a more autocratic organization which by definition would have a less positive climate. This item needs to be reworded to state "I feel that employers have the full responsibility . . ." in order to clarify the meaning of the responses.

Psychological Identification scores also varied with those disagreeing having a higher mean score than the other groups. Those who felt that employers were not totally responsible were more job involved on this scale. Assigning responsibility to others in a situation where a person is not personally involved seems reasonable.

This items also raises questions as to why Psychological Identification failed to load with the JRL variables in the factor analysis. It was suggested that the scores were too low and if subjects with higher scores were included the item might load differently. This result suggests an alternative interpretation that Psychological Identification and JRL may be associated among those who feel that their education is not the full responsibility of their employer and, as indicated in previous section, and among those who perceive their work as constantly changing.

What Children Learn in School Today Will Not Be Useful

As noted earlier, this item was not satisfactory. It is unclear what it is that is perceived as useful in twenty years. Because of this confusion, discussion is not appropriate and future use of this item in its current form is not recommended.

Promoting Self-Directedness in the Workplace

Self-directed learning was suggested as a method by which workers could meet demands of a changing work place without the expense of formal full time training. The study investigated some factors that influence self-directed learning activities and suggested that seeing self as learner, assuming responsibility for learning, perceiving the need to change, a positive organizational climate, a lack of hopelessness and perceiving job performance as important to self-esteem were associated with higher levels of job related self-directed learning activities. Organizations, then, should look at ways to promote these traits and conditions.

Promoting self-directedness and models of adult learning in the workplace requires organizations to replace the behaviorist based models currently favoured by most Human Resources Development Departments. Changing paradigms, however, is not always easy. While changes may occur, they are often what Watzlawick, Weakland and Fisch (1974) refer to as first order changes. Something happens but everything stays the same. Watzlawick, Weakland and Fisch compare first order changes to multiplying a number by one: you perform an operation but the outcome is the same as what you started with. Using set theory, they suggest that changes that are consistent with the rules governing the set result in maintaining the set. For example, if a set consists of the integers 1 to 12,

representing the hours on the face of a clock, any process of addition or subtraction results in a member of the set. Second order change is characterized by a change in the set itself and it is impossible to achieve without introducing something from outside the set. Mixing colors can be used as an example. If the only paints available are blue and yellow then the only set members are blue, yellow and green. You can spend a lot of time and energy mixing, or changing, colors but you can only produce various shades of green. Producing second order change, a color outside the set such as orange, requires the introduction of a paint outside the set: red. The same process can be seen in families. Bradshaw refers to family systems that are frozen and unchanging despite apparent attempts to change as dynamic homeostasis: "The more one tries to change it, the more it stays the same". (Bradshaw, 1988, p. 30) In family counseling, outside intervention is usually needed to produce second order change. The outside intervention can be in the form of counseling or may be an event that is outside of the normal range for the family, for example the death of a child.

Changing training paradigms to the new models of adult learning requires second order change. Merely changing the design or content of courses or declaring a new philosophy is unlikely to result in the type of change required. Something from outside the set needs to be introduced to facilitate the change. An example of second order change in industry will help illustrate this idea. Scandinavian Airlines went from a loss of \$17 million a year to a profit of \$54 million in one year. In monetary terms, that is a second order change. To accomplish the turn around, company president Jan Carlzon introduced a new set member: believing that the company should be customer-driven he turned the organizational chart upside down.

Those at the new top were the workers who had direct contact with the customer; they were put in charge of the company. The rest of the company worked for them. The most important goal was to make sure that those employees who had direct customer contact had what they needed to do that job. The company did not make minor changes to the way they did business. They did not add Customer Service workshops, implement pay for performance schemes or try other ways to motivate employees within the existing order. They created a new order.

A new order may be required to change training paradigms as well. Redesigning workshops to include more group work (participant input), adding computer based training modules (participant control), and using opening activities in workshops to communicate why people should take the course (establish relevance) are unlikely to result in a paradigm change. These are first order changes within the existing system. Changing paradigms is changing the system.

The results of this research indicated that seeing self as a learner, accepting the need and responsibility for learning, a positive organizational climate, a lack of hopelessness and the importance of work performance to self-esteem are all associated with higher reported levels of activities associated with self-directed learning. The suggestions made so far for implications in the workplace have been based in making changes to existing HRD systems. In order to facilitate second order change, however, it may be necessary to go beyond modifying the existing system to creating a new system based on the factors identified in this study. What is needed, then, is a system that encourages workers to see themselves as learners and accept the corresponding responsibility, enhances workers ability to see their work as important and therefore become more job involved and provides a supportive

organizational climate. One way to accomplish this is to eliminate Human Resources Development Departments and establish a Learning Resources Centre as a center of activity within the work unit. The Learning Resources Centre would shift the emphasis from teaching to encouraging and helping others to learn.

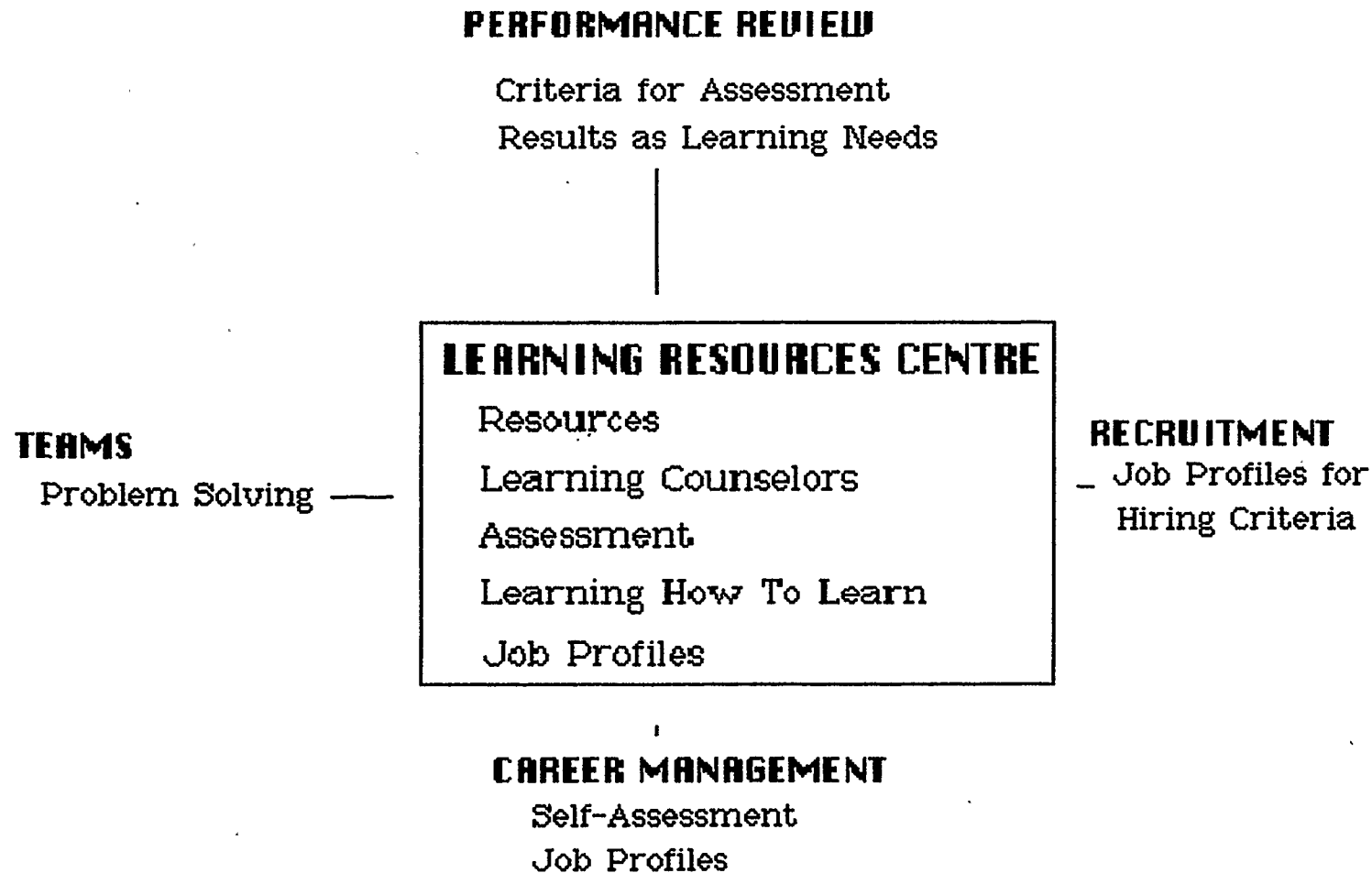
Learning Resources Centre

A Learning Resources Centre would not be part of Personnel tucked away in a separate corner, or as in some cases a separate building, but be a central and integral part of a work unit. The Centre's mandate would be to provide resources and assistance to help workers acquire new knowledge and skills in order to improve performance, solve problems and prepare for possible career moves. The Centre would use a variety of learning resources, self-assessment techniques, workshops and learning counselors in order to achieve its goals. The Centre would also be integrated with other systems such as Career Management/Human Resource Planning, Performance Appraisals, and Recruitment. Figure 1 illustrates the various components.

The Centre itself could be a physical entity, similar to a library or resource center, located at the major work site. For companies with a single major production or service activity, one Centre would be sufficient. For those companies with multiple sites or activities, for example major oil companies involved with exploration, production, and marketing, more than one Centre may be required. Conditions to consider are proximity of the work sites to each other and similarity of activities. For example, if work sites are located close to one another, then one Centre strategically located so that employees from all work sites would have

THE LEARNING ORGANIZATION

FIGURE 1: The Learning Organization



reasonable access would be sufficient. Even if there were no overlap in the work activities of the different sites, one centre with resources divided into different areas would be workable. As work sites become further apart physically and as the work itself becomes more divergent, the feasibility of one Centre decreases. For example, if a company had seven gas plants operating across Alberta, the cost for a Centre at each site would be unreasonably high. Given that the employees at each plant basically do the same jobs, there would be excessive replication of resources. Using current technology, however, the seven gas plants could easily be linked to one Centre, located at one of the plants or at head office where there may be better access to resources. Using computers, facsimiles, teleconferencing, and so on, workers at the sites could be in touch with each other and a learning counselor. A small resource library at each site would provide basic information. The Centre would maintain a larger selection of resources which could be distributed to the sites as requested.

The Centre could also be a person: a Learning Counselor that would work with employees to help them identify learning needs, acquire learning resources, and so on. If for example a company had seven totally different operations in seven different locations, a physical Centre may not be feasible. In this situation, the company may want to abandon the idea of the physical Centre, and instead provide a Learning Counselor, at least part time, for each site. Ideally, of course, supervisors would assume the role of learning counselor. While that may eventually occur as Naisbitt has predicted (1990), at the present time few supervisors are equipped to assume that role.

The management philosophy necessary for such a centre is one that would be open to change and respectful of employees capabilities to assume responsibility for their own development. The corresponding supervisory style would be to facilitate and counsel employees. A team approach, perhaps self-managed teams, would be a suitable structure for work units. Self-managed teams give employees the responsibility for managing the work area and therefore managing themselves. Open job postings and a Career Management system to replace more traditional Human Resources Planning systems would be required to give employees responsibility for their career development.

Giving employees responsibility requires that they be given access to relevant information. For career development and performance improvement they need information on what the organization expects from people in each of the jobs. A profile of each job should be available in the centre. The profile should outline the values, knowledge, processes and skills required for each position. Using a system such as Life Role Analysis, modified to eliminate the instructional design component added to facilitate workshop design, information about each job could be compiled. The profiles would be useful to employees for assessing current performance and researching career moves, to supervisors for performance appraisals and for recruitment criteria.

Other systems would liaison with the Centre. The results of an employees performance review can be used at the center for developing a training plan. Career Management could also be provided through the Centre which would provide information on jobs, career planning materials and assistance in developing learning

plans for anticipated career moves. Work teams would use the centre for solving problems they have identified.

The Centre would consist of Learning Counselors instead of Staff Development Officers and Trainers and a variety of resources. The Learning Counselors' job would be to develop a learning contract or plan with employees and to provide guidance in carrying out the plan. Need for learning would be determined through performance reviews, career plans, employee self-assessment using the job profile, and problems identified by work teams. The Learning Counselor would have to be familiar with models of adult learning, information sources, learning contracts, writing objectives, career development, problem solving models, counseling techniques, leading groups and learning skills. The Centre would contain books, tapes, videos, computer based training modules, lists of contact persons within and outside the organization, and other relevant sources of information.

Workshops and seminars would be offered but the emphasis would be on learning how to learn. Topics could include using resources, locating information using indexes and bibliographic systems, organizing, classifying and synthesizing information, generating ideas, creative brainstorming, developing a learning plan, thinking on paper, problem solving, learning styles, listening, writing, evaluation and so on. Workshops on career planning could also be included. Other workshops should be made available on a "as needed" basis. Instead of automatically providing a workshop whenever there is a change or problem, however, other alternatives would be considered.

People as resources would also be emphasized. A list of experts, both in-house and in other organizations, would be maintained. A peer tutoring system could be set

up and employees encouraged to use that service instead of requesting another workshop.

Self-assessment materials would encourage to employees to evaluate and monitor their own progress. The materials would include job profiles, career development self-assessment exercises and in-basket type activities. Administered tests, such as Myers Briggs Personality Inventory, would be available through the learning counselor.

The philosophy behind a Learning Resources Centre is to separate teaching from learning, putting learning at the centre of all activities. If learning should be ongoing, then it should not take place in the isolation of a training department on specified days of the year but should be an ongoing part of everyday life in an organization. The organization must go beyond being nonthreatening to encouraging learning by placing learning activities and resources in a central position, in terms of both physical location and attitude.

Change, especially major change, comes with a cost. . If effective, such a system could offer numerous benefits to offset the cost. The list of potential advantages include:

1. reducing hopelessness by giving employees control over career decisions, learning and job tasks.
2. encouraging employees to see themselves as learners.
3. increasing productivity by increasing skill levels and providing assistance in solving problems.
4. reducing the number of supervisors required by providing an alternative source of support for employees.

There are, of course, numerous problems that would be associated with changing to such a system. First, unions often oppose moves that increase employee responsibility, as they are now opposing self-managed teams. Successful implementation in a union shop would require a shift away from the current win-lose management-union negotiation style. Second, any major paradigm shift or change requires resources, such as time and money. Changes initially take more time and the organization must be prepared to reduce productivity or provide extra workers to accommodate the transition. Adequate financial resources must also be available to set-up the centre. Third, some workers may resist taking on the responsibility. In the long term, those attitudes could be changed through changes in the education system, from kindergarten to graduate school, that emphasize learner responsibility and an incremental orientation. In the meantime, workers will need considerable support, such as time and guidance, in order to adapt to the new system. Fourth, the commitment to learning as an integral part of everyday life must be absolute. Management philosophy and directions must be consistent with the underlying assumptions of employee responsibility, the importance of learning and respect for employees as valuable assets.

Recommendations for Future Research

It is recommended that similar research be conducted with a larger number of subjects, implementing the previous suggestions regarding wording changes and additional variables, such as need for approval and confidence level, to clarify relationships.

It is also recommend that future research in the area be expanded to include other factors such as The Myers Briggs Personality Inventory.

Future research should compare responses based on demographic information such as sex, income level, education, number of years in current job, and so on.

Union membership, which may influence attitudes towards responsibility for learning, should be included as a factor.

Experimental work should be done to determine the nature and direction of the relationships between Organizational Climate, Job Involvement, Motivational Orientation and Job Related Learning.

Qualitative studies based on interview data should be done to suggest additional job related self-directed learning activities and factors that could influence self-directedness.

Summary of Conclusions

1. The relationship between orientation of self as learner, organizational climate, job involvement and learning in the workplace warrant further research.
2. Use of print resources may reflect learning for the sake of learning while nonprint may also reflect a need for approval or a need to socialize.
3. The relationship between a person's perception of his or her work as constantly changing and learning activities should be explored.

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APPENDICES

APPENDIX A. SURVEYRESEARCH SURVEY ON
JOB RELATED LEARNING**FUTURE TRENDS**

Please indicate your degree of agreement or disagreement with the statements below using the scale of

1 (strongly disagree) to 5 (strongly agree)

- | | | | | | |
|---|---|---|---|---|---|
| 1. My work and the way I do it are constantly changing. | 1 | 2 | 3 | 4 | 5 |
| 2. I find it difficult to keep up with all the changes in my work environment. | 1 | 2 | 3 | 4 | 5 |
| 3. In order to remain competitive workers must be able to acquire new knowledge and skills with minimal direction and input from their employers. | 1 | 2 | 3 | 4 | 5 |
| 4. What children learn in school today will not be useful in twenty years. | 1 | 2 | 3 | 4 | 5 |
| 5. It is important for employees to keep up with changes in the work place. | 1 | 2 | 3 | 4 | 5 |
| 6. Employers prefer workers who can learn new knowledge and skills on their own. | 1 | 2 | 3 | 4 | 5 |
| 7. The world is changing so fast that people who cannot learn will not survive. | 1 | 2 | 3 | 4 | 5 |
| 8. Employers have the full responsibility for educating employees when changes occur that affect their work. | 1 | 2 | 3 | 4 | 5 |
| 9. It is more important to teach children how to learn than to teach them specific content. | 1 | 2 | 3 | 4 | 5 |
| 10. The ability to learn on one's own is a prerequisite for living in our world. | 1 | 2 | 3 | 4 | 5 |
| 11. In order to remain competitive, workers must be able to learn new knowledge and skills. | 1 | 2 | 3 | 4 | 5 |

JOB INVOLVEMENT

Please indicate your degree of agreement of disagreement with the statements below using the scale of **1 (strongly disagree) to 5 (strongly agree)**

- | | | | | | |
|--|---|---|---|---|---|
| 1. The most important things that happen to me involve my present job. | 1 | 2 | 3 | 4 | 5 |
| 2. To me, my job is only a small part of who I am. | 1 | 2 | 3 | 4 | 5 |
| 3. I am very much involved personally in my work. | 1 | 2 | 3 | 4 | 5 |
| 4. I live, eat, and breathe my job. | 1 | 2 | 3 | 4 | 5 |
| 5. Most of my interests are centered around my job | 1 | 2 | 3 | 4 | 5 |
| 6. I have very strong ties with my present job which would be very difficult to break. | 1 | 2 | 3 | 4 | 5 |
| 7. Usually I feel detached from my job. | 1 | 2 | 3 | 4 | 5 |
| 8. Most of my personal life goals are job oriented. | 1 | 2 | 3 | 4 | 5 |
| 9. I consider my job to be very central to my existence. | 1 | 2 | 3 | 4 | 5 |
| 10. I like to be absorbed in my job most of the time | 1 | 2 | 3 | 4 | 5 |
| 11. How well I perform on my job is extremely important to me. | 1 | 2 | 3 | 4 | 5 |
| 12. I feel badly if I don't perform well on my job. | 1 | 2 | 3 | 4 | 5 |
| 13. Quite often I feel like staying home from work. | 1 | 2 | 3 | 4 | 5 |
| 14. I avoid taking on extra duties and responsibilities in my work. | 1 | 2 | 3 | 4 | 5 |
| 15. I used to be more ambitious about my work than I am now. | 1 | 2 | 3 | 4 | 5 |
| 16. I feel good when I perform my job well. | 1 | 2 | 3 | 4 | 5 |

MOTIVATION

Below are 17 pairs of statements. Circle the statement that **best** reflects what you think.

1. a. I feel best about my performance when I have learned something.
 b. I feel best about my performance when I have not made any mistakes.
2. a. It doesn't matter to me if I make mistakes as long as I have learned something.
 b. I don't like to make mistakes.
3. a. I prefer a new challenging task even if I'm not sure that I can do it correctly.
 b. I prefer tasks that I have a reasonably good chance of doing successfully.
4. a. I can *always* do better if I try.
 b. My ability to do better is limited by intelligence.
5. a. Intelligence is something that can be increased.
 b. Intelligence is something that does not change a lot.
6. a. Many intelligent adults were not very intelligent when they were children.
 b. Intelligent adults were usually intelligent children.
7. a. When people point out mistakes that I have made I concentrate on finding out how I can learn for future times.
 b. When people point out mistakes I concentrate on fixing them.
8. a. I like other people to point out how I could do better.
 b. When people point out how I could do better I feel bad.
9. a. You can be as intelligent as you want to be.
 b. Intelligence is something that you can not change.
10. a. Making mistakes is okay.
 b. Making mistakes is not okay.
11. a. When you learn new things, you increase how intelligent you are.
 b. You can learn new things, but your intelligence stays the same.
12. a. Learning something new makes me feel intelligent.
 b. Completing a task correctly makes me feel intelligent.

13. a. You can change your intelligence
b. You can improve your performance but you can not increase your intelligence.
14. a. I get bored working on tasks that I know I can do.
b. I like working on tasks that I know I can do.
15. a. I like to work with people who are more intelligent than I am.
b. I find people who are more intelligent than I intimidating.
16. a. I like to find ways to make things work better.
b. If something is working you shouldn't change it.
17. a. It doesn't matter what other people might think when you make a mistake, as long as you are learning.
b. It does matter what other people think if you make a mistake.

ORGANIZATIONAL CLIMATE

Rate your agreement or disagreement with the statements below, as they pertain to your current place of employment. Use the following scale:

- | | |
|---|----------------------|
| 1 | definitely disagree |
| 2 | inclined to disagree |
| 3 | inclined to agree |
| 4 | definitely agree |

- | | |
|--|---------------|
| 1. Around here management resents your checking everything with them; if you think you've got the right approach, just go ahead. | 1 2 3 4 |
| 2. Our philosophy emphasizes that people should solve their problems by themselves. | 1 2 3 4 |
| 3. Supervisors tell employees of new ideas that they have run across. | 1 2 3 4 |
| 4. A friendly atmosphere prevails among the people in this organization. | 1 2 3 4 |
| 5. One of the problems in this organization is that individuals won't take responsibility | 1 2 3 4 |

- | | | | | |
|--|---|---|---|---|
| 6. We don't rely too heavily on individual judgment in this organization; almost everything is double checked. | 1 | 2 | 3 | 4 |
| 7. Management makes an effort to talk with you about your career aspirations within the organization. | 1 | 2 | 3 | 4 |
| 8. In staff meetings there is the feeling of "lets get things done". | 1 | 2 | 3 | 4 |
| 9. Supervisors/managers are easy to understand. | 1 | 2 | 3 | 4 |
| 10. In this organization the rewards and encouragements you get usually outweigh the threats and criticism. | 1 | 2 | 3 | 4 |
| 11. Employees spend time helping each other with problems. | 1 | 2 | 3 | 4 |
| 12. There is a great deal of criticism in this organization. | 1 | 2 | 3 | 4 |
| 13. There are an awful lot of excuses around here when someone makes a mistake. | 1 | 2 | 3 | 4 |
| 14. This organization is characterized by a relaxed, easy-going working climate. | 1 | 2 | 3 | 4 |
| 15. In this organization people are rewarded in proportion to the excellence of their job performance. | 1 | 2 | 3 | 4 |
| 16. There is not enough reward and recognition given in this organization for doing good work. | 1 | 2 | 3 | 4 |
| 17. It's very hard to get to know people in this organization. | 1 | 2 | 3 | 4 |
| 18. Supervision in this organization is mainly a matter of setting guidelines for your subordinates; you let them take responsibility for the job. | 1 | 2 | 3 | 4 |
| 19. People in this organization tend to be cool and aloof toward each other. | 1 | 2 | 3 | 4 |
| 20. You don't get much sympathy from higher-ups in this organization if you make a mistake. | 1 | 2 | 3 | 4 |
| 21. The supervisors insure that employees work to their full capacity. | 1 | 2 | 3 | 4 |

- | | | | | |
|--|---|---|---|---|
| 22. Supervisors/managers look out for the personal welfare of employees. | 1 | 2 | 3 | 4 |
| 23. If you make a mistake in this organization you will be punished. | 1 | 2 | 3 | 4 |
| 24. Supervisors/managers help employees settle minor differences. | 1 | 2 | 3 | 4 |
| 25. When I am on a difficult assignment I can usually count on getting assistance from my boss and co workers. | 1 | 2 | 3 | 4 |
| 26. People are proud of belonging to this organization. | 1 | 2 | 3 | 4 |
| 27. We have a promotion system here that helps the best person rise to the top. | 1 | 2 | 3 | 4 |
| 28. Supervisors/managers explain their reasons for criticism to employees. | 1 | 2 | 3 | 4 |
| 29. There is a lot of warmth in the relationships between management and workers in this organization. | 1 | 2 | 3 | 4 |
| 30. People in this organization don't really trust each other. | 1 | 2 | 3 | 4 |
| 31. In this organization people pretty much look out for their own interest. | 1 | 2 | 3 | 4 |
| 32. Supervisors/managers help employees solve personal problems. | 1 | 2 | 3 | 4 |
| 33. The morale of employees is high. | 1 | 2 | 3 | 4 |
| 34. I feel that I am a member of a well functioning team. | 1 | 2 | 3 | 4 |
| 35. Most of the employees accept the faults of their colleagues. | 1 | 2 | 3 | 4 |
| 36. The supervisors make all decisions about what work is to be done when. | 1 | 2 | 3 | 4 |
| 37. Over time is a fact of life. | 1 | 2 | 3 | 4 |
| 38. You won't get ahead in this organization unless you stick your neck out and try things on your own. | 1 | 2 | 3 | 4 |
| 39. As far as I can see, there isn't very much personal loyalty to the company. | 1 | 2 | 3 | 4 |

- | | | | | |
|---|---|---|---|---|
| 40. There is considerable laughter when employees gather informally. | 1 | 2 | 3 | 4 |
| 41. Supervisors talk a great deal. | 1 | 2 | 3 | 4 |
| 42. The first concern is to get the work done; employees are secondary. | 1 | 2 | 3 | 4 |
| 43. The supervisor corrects employee's mistakes. | 1 | 2 | 3 | 4 |
| 44. Employees accomplish their work with great vim, vigor, and pleasure. | 1 | 2 | 3 | 4 |
| 45. The supervisors/managers set an example by working by hard themselves. | 1 | 2 | 3 | 4 |
| 46. The supervisors/managers go out of their way to help employees. | 1 | 2 | 3 | 4 |
| 47. Supervisors/managers are well prepared when they speak at meetings. | 1 | 2 | 3 | 4 |
| 48. The philosophy of our management emphasizes the human factor, how people feel, etc. | 1 | 2 | 3 | 4 |
| 49. The supervisors monitor all work. | 1 | 2 | 3 | 4 |
| 50. Supervisors/managers are among the first to arrive at work. | 1 | 2 | 3 | 4 |
| 51. Supervisors/managers stay late to help employees. | 1 | 2 | 3 | 4 |
| 52. Employees help select their assignments. | 1 | 2 | 3 | 4 |
| 53. Supervisors/managers use constructive criticism. | 1 | 2 | 3 | 4 |
| 54. Supervisors/managers try to get better salaries for their employees. | 1 | 2 | 3 | 4 |

JOB RELATED LEARNING

Using the scale of **1 (never) to 5 (constantly)**, indicate how often you do the following:

- | | | | | | |
|--|---|---|---|---|---|
| 1. I read magazines and journals that are related to my job. | 1 | 2 | 3 | 4 | 5 |
| 2. I read books that are related to my job. | 1 | 2 | 3 | 4 | 5 |
| 3. I use information that I have read to solve problems or improve performance on my job. | 1 | 2 | 3 | 4 | 5 |
| 4. When I have a problem to solve on my job, I often look up the subject in books and magazines (excluding manuals that are available at work) | 1 | 2 | 3 | 4 | 5 |
| 5. Whenever a new product or procedure is introduced into my job, I wait for someone more knowledgeable than I to explain it to me. | 1 | 2 | 3 | 4 | 5 |
| 6. I try not to ask a lot of questions about how things work. | 1 | 2 | 3 | 4 | 5 |
| 7. When I don't know how to do something I try to find someone who can do it for me. | 1 | 2 | 3 | 4 | 5 |
| 8. I always check the course calendars from local institutions for job related courses. | 1 | 2 | 3 | 4 | 5 |
| 9. I only take job related courses if the company will pay for them. | 1 | 2 | 3 | 4 | 5 |
| 10. I have contacts in other companies that I can call for information, advice, and so forth. | 1 | 2 | 3 | 4 | 5 |
| 11. I never discuss work problems and ways to improve performance with my co workers. | 1 | 2 | 3 | 4 | 5 |
| 12. When I am having problems dealing with people at work, I try to find a course or book that can help me. | 1 | 2 | 3 | 4 | 5 |
| 13. I ask my peers and superiors for feedback on my performance. | 1 | 2 | 3 | 4 | 5 |

14. When I need information or advice, I go see the expert in the office rather than asking my boss.
15. When I don't know how to do something, I try to learn about it.

1 2 3 4 5

1 2 3 4 5

PERSONAL INFORMATION

In order to compile and categorize the information, I also require the following information:

Male _____ Female _____

Salary:

Age:

Less than \$20,000 _____

under 20 _____

\$20,000 - \$29,999 _____

20 - 29 _____

\$30,000 - \$39,999 _____

30 - 39 _____

\$40,000 - \$49,999 _____

40 - 49 _____

\$50,000 or higher _____

50 - 59 _____

60 or over _____

Education: (indicate highest level attained and level currently working on, if applicable)

Number of years in current profession: _____

Number of years since last promotion: _____

Some high school _____

Completed high school _____

Number of years with current employer _____

Some post secondary _____

Post secondary degree/diploma _____

Graduate degree _____

Professional designation /trade _____

APPENDIX B. SURVEY RESULTS**FUTURE TRENDS: Frequency of Responses**Scale: **1 (strongly disagree) to 5 (strongly agree)**

	1	2	3	4	5
1. My work and the way I do it are constantly changing.	6	12	23	22	7
2. I find it difficult to keep up with all the changes in my work environment.	27	21	18	4	0
3. In order to remain competitive workers must be able to acquire new knowledge and skills with minimal direction and input from their employers.	4	9	10	28	19
4. What children learn in school today will not be useful in twenty years.	14	18	15	14	8
5. It is important for employees to keep up with changes in the work place.	0	1	2	10	56
6. Employers prefer workers who can learn new knowledge and skills on their own.	1	2	12	23	32
7. The world is changing so fast that people who cannot learn will not survive.	7	17	19	21	6
8. Employers have the full responsibility for educating employees when changes occur that affect their work.	4	11	17	16	22
9. It is more important to teach children how to learn than to teach them specific content.	1	2	13	28	26
10. The ability to learn on one's own is a prerequisite for living in our world.	1	7	22	25	15
11. In order to remain competitive, workers must be able to learn new knowledge and skills.	1	0	2	33	34

JOB RELATED LEARNING: Frequency of Responses

NOTE: Frequencies in italics were reversed before data was compiled. Agreement indicates *disagreement* with the statement as worded.

Scale: 1 (*never*) to 5 (*constantly*)

	1	2	3	4	5
1. I read magazines and journals that are related to my job.	7	10	26	15	11
2. I read books that are related to my job.	7	15	25	13	9
3. I use information that I have read to solve problems or improve performance on my job.	5	8	14	30	12
4. When I have a problem to solve on my job, I often look up the subject in books and magazines (excluding manuals that are available at work)	15	15	16	20	3
5. Whenever a new product or procedure is introduced into my job, I wait for someone more knowledgeable than I to explain it to me.	4	15	21	20	9
6. I try not to ask a lot of questions about how things work.	4	6	13	23	23
7. When I don't know how to do something I try to find someone who can do it for me.	3	8	14	23	21
8. I always check the course calendars from local institutions for job related courses.	8	13	23	14	11
9. I only take job related courses if the company will pay for them.	6	12	18	19	14
10. I have contacts in other companies that I can call for information, advice, and so forth.	18	21	10	13	7
11. I never discuss work problems and ways to improve performance with my co workers.	4	9	20	17	19
12. When I am having problems dealing with people at work, I try to find a course or					

book that can help me.	23	16	17	9	4
13. I ask my peers and superiors for feedback on my performance.	2	10	23	22	12
14. When I need information or advice, I go see the expert in the office rather than asking my boss.	9	12	20	18	9
15. When I don't know how to do something, I try to learn about it.	0	0	9	30	30

ORGANIZATIONAL CLIMATE: Descriptive Statistics

	RESP	IDENT	CONSID	ESPRIT
N. of cases	68	68	68	68
Minimum	1.000	1.250	1.000	1.167
Maximum	3.571	4.000	3.600	3.833
Range	2.571	2.750	2.600	2.666
Mean	2.500	2.798	2.453	2.722
Variance	0.190	0.482	0.301	0.337
Standard Dev.	0.436	0.694	0.549	0.580
Standard Error	0.053	0.084	0.067	0.070
Skewness	-0.282	-.0515	-.0307	-.0356

	PROD	REWARD	SUPPORT	THRUST
N. of cases	68	68	68	68
Minimum	1.857	1.000	1.400	1.333
Maximum	3.286	3.667	4.000	3.778
Range	1.429	2.667	2.600	2.445
Mean	2.529	2.492	2.754	2.759
Variance	0.125	0.389	0.332	0.309
Standard Dev.	0.354	0.624	0.577	0.556
Standard Error	0.043	0.076	0.070	0.067
Skewness	0.003	-0.150	0.092	-0.571

	WARMTH	COMPOSITE
N. of cases	68	68
Minimum	1.400	1.365
Maximum	4.000	3.488
Range	2.600	2.123
Mean	2.902	2.657
Variance	0.303	0.162
Standard Dev.	0.550	0.402
Standard Error	0.067	0.049
Skewness	-0.058	-0.425

JOB INVOLVEMENT: Descriptive Statistics

	PSYCHOL IDENT	PERFORM ESTEEM	HOPELESS
N. of cases	69	69	69
Minimum	1.300	2.667	1.000
Maximum	4.600	5.000	4.333
Range	3.300	2.333	3.333
Mean	2.787	4.483	2.164
Variance	.0522	0.263	0.813
Standard Dev.	0.722	0.513	0.901
Standard Error	0.087	0.062	.0109
Skewness	0.184	-0.854	0.439

MOTIVATIONAL ORIENTATION: Descriptive Statistics

N. of cases	69
Minimum	1.000
Maximum	1.750
Range	0.750
Mean	1.244
Variance	0.028
Standard Dev.	0.168
Standard Error	0.020
Skewness	0.587

JOB RELATED LEARNING: Descriptive Statistics

	JRL	PRINT	NONPRINT	WILLING
N. of cases	69	69	69	69
Minimum	2.133	1.000	1.833	2.250
Maximum	4.467	5.000	4.667	5.000
Range	2.334	4.000	2.834	2.750
Mean	3.249	2.962	3.169	3.764
Variance	0.328	0.904	0.424	0.386
Standard Dev.	0.573	0.951	0.651	0.621
Standard Error	0.069	0.114	0.079	0.075
Skewness	-0.023	-0.066	-0.020	0.032