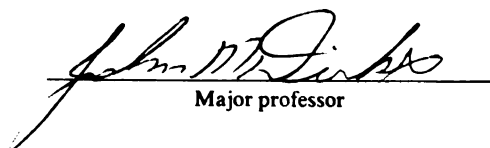This is to certify that the

dissertation entitled

ORGANIZATIONAL CHARACTERISTICS THAT CREATE AN ENVIRONMENT
FOR INDIVIDUAL LEARNING IN THE WORKPLACE

presented by

Susan R. Abbey

has been accepted towards fulfillment
of the requirements for

_____Ph.D.___ degree in _Education___

_____
Major professor

Date___11/2/99_____

PLACE IN RETURN BOX to remove this checkout from your record.
TO AVOID FINES return on or before date due.
MAY BE RECALLED with earlier due date if requested.

DATE DUE	DATE DUE	DATE DUE
SEP 2 5 2001		
AUG 3 0 2003		
043004		
JUL 0 7 2005		

ORGANIZATIONAL CHARACTERISTICS THAT CREATE AN
ENVIRONMENT FOR INDIVIDUAL LEARNING IN THE WORKPLACE

By

Susan R. Abbey

A DISSERTATION

Submitted to
Michigan State University
In partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Higher, Adult, and Lifelong Education

1999

Workplace

competitive ad

global competi

organizational

on training, h

build organiza

neither viabl

Organiza

learning by e

a learning en

perceptions o

been demonstr

studies of in

relationship

employees' le

unclear is th

organizationa

learning clin

This st

characteristi

individuals f

ABSTRACT

ORGANIZATIONAL CHARACTERISTICS THAT CREATE AN
ENVIRONMENT FOR INDIVIDUAL LEARNING IN THE WORKPLACE

By

Susan R. Abbey

Workplace learning is an increasingly important source of

competitive advantage to American businesses. This is due to

global competition, the impact of technology, and changes in

organizational practices. Traditionally, companies have relied

on training, hiring, and outsourcing job functions in order to

build organizational capability. However, these options may be

neither viable nor desirable in the future.

Organizations need to foster continuous, transformative

learning by employees. In this sense, the workplace constitutes

a learning environment. The importance of adult learners'

perceptions of the learning environment to their learning has

been demonstrated theoretically and empirically. Existing

studies of individual learning in organizations have found a

relationship between organizational characteristics and

employees' learning attitudes and behaviors. What remains

unclear is the strength of the relationship of specific

organizational characteristics to individuals' perceptions of

learning climate.

This study examined the impact of six organizational

characteristics on creating a work environment in which

individuals feel encouraged to learn and develop new skills as

part of work.

5,500 employees

to examine this

perceived learn

organizational

organization l

communication

environment, e

employee invol

that support l

regression wer

employees' per

relative impor

Among th

variables, exc

external envir

effect of shar

learning clima

involvement an

also found to

includes sugge

organizationa

analysis.

part of work. Existing survey data representing approximately 5,500 employees of a division of a Fortune 500 company was used to examine this issue. The dependent variable for the study was perceived learning climate. The independent variables were six organizational characteristics drawn from the learning organization literature: shared vision for the organization, open communication and dialogue, connection to the external environment, encouragement of experimentation and risk-taking, employee involvement and empowerment, and systems and practices that support learning. Correlational analyses and multiple regression were used to determine what factors are related to employees' perception of a supportive learning climate and the relative importance of the factors in fostering that climate.

Among the findings were that all of the independent variables, except the employee's perception of connection to the external environment, were significant at the .01 level. The effect of shared vision on the perception of a supportive learning climate was found to depend on the perceived level of involvement and empowerment. The effect of the interaction was also found to depend on the employee's job level. The discussion includes suggested refinements to the measurement of the organizational characteristics, instrumentation, and data analysis.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

Learn

important t

the marketp

corpetition

knowledge a

systems. T

organizatior

knowledge, b

(Zubcff, 198

as a process

work, either

classroom se

organizationa

employees, hi

outsourcing j

viable in the

desirable in

detracts from

despite advanc

Bishop (1996)

is experiencir

available to cc

areas, is not r

CHAPTER ONE

THE RESEARCH PROBLEM

Introduction

Learning in organizational settings is becoming increasingly important to companies and individuals due to rapid changes in the marketplace. Some of these changes include global competition, technological advances, exponential increases in knowledge and information generation, and changes in work systems. These changes, both external and internal to the organization, necessitate that employees continuously learn new knowledge, behaviors, and skills as an integral part of work (Zuboff, 1988). Traditionally, corporations have viewed learning as a process of knowledge accumulation that occurs adjunct to work, either before an individual enters the workforce or in a classroom setting. Traditional responses to increasing organizational skills and capability have focused on training employees, hiring workers with current skill sets, and outsourcing job functions. Although these options may have been viable in the past, certain options may be neither feasible nor desirable in the future. For example, employer-provided training detracts from the bottom line, and costs continue to increase despite advances in delivery technology (1997 Industry Report). Bishop (1996) cites several studies which suggest that the U.S. is experiencing a decline in the pool of highly skilled workers available to companies. Outsourcing, while beneficial in some areas, is not necessarily desirable for core business functions

(Quinn and Hi

organizations

ways to fost�

Our abi

constrained

factors affe

learners. �

dualistic pe

training (Fr

Carnevale ar

1997; Lee, �

example, Kno

More recent

organizatio

in an organ

various org

environment

skills and

Changing Ma

Increa

business re

Advances in

products, a

customers.

expectation

(Quinn and Hilmer, 1994; Bettis et al., 1992). Therefore, organizations will increasingly find it necessary to identify ways to foster employee ownership for learning.

Our ability to promote continuous learning by employees is constrained by our knowledge of how various organizational factors affect the learning climate as perceived by individual learners. Previous studies of workplace learning have assumed a dualistic perspective, focusing alternately on employer-provided training (Frazis et al., 1995; "1995 Industry Report," 1995; Carnevale and Carnevale, 1994; Hill, 1994; 1997 Industry Report, 1997; Lee, 1991) or on individual self-directed learning (see for example, Knox, 1991; Long, 1992; Brockett and Hiemstra, 1991). More recent theoretical and empirical work on learning organizations and organizational culture focuses on individuals in an organizational context. This study examined the impact of various organizational characteristics on creating a work environment in which individuals feel encouraged to develop new skills and knowledge and learn as a part of work.

Rationale and Background

Need for Workplace Learning

Changing Marketplace

Increases in computer technology, global competition, and business restructuring have produced changes in the marketplace. Advances in technology increase the speed at which information, products, and services can be produced and delivered to customers. These improvements cultivate increased consumer expectations. These technological changes, combined with

2

changing po

opened the

Increased c

improve the

and develop

demand. Cr

changing wo

initiating

team-based

implication

role of lea

Changing Nat

The em

industries a

operating.

entire indus

reducing cos

restructurin

order to imp

These change

within those

They affect

tasks are per

automation; s

others have b

than by indiv

changing political climates in many parts of the world, have

opened the marketplace and increased competition worldwide.

Increased competitiveness stimulates companies to continuously

improve the quality of their products or services, reduce costs,

and develop flexible processes to respond quickly to customer

demand. Organizations have responded to this challenge by

changing work systems, for example, by redesigning jobs,

initiating total quality management processes, and developing

team-based incentive pay systems. These broad changes have

implications for the nature of work, the skills required, and the

role of learning for the workplace.

Changing Nature of Work

The emergence of a global marketplace has required

industries and companies to change their ways of thinking and

operating. The automotive industry is a notable example. The

entire industry is under pressure to improve quality while

reducing cost. Within that industry, individual companies are

restructuring business units and re-engineering processes in

order to improve their position relative to their competitors.

These changes in structure and process affect the nature of work

within those companies (Dent, 1995; Milkman and Pullman, 1991).

They affect who or what performs various job tasks and how those

tasks are performed. Some jobs have been eliminated through

automation; some have become highly specialized technically; and

others have been restructured to be performed by teams rather

than by individuals.

These

implication

fundamental

sets requir

learning is

From a

cognitive an

skills (Huds

Johnston and

machines per

employees, e

interact wit

example, some

and build new

processes in

purchasing ag

prototype veh

final product,

employees to c

Every employee

understanding

resources, and

team members

no longer foc

Unfortunately,

Changing Nature of Individual Skills and Learning

These changes in the marketplace and the workplace have implications for employee learning and development. Two fundamental shifts are occurring within organizations: the skill sets required of employees and the way in which workplace learning is conceptualized.

From a skills standpoint, there is an increased need for cognitive and interpersonal skills and a decreased need for motor skills (Hudson Institute and U.S. Department of Labor, cited in Johnston and Packer, eds., 1987; Howell and Wolff, 1991). With machines performing routine jobs and managers empowering employees, employees must now read and interpret information and interact with others to make work-related decisions. For example, some automotive companies have changed how they design and build new vehicles. Previously, many followed a sequential processes in which engineers developed vehicle specifications, purchasing agents procured parts, assembly workers built prototype vehicles, and quality control specialists inspected the final product. Now companies create work teams of those employees to coordinate all aspects of new vehicle development. Every employee on the team must achieve some level of understanding of the overall process, including the requirements, resources, and constraints, and be able to work with the other team members to plan actions and solve problems. Employees can no longer focus on performing unique, repetitive tasks. Unfortunately, several studies (cited in American Society for

Training and

the technical

The vie

shifting fron

as an integra

Marsick, 1993

and productiv

question the

opportunities

learning acro

Traditional P

Traditi

of the two le

through trair

However, each

them less att

past. Furthe

integrated na

Company

employees awa

budgeted by c

$58.6 billion

learning and

less costly a

Another

employees wit

Training and Development, 1996) suggest that many employees lack the technical skills required in today's workplace.

The view of what it means to learn in the workplace is also shifting from a focus on training to a broader view of learning as an integral part of work (Marquardt, 1996; Watkins and Marsick, 1993; Zuboff, 1988). In order to increase innovation and productivity, organizations need employees and teams to question the content and method of their work, identify learning opportunities, take risks and learn from failure, and share learning across the organization.

<div align="center">Responses to Changing Skill Needs</div>

Traditional Responses

Traditionally, corporations have addressed only the narrower of the two learning challenges, knowledge and skill deficiencies, through training, lay-offs coupled with hiring, and outsourcing. However, each of these options has potential drawbacks which make them less attractive in the future than they may have been in the past. Furthermore, they do not address the transformative, integrated nature of learning as a part of work.

Company-sponsored training is costly and often takes employees away from the job. In 1997, training expenditures budgeted by organizations with 100 or more employees totaled $58.6 billion (1997 Industry Report). Informal workplace learning and formal courses taken during non-working hours may be less costly and disruptive to businesses.

Another option for acquiring skilled workers is to layoff employees with obsolete skills and hire those with the needed

skills. Ho

correct tha

supply for

The th

(Harrison a

Outsourcing

functions t

business. A

specialized

unable to de

the market (

1994; Deaver

the need for

firm. One r

have special

coordinate s

importantly,

for all of a

must careful

knowledge rec

to maintain a

al., 1992).

Due to

constraints p

find ways to

companies nee

encourages er

skills. However, this may be difficult if some economists are correct that the demand for educated workers will outpace the supply for a considerable period (Bradbury et al., 1996).

The third option, outsourcing, is becoming more prevalent (Harrison and Kelley, 1993; Abraham and Taylor, 1996). Outsourcing refers to contracting with another firm to perform functions that are outside the realm of the company's primary business. Among the reasons for outsourcing is to gain access to specialized skills and knowledge that the company is unwilling or unable to develop and maintain at the pace and cost required by the market (Bettis et al., 1992; Sharpe, 1997; Quinn & Hilmer, 1994; Deavers, 1997). However, outsourcing does not eliminate the need for employee skill development and learning within the firm. One reason for this is that the outsourcing company must have specialized personnel and systems in place to manage and coordinate supplier activities (Quinn & Hilmer, 1994). More importantly, outsourcing is not a strategically viable solution for all of a firm's products or processes. Corporate strategists must carefully analyze, cultivate, and retain the skills and knowledge required in the core areas of their business in order to maintain a competitive advantage (Deavers, 1997; Bettis et al., 1992).

Due to the significant challenges they face and the constraints posed by traditional solutions, organizations need to find ways to foster work-related learning by employees. That is, companies need to create an organizational environment that encourages employees to learn and apply new skills in conjunction

with work. D

employees to

changing need

Continuous Le

Researc

that there is

the learning

body of liter

1992; Knowles

Merriam, 1982

empirical stu

et al., 1997;

Greenberg, 19

In the

theory provic

learning envi

number of org

learning envi

workplace. A

proposed (Kof

and Slocum, 1

salient chara

the organizat

organization,

culture that

involvement a

support learn

with work. Doing so will prepare both companies and their

employees to be more competitive in a changing marketplace with

changing needs.

Continuous Learning in the Workplace

Research on learning in formal academic settings suggests

that there is a relationship between the learning environment and

the learning attitudes and behaviors of adult learners. This

body of literature includes theoretical arguments (Courtney,

1992; Knowles, 1988; Knox, 1986; Brookfield, 1986; Darkenwald and

Merriam, 1982; Confessore and Confessore, 1992) as well as

empirical studies (Tinto, 1997; Darkenwald and Gavin, 1987; Ellet

et al., 1997; Fujita-Stark and Thompson, 1994; Walberg and

Greenberg, 1997; Brooks and DuBois, 1995).

In the context of the workplace, learning organization

theory provides a means of conceptualizing the workplace as a

learning environment. From this perspective, one can identify a

number of organizational characteristics that constitute the

learning environment and facilitate continuous learning in the

workplace. Although various models and terminology have been

proposed (Kofman and Senge, 1993; Greenwood et al., 1993; McGill

and Slocum, 1993; Senge, 1990, Watkins and Marsick, 1993), six

salient characteristics can be identified: a shared vision for

the organization, open communication and dialogue within the

organization, connection to the external environment, a corporate

culture that encourages experimentation and risk-taking, employee

involvement and empowerment, and systems and practices that

support learning.   The present study uses these six learning

7

organization

learning env

Indivic

(individual,

organization

learning is

organizationa

organization

this body of

them. Marqua

In discr

on the

and char

produce

learning

organiza

processe

Organiza

or eleme

Previous

focus alternat

1995; Carneval

Report," 1997;

individual fact

for example, Ki

1991). More re

organizational

organization characteristics to examine the relationship of the learning environment to individual learning.

Individual learning is one of three levels of learning (individual, team, and organizational) addressed by most learning organization models. Theorists generally agree that individual learning is a necessary but insufficient condition for organizational learning to occur. Because the terms *learning organization* and *organizational learning* appear frequently in this body of literature, it is helpful to distinguish between them. Marquardt (1996) provides the following definitions:

> In discussing learning organizations, we are focusing on the *what*, and describing the systems, principles, and characteristics of organizations that learn and produce as a collective entity. Organizational learning, on the other hand, refers to *how* organizational learning occurs, i.e., the skills and processes of building and utilizing knowledge. Organizational learning as such is just one dimension or element of a learning organization (p. 19).

Previous studies of work-related learning have tended to focus alternately on employer-provided training (Frazis et al., 1995; Carnevale and Carnevale, 1994; Hill, 1994; "1997 Industry Report," 1997; Lee, 1991; and "1995 Industry Report," 1995) or on individual factors influencing adult self-directed learning (see for example, Knox, 1991; Long, 1992; Brockett and Hiemstra, 1991). More recent theoretical and empirical work addresses organizational factors that contribute to learning (Garvin, 1993;

Kim, 1993; McC

Beard, 1991; C

Humanities Res

Watkins and Ma

However,

importance of

establishing

the relations

specificity u

make improvem

organizationa

analysis. Th

not answer th

environment t

individual le

seeks to redu

organizationa

learning.

The need

the question

climate. Thi

characteristi

feel encourage

examines how t

to create a le

addressed are

Kim, 1993; McGill et al., 1992; Senge, 1990; Ulrich et al., 1993; Beard, 1991; Clardy, 1992; Jude-York, 1991; Social Sciences and Humanities Research Council of Canada, 1992; Baskett, 1993; Watkins and Marsick, 1993).

However, although many of these works acknowledge the importance of various organizational characteristics in establishing a work environment for learning, they do not address the relationship of those organizational factors. This lack of specificity undoubtedly poses difficulties for those seeking to make improvements in this area. Other studies examine *organizational* learning, using entire companies as the unit of analysis. This perspective, while useful at a macro level, does not answer the question of how companies can create an environment that is perceived by employees as encouraging individual learning and skill development. The present study seeks to reduce this void by addressing the relationship of organizational characteristics to the environment for individual learning.

Research Questions

The need for continuous learning in the workplace prompts the question of how companies can create a supportive learning climate. This study focuses on identifying organizational characteristics that create an environment in which individuals feel encouraged to learn as an integral part of work. It also examines how the various organizational system elements interact to create a learning environment. The specific questions addressed are as follows:

9

- What organi

  perceptions

- What is the

  characterist

- How do the v

  influence e

  environment

  This study

approximately

of a Fortune

the U.S. The

including dat

development a

organizationa

relationships

reliability a

interaction e

    In orde

of this stud

key terms.

various ways

the subject.

learning - De

part of the

1996; Watkins

of activities

- What organizational characteristics are related to employees'
  perceptions of the workplace as a learning environment?
- What is the relative importance of these organizational
  characteristics in fostering an environment for learning?
- How do the various organizational characteristics interact to
  influence employees' perception of the workplace as a learning
  environment?

This study used existing survey data representing
approximately 5,500 salaried and hourly employees of a division
of a Fortune 500 company with facilities located nationwide in
the U.S. The survey data includes responses to over 100 items,
including data about employees' perceptions of learning and
development as well as various characteristics of the
organizational environment. In order to study these
relationships, the following analytic techniques were used:
reliability analysis, multiple regression, and analysis of
interaction effects.

Definition of Terms

In order for readers to understand the approach and findings
of this study, the researcher must clarify the intended use of
key terms. The following terms are ones that are employed in
various ways in the workplace and, consequently, in writing on
the subject.

Learning – Defined very broadly as learning that is an integral
part of the job and linked to business objectives (Marquardt,
1996; Watkins and Marsick, 1993). This encompasses a wide array
of activities from transformative learning that occurs in the

course of wor

job context,

their integrat

<u>Organization</u>

driven enterpr

to indicate di

organization.

organizational

<u>Learning Envir</u>

interchangeabl

related organi

holistic way b

continuous lea

<u>Organizational</u>

norms, policie

organization a

This stu

units of the

sample of emp

of various ag

organizationa

of employee

study is tha

organizatior

related lea

outcomes co

course of working, to skill development that is applied in the job context, to an improved understanding of work processes and their integration within the organization.

Organization - A collectivity of individuals within a profit-driven enterprise. The term "plant" or "department" will be used to indicate distinct geographical or functional units within the organization. The term "work group" will refer to the smallest organizational units.

Learning Environment or Climate - These terms will be used interchangeably in reference to the conditions created by inter-related organizational characteristics that are perceived in a holistic way by the learner as supportive or non-supportive of continuous learning as an integral part of work.

Organizational Characteristics or Elements - The attributes, norms, policies, practices, and values that exist in an organization and together comprise the organizational system.

Delimitations and Limitations

This study was confined to employees of various business units of the same organization. This group is ideal because the sample of employees includes both salaried and hourly employees of various ages, gender, ethnicity, geographical location, and organizational departments. Furthermore, a relatively large body of employee survey data exists. Another delimitation of this study is that the analysis focused on only one aspect of an organizational environment, namely the environment for work-related learning. Many other organizational characteristics and outcomes could be studied using a data set such as this one.

The abov

First, any st

raises the qu

other organiz

existing inst

the set of qu

hoc study, the

perhaps most

possible. Wit

validity, that

it purports to

perceptions ab

able to learn

various indivi

approach the s

will address t

In summa

examine the re

the environmen

understanding

and practical

could result

to learning a

the challenge

The above delimitations bring with them certain limitations. First, any study that focuses on one organization in one industry raises the question of whether the findings can be generalized to other organizations and industries. Second, the study used an existing instrument; therefore, the researcher was confined to the set of questions contained therein. As with any type of post hoc study, there are areas one in unable to explore. Third, and perhaps most important, is that multiple interpretations are possible. With any type of survey data, there is a question of validity, that is, of whether the survey instrument measures what it purports to measure. In attempting to capture employees' perceptions about the degree to which they are encouraged and able to learn and acquire new skills, one must consider the various individual frameworks with which particular individuals approach the same question. The methods section of this study will address the steps taken to enhance validity.

Summary

In summary, this study used a quantitative approach to examine the relationship of six organizational characteristics to the environment for individual learning in the workplace. By understanding these relationships, we can improve our theoretical and practical knowledge of how to foster this environment. This could result in developing the skill sets and integrated approach to learning and work that businesses and employees need to meet the challenges posed by a changing environment.

The indu

unprecedented

advances, and

discovering t

capitalize on

must develop

their work, a

practices are

across the co

better, faste

advantage.

focused on kr

that knowledg

resulting sol

longer adequa

advantageous

that fosters

chapter will

continuous l

approaches t

address more

particular a

learning org

individual

CHAPTER TWO

REVIEW OF THE LITERATURE

The industrial marketplace in the U.S. is faced with
unprecedented challenges due to global competition, technological
advances, and changes in work systems. Organizations are
discovering that continuous learning is necessary in order to
capitalize on their changing environment. Individuals and teams
must develop new skills and knowledge in the course of performing
their work, and organizations must ensure that systems and
practices are in place to capture, share and apply that knowledge
across the company. The learning cycle must also take place
better, faster, and cheaper in order to result in a competitive
advantage. Traditional approaches to workplace learning have
focused on knowledge accumulation and on delivering or obtaining
that knowledge outside of the immediate work context. The
resulting solutions-training, hiring, and outsourcing—are no
longer adequate. Current conditions suggest that the most
advantageous response for companies is to create an environment
that fosters continuous learning. The first section of this
chapter will explore the conditions creating a need for
continuous learning and the shortcomings of traditional
approaches to learning. The latter half of the chapter will
address more recent perspectives on workplace learning, focusing
particular attention on theoretical and empirical work on
learning organizations and the role of the environment in
individual learning.

Nee

Among th

global competi

practices. T

required of wc

respond effect

Political

placing increa

Markets are be

converge and

access. Duri

rise of the N

Soviet Union

goods has be

Agreement (N

the Europear

appear forti

are enmeshe

marketplace

survival.

Seve

technolog

Milkman

studies

create

Need for Continuous Learning in Organizations

Among the forces shaping the modern corporate landscape are global competition, technological advances, and changing work practices. These factors have implications on the skills required of workers and the actions needed by corporations to respond effectively.

Global Competition

Political and economic forces throughout the world are placing increasing competitive pressures on U.S. companies. Markets are being redefined as political and economic interests converge and information technology provides unprecedented global access. During the 1980's, the world marketplace experienced the rise of the Asian pacific rim and the collapse of the former Soviet Union. In the 1990's, the manufacturing and movement of goods has been affected by the North American Free Trade Agreement (NAFTA) and the creation of a single currency within the European Common Market. Other regional trade agreements appear forthcoming in this decade or the next. U.S. companies are enmeshed in a rapidly changing, unpredictable global marketplace where quick innovation and adaptation are critical to survival.

Impact of Technology

Several studies have addressed the scope and impact of technological changes in manufacturing settings (Cappelli, 1996; Milkman and Pullman, 1991; Keefe, 1991). In general, these studies indicate that increased computerization and automation create a need for upgraded job skills among workers who are

already in mor

technology is

usage and empl

are required a

Committee, 199

Training and I

Report, 1997)

New work

of work and r

extent and na

participative

National Cent

1995; Bassi a

Examples of h

solving teams

Total Quality

with supplier

companies fou

varies widely

are defined,

companies in

percentage o

appears to b

1995; Bassi

Practices re

context, but

already in more skilled or specialized positions. The use of

technology is not limited to manufacturing. Other studies of

usage and employer-provided training suggest that computer skills

are required across educational levels, (Research and Policy

Committee, 1996), occupational groups (American Society for

Training and Development, 1996), and industries (1997 Industry

Report, 1997).

Organizational Practices

New work systems within organizations also affect the nature

of work and requisite skills. Several studies document the

extent and nature of this evolution toward more flexible,

participative work structures (Bassi, 1992; Osterman, 1994;

National Center on the Educational Quality of the Workforce,

1995; Bassi and VanBuren, 1999; 1997 Industry Report, 1997).

Examples of high performance work practices include: problem-

solving teams or quality circles, job rotation or cross-training,

Total Quality Management, teams-based work structures, partnering

with suppliers/customers, and re-engineering. The percentage of

companies found to be using high performance work practices

varies widely—from 11.1% to 50%--depending on how these practices

are defined, the method used to measure them, and the type of

companies included. However, one consistent finding is that the

percentage of companies using high performance work practices

appears to be increasing (Lawler et al, 1992; Lawler et al.,

1995; Bassi and VanBuren, 1999). Not only do the new work

practices represent another source of change within the corporate

context, but they affect job skill requirements. Two studies by

15

Cappelli (1993

skill requirer

(Johnston and

1991; McKinsey

overall increa

and a decline

to hold true w

within plants

the economy (M

Traditional

Companie

outsourcing as

capability. T

their ineffec

The firs

update employ

one study (Ba

employees rec

education ar

employees wi

VanBuren, 19

Cost is also

Report) fou

more employ

through 199

Cappelli (1993, 1996) found that workplace changes tend to raise skill requirements. This is consistent with other studies (Johnston and Packer, 1987; Szafran, 1996; Howell and Wolff, 1991; McKinsey et al., cited in Handy, 1990) which indicate an overall increase in cognitive and interactive skill requirements and a decline in motor skill requirements, a trend which appears to hold true within industries (Berman et al, 1994) and even within plants (Bernard and Jensen, 1994), across all sectors of the economy (Murphy and Welch, 1993).

   Traditional Approaches to Building Organizational Capability

    Companies have traditionally used training, hiring, and outsourcing as means to increase organizational skills and capability. This section will examine these options and suggest their ineffectiveness as long-term solutions.

                        Training

    The first option, training, is increasingly being used to update employee skills (Carnevale and Carnevale, 1994). However, one study (Bassi and VanBuren, 1998) found that only 58% of employees receive any training. Furthermore, employees with more education are much more likely to receive training than are employees with less than a high school education (Bassi and VanBuren, 1999; Bassi and VanBuren, 1998; 1997 Industry Report). Cost is also a prohibitive factor. One study (1997 Industry Report) found that training budgeted by organizations of 100 or more employees remained constant or increased annually from 1992 through 1997. As companies face increasing pressure to reduce

costs while in

find lower cos[

One poss[

layoff existin[

skills. Howev[

ability to obt[

Resource Execu[

workers as the[

executives. F[

Department of [

Americans who [

the workforce. [

the workforce [

several studie[

lack the educa[

and Jungblut, [

Labor, cited [

The thi[

the term outs[

Deavers, 19[

refers to "t[

fall outside[

supplier wh[

outsourced"[

functions t[

costs while improving quality and customer service, they need to find lower cost methods of ensuring skilled workers.

Hiring

One possible method of obtaining skilled workers is to layoff existing workers and hire new workers with the required skills. However, concerns have been raised regarding companies' ability to obtain qualified workers. A study reported in *Human Resource Executive* (1996) listed the recruitment of skilled workers as the third most difficult challenge facing HR executives. From an overall supply standpoint, the U.S. Department of Education (1991) estimates that 85 percent of those Americans who will be employed in the year 2000 are already in the workforce. Therefore, the overall number of entrants into the workforce will be relatively small. More importantly, several studies suggest that the pool of available workers will lack the education (Bishop, 1996) and technical skills (Kirsch and Jungblut, 1986; Hudson Institute and U.S. Department of Labor, cited in Packer, 1991), required by potential employers.

Outsourcing

The third option used by companies is outsourcing. Although the term outsourcing is used to describe a variety of activities (Deavers, 1997), the context in which outsourcing is used here refers to "turning over a part or all of those functions that fall outside the organization's core competencies to an external supplier whose core competencies are the functions being outsourced" (Sharpe, 1997, p. 538). Core competencies are those functions that a company performs through which it derives its

17

competitive a|

number of stud|

revealing tha|

companies, co|

increase. Int|

skills/capabil|

outsourcing (0|

1993). Howeve|

strategically|

First, organiz|

highly special|

firm (Drucker,|

interrelations|

sustaining a c|

broader range|

Hilmer, 1994;|

raised regard|

providing so|

that the supp|

market as th|

al., 1992).|

certain cad|

use outsour|

alternative|

The

competitive advantage (Handy, 1990). Sharpe (1997) discusses a number of studies on the prevalence and cost of outsourcing, revealing that the practice is widespread among Fortune 500 companies, costly (over $100 billion in 1996), and projected to increase. Interestingly, gaining access to specialized skills/capability ranks ahead of cost savings as a reason for outsourcing (Outsourcing Institute, 1996; Harrison and Kelly, 1993). However, outsourcing is neither practical nor strategically sound as the sole solution to skilled employees. First, organizations will need to continue to invest in the highly specialized, knowledge workers forming the core of the firm (Drucker, 1995). Second, depending on the interrelationships of product and process technology involved in sustaining a competitive advantage, the core may encompass a broader range of employees than initially conceived (Quinn and Hilmer, 1994; Bettis et al., 1992). Concerns have also been raised regarding the loss of control over a supplier, at worst providing so much insight regarding product or process technology that the supplier is able to become a competitor in the same market as the outsourcing firm (Quinn and Hilmer, 1994; Bettis et al., 1992). Given the risks of outsourcing and the need for a certain cadre of highly skilled workers, companies may be able to use outsourcing to supplement skill requirements but not as an alternative to continuous learning among their own employees.

The Importance of the Learner's Perception of Context

The prec

increasing inn

traditional ap

needs rather t

produce a sust

approaches to

knowledge, ski

transformative

constitutes a

The impo

learning envi

leading schol

Knowles, 1988

Merriam, 1982

will examine

conceptualiz

outcomes.

environment

The le

described a

frameworks

Harrison a

physical e

and layou

instructo

Classroom

The preceding section addressed traditional responses to increasing innovation and skills within organizations. The traditional approaches represent short-term solutions to isolated needs rather than integrated, systemic efforts which could produce a sustained competitive advantage. More recent approaches to building a workforce capable of generating new knowledge, skills, and solutions focus on continuous, transformative learning. In this sense, the workplace constitutes a learning environment.

Learning Environment in Adult Education

The importance of adult learners' perceptions of the learning environment to their learning has been acknowledged by leading scholars in the field of adult education (Courtney, 1992; Knowles, 1988; Knox, 1986; Brookfield, 1986; Darkenwald and Merriam, 1982; Confessore and Confessore, 1992). This section will examine the various ways in which researchers have conceptualized the learning environment and related learning outcomes. It will also review empirical work on the learning environment, particularly in the context of workplace learning.

The learning environment or learning climate has been described and assessed utilizing at least four distinct frameworks. One approach (Earthman and Lemasters, 1996; Foster-Harrison and Adams-Bullock, 1998; Chan, 1996) focuses on the physical environment for learning, including the décor, space, and layout. Another framework (Darkenwald, 1989) focuses on instructor behaviors in a classroom setting. Darkenwald's Adult Classroom Environment Scale measures seven dimensions of teacher

behaviors or

task orientat

clarity, and

1997; Brooks

The Learning

classroom soc

satisfaction,

framework add

organization.

Students in H

Peers, Facult

(Warner and W

The ide

characteristi

workplace. A

organizationa

and values (A

Tesluk et al,

environment s

characteristi

In addi

different per

aspects or ov

learning are

been studied

participate i

al., 1997; Ba

behaviors or style: involvement, affiliation, teacher support,
task orientation, personal goal attainment, organization and
clarity, and student influence. Others (Walberg and Greenberg,
1997; Brooks and DuBois, 1995) emphasize the social environment.
The Learning Environment Inventory measures elements of the
classroom social environment, including cohesion, challenge,
satisfaction, absence of friction, and favoritism. The fourth
framework addresses the environment at the level of the
organization. One example is the Mattering Scales for Adult
Students in Higher Education, which includes five subscales:
Peers, Faculty, Advising, Administration, and Multiple Roles
(Warner and Williams, 1995).

The idea of examining the learning environment in terms of
characteristics or categories is also reflected in studies of the
workplace. Among the characteristics that have been examined are
organizational structure, leadership, human resources systems,
and values (Arad et al., 1997; Gryzb et al., 1997; Baskett, 1993;
Tesluk et al., 1997). This study conceptualizes the learning
environment in terms of six learning organization
characteristics, which will be explored later in this chapter.

In addition to approaching the learning environment from
different perspectives, researchers have addressed different
aspects or outcomes of the learning process. Four outcomes of
learning are evident in this research. The learning climate has
been studied relative to adult learners' motivation to engage or
participate in continuing education (Courtney, 1992; Grzyb et
al., 1997; Baskett, 1993). Others have focused on student

persiste

attitude

numerous

1997; Wa

Starck a

learning

measured

Ove

relation

outcomes

been fou

Gavin, 1

and Thor

influenc

achiever

1997) a:

psychol

Courten

the env

A

of the

and beh

in more

E

learni

organi

persistence (Tinto, 1997; Darkenwald and Gavin, 1987). The attitude or satisfaction of the learner has been studied by numerous researchers (Courtenay et al., 1994; Brooker and Butler, 1997; Walberg and Greenberg, 1997; Ellett et al., 1997; Fujita-Starck and Thompson, 1994). Not surprisingly, the remaining learning outcome that has been examined is achievement as measured by grade point average (Brooks and DuBois, 1995).

Overall, empirical research suggests that there is a relationship between the learning environment and learning outcomes. For example, perceptions of the learning climate have been found to influence persistence (Tinto, 1997; Darkenwald and Gavin, 1987) and satisfaction (Ellet et al., 1997; Fujita-Stark and Thompson, 1994). Two studies have identified multiple influences of the learning climate, including academic achievement, attitude, and participation (Walberg and Greenberg, 1997) and grade point average, social adjustment, and psychological symptoms (Brooks and DuBois, 1995). Conversely, Courtenay and his colleagues (1994) found no relationship between the environment and either satisfaction or achievement.

Studies of the Learning Environment in the Workplace

A few studies have focused specifically on the relationship of the organizational climate to individual learning attitudes and behaviors in the workplace. Those studies will be examined in more detail due to their relevance to the present study.

Beard (1991) studied the relationship between self-directed learning activities, orientations of self as learner, organizational climate, and job involvement. Among her findings

21

was that high

with higher r

seek informat

associated wi

responsibilit

Jude-Yor

manufacturing

survey that me

provided for

relationship

based on four

calculated so

particularly

climate as s

Clardy

service orga

directed lea

specific hum

participatio

highest rate

characterize

emphasized

organization

A study

research Cou

Development

Canada. Par

was that higher organizational climate scores were associated with higher reported use of nonprint resources and willingness to seek information. Lower organizational climate scores were associated with a perception of employee training as an employer responsibility.

Jude-York (1991) studied blue collar workers in five manufacturing companies. Learning climate was assessed by a survey that measured support, reinforcement, and resources provided for learning by each plant. She found a positive relationship between people identified as self-directed learners, based on four instruments, and work performance, based on a calculated score. More importantly, the relationship was particularly strong when the individuals viewed the learning climate as supportive.

Clardy (1992) interviewed non-exempt employees in five service organizations regarding vocationally-oriented self-directed learning projects (VO SDLP). One finding was that no specific human resources policy or program accounted for participation in VO SDLP. However, the organization with the highest rates of voluntary and synergistic VO SDLPs was characterized by "a general organizational climate that emphasized learning and initiative." Clardy considered that organization to be a "learning organization."

A study conducted by the Social Sciences and Humanities Research Council of Canada (1992) worked with Organizational Development and Human Resources practitioners in workplaces in Canada. Participants were asked to identify factors that

contribu

combined

improvem

individu

the orga

rewards

their o

structu

values;

differe

communi

stakeho

support

(10) er

that s

　　　S

themati

learnir

individ

leaders

communi

　　　La

Marsick

he rese

perspect

organiza

he link

contributed to their self-directed learning. The statements were combined into the following ten conditions: (1) continuous improvement adopted as an organizational strategy; (2) involving individuals by letting them know how their actions contribute to the organization's goals and that their input is valued; (3) rewards and supports for individuals who take responsibility for their own learning; (4) values underlying the organization's structure and purpose that are in harmony with individuals' values; (5) managers who set an example by learning; (6) valuing differences; (7) support for risk-taking; (8) effective communications systems that include a network of all stakeholders, flexible supportive cultures and processes, and a supportive culture; (9) fostering collaboration in work and play; (10) encouraging learning by implementing rewards and processes that support creativity and innovation.

Similarly, Baskett (1993), using appreciative inquiry and thematic analysis, identified ten enhancers to self-directed learning in the workplace: continuous improvement, involving individuals, taking personal responsibility, harmonious values, leadership that sets an example, valuing differences, communication, taking risks, teamwork, and innovation.

Lastly, Dechant, Marsick and Kasl (cited in Watkins and Marsick, 1993) studied learning in two Fortune 100 companies. The researchers sought to understand team learning from the perspective of those involved in it, identify group and organizational conditions that support or inhibit it, and explore the links between team learning and organizational learning. At

one comp

organiza

manageme

organiza

functior

Ex

learning

relatior

individ

clear i

organiz

to the

studies

broadly

the eff

study e

charact

the ind

one company, they found that the presence of certain organizational elements fostered learning: participatory management, empowerment of people at all levels of the organization, decentralization, and the creation of many cross-functional teams and networks.

Deficiencies in the Literature

Existing theoretical and empirical work on individual learning in an organizational context suggests that there is a relationship between organizational characteristics and individual attitudes and behaviors toward learning. What is not clear is the strength of the relationship of any single organizational element, or the inter-relatedness of the elements, to the learning climate perceived by the individual. Existing studies have focused either narrowly on individual attributes or broadly on the organization, without isolating and investigating the effect of any particular organizational characteristic. This study examined the individual impact of six organizational characteristics relative to the learning environment perceived by the individual learner.

The lear

alternative a

framework foc

transformatio

individuals,

will examine

followed by

Many d

have been p

1993; Pedle

Differences

their model

general, or

organizati

at the ind

Undo

Senge (199

systems pe

organizati

personal m

learning.

its proble

rather tha

then attemp

refers to c

Learning Organization Perspective

The learning organization perspective provides an alternative approach to learning in organizations. This framework focuses on performance-based learning that is transformational in nature and occurs at the level of individuals, teams, and the entire organization. This section will examine four well known models of learning organizations followed by a discussion of common themes in this body of work.

Learning Organization Models

Many definitions or descriptions of a learning organization have been proposed (Senge, 1990; Greenwood et al, 1993; Garvin, 1993; Pedler, 1991; Watkins and Marsick, 1993; Marquardt, 1996). Differences in these authors' conceptualizations are captured in their models, some of which will be reviewed in this section. In general, one can think of a learning organization as an organization in which learning is continuous and transformative at the individual, team, and company levels.

Undoubtedly the most widely known model is that of Peter Senge (1990), who approaches the learning organization from a systems perspective. He suggests that building a learning organization requires five disciplines: systems thinking, personal mastery, mental models, building shared vision, and team learning. Systems thinking is the ability to view the world and its problems holistically, as a set of inter-related elements, rather than decomposing phenomena into isolated components and then attempting to reformulate the whole. Personal mastery refers to continually refining and channeling energy toward one's

personal

process

others'

vision,

of the c

the indi

group.

and beh

individ

discipl

innovat

A

Watkins

educato

change.

organiz

for "sc

for inc

embedde

develop

Senge,

interna

knowled

organiz

culture

collect

model, c

personal vision. The discipline of refining mental models is a process of surfacing, examining, and adjusting one's own and others' worldview. The fourth discipline, building shared vision, refers to creating a common picture of the future state of the organization which is connected to the personal visions of the individual members and focuses the collective energy of the group. Team learning refers to developing frameworks, processes, and behaviors to learn collectively. Senge suggests that both individuals and organizations have a role in practicing the five disciplines in order to enhance their capacity for learning and innovation.

Another perspective on learning organizations is provided by Watkins and Marsick (1993), who present themselves as adult educators who are interested in learning and organizational change. They emphasize the connection among individuals, teams, organizations, and society and suggest four action imperatives for "sculpting" a learning organization. The first imperative is for individuals to have continuous learning opportunities embedded in their work such that personal problem-solving and development occur as a natural, integrated part of work. Like Senge, they advocate sharing, dialogue, and partnering with internal and external customers to expand and distribute knowledge across teams. The third imperative resides at the organizational level and requires that leaders create a corporate culture and structure that empowers employees and teams toward a collective vision. The fourth element, which is unique to this model, calls for a recognition of the complex interdependencies

between

environ

need to

Extern

their

compet

manage

four e

adapta

syste

five

organ

learn

learn

gener

skill

other

techn

subsy

inclu

struc

entit

parti

subsy

and e

so.

between the organization and its internal and external

environment. The authors suggest that, internally, organizations

need to be responsive to the work-life needs of their members.

Externally, organizations need to contemplate the extent to which

their actions enhance their community and are impinged upon by

competitors and legislators. Watkins and Marsick argue that

managers must understand and address the nested nature of the

four elements in order to maximize their capability for

adaptation and transformation.

Marquardt (1996) offers a framework which he terms the

systems-linked learning organization model, which is comprised of

five interrelated subsystems. The core subsystem of the learning

organization is learning. This subsystem encompasses levels of

learning (individual, team, and organizational), types of

learning (adaptive or single loop, anticipatory or double loop,

generative or deutero, and action reflection learning), and

skills for learning (Senge's five disciplines and dialogue). The

other four systems--organization, people, knowledge, and

technology—support and augment learning. The organization

subsystem refers to the context in which the learning occurs and

includes the organization's culture, vision, strategy, and

structure. The people subsystem includes the various people and

entities within and outside the organization which may

participate in and contribute to the learning. The remaining two

subsystems, knowledge and technology, are unique to this model

and address the management of knowledge and the tools for doing

so. For example, the knowledge subsystem includes acquisition,

creation, sto

the technolog

(information

electronic pe

distributing

A fourth

cycle, focuse

organizationa

organizationa

private, acce

Figure 2.1

Dixon argues

organizationa

structure is

largest meani

tradition-bou

private meanin

knowledge is

<u>Common</u>

creation, storage, and transfer and utilization of knowledge. The technology subsystem encompasses the processes and systems (information technology, technology-based learning, and electronic performance support systems) for coordinating and distributing knowledge.

A fourth model, Dixon's (1983) organizational learning cycle, focuses on the linkage between individual and organizational learning. This framework suggests that organizational members possess three meaning structures: private, accessible, and collective. (see figure 2.1).

Figure 2.1   Three types of meaning structure in organizations
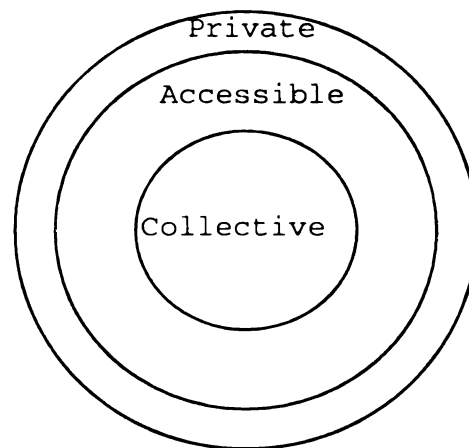
Dixon argues that organizations with the greatest capacity for organizational learning are those in which the accessible meaning structure is the most prominent. Conversely, organizations whose largest meaning structure is held collectively tend to be tradition-bound and maladaptive. Organizations with large private meaning structures risk being independent workers whose knowledge is inaccessible to others in the organization.

<u>Common Themes in the Learning Organization Literature</u>

28

The pre

of various le

highlight fiv

body of liter

levels of lea

individual, te

Greenwood et a

Marsick, 1993:

learning is a

learning to ca

and Marsick,

A third theme

integrated wi

(Senge, 1990;

1994). Addit

transformatic

on surfacing,

McGill and Sl

Marsick, 199

1993). Kim

The par

organiz

organiz

what it

individ

or impl

capacity

The preceding paragraphs addressed the unique contributions of various learning organization models. This section will highlight five elements that are present consistently in this body of literature. The first is the acknowledgment of multiple levels of learning, that is, of learning that occurs at the individual, team, and organizational levels (Senge, 1990; Greenwood et al., 1993; Isaacs, 1993; Kim, 1993; Watkins and Marsick, 1993). The second area of agreement is that individual learning is a critical enabler for team and organizational learning to occur (Senge, 1990; Greenwood et al., 1993; Watkins and Marsick, 1993; Marquardt, 1996; Dixon, 1994; Pedler, 1991). A third theme is that learning is performance-based and integrated with work rather than existing as an adjunct activity (Senge, 1990; Watkins and Marsick, 1993; Marquardt, 1996; Dixon, 1994). Additionally, the learning which occurs is transformational in nature. That is, there is a strong emphasis on surfacing, examining, and refining mental models (Senge, 1990; McGill and Slocum, 1993; Kofman and Senge, 1993; Watkins and Marsick, 1993; Isaacs, 1993; Schein, 1993; Kim, 1993; Garvin, 1993). Kim (1993) states

> The parts of an organization's memory that are relevant for organizational learning are ... those that define what an organization pays attention to, how it chooses to act, and what it chooses to remember from its experience--that is, individual and shared mental models. They may be explicit or implicit, tacit or widely recognized, but they have the capacity to affect the way an individual or organization

vie

is

(p

The fift

and orga

transcei

(Senge,

1991).

Ti

the pre

organiz

concept

primary

organi

enviro

T

all ty

includ

self-d

chapte

depend

indivi

nature

views the world and takes action. Organizational learning

is dependent on individuals improving their mental models...

(p. 44)

The fifth area of widespread agreement is that individual, team,

and organizational learning are intertwined and dependent upon

transcendental features of the organizational culture or climate

(Senge, 1990; Watkins and Marsick, 1993; Marquardt, 1996; Pedler,

1991).

Application of Theory to the Present Study

The present study focuses on two of the themes addressed in

the preceding section. The first linkage to learning

organization theory is the way in which learning is

conceptualized. The second connection, which constitutes the

primary focus of the study, is the use of six learning

organization characteristics to represent the learning

environment.

Conceptualization of Learning

This study assumes a broad view of learning, encompassing

all types of individual performance-based learning. This

includes transformative learning that occurs as part of work and

self-directed, work-related skill development. As noted in

chapter three, the specific survey items that comprise the

dependent variable (perceived support and encouragement for

individual learning) capture the integrative, transformative

nature of individual learning in the organizational context.

that

which

enviro

accor

resea

inten

it co

(1996

descri

organi

19).

descri

knowle

T

to repr

charact

open co

connect

encourag

and erpo

Each of

Shared v

Sev

Greenwood

collectiv

Learning Organization Characteristics

The second aspect of the learning organization literature that is reflected in this study is the organizational climate, which in the workplace context constitutes the learning environment. The learning environment is further defined according to six learning organization characteristics. The researcher finds it necessary at this point to clarify the intended use of the term *learning organization* and to distinguish it conceptually from the term *organizational learning*. Marquardt (1996) explains that learning organization refers to the *what* and describes the "systems, principles, and characteristics of organizations that learn and produce as a collective entity" (p. 19). Conversely, organizational learning focuses on the *how*, describing the skills and processes of generating and utilizing knowledge.

The present study uses learning organization characteristics to represent the learning environment. The six specific characteristics include a shared vision for the organization, open communication and dialogue within the organization, connection to the external environment, a corporate culture that encourages experimentation and risk-taking, employee involvement and empowerment, and systems and practices that support learning. Each of these characteristics will be explored in more detail.

Shared Vision

Several authors (Senge, 1990; Kofman and Senge, 1993; Greenwood et al., 1993; Watkins and Marsick, 1993) suggest that collective commitment to a shared vision is an important aspect

of learning

at all levels

of the future

provides focu

needed to ach

be a catalyst

organizationa

visions of th

Open Communi

Open co

means of sur

be questioned

1990; McGill

et al., 1993

1993). Sche

learning and

frame proble

collective a

Organization

trust such t

different po

their existi

process of o

contrasted w

views, and c

one that is

dialogue emph

of learning organizations. Senge (1990) asserts that employees

at all levels of the organization must share a deeply felt vision

of the future state of the organization. This collective vision

provides focus and energy for knowledge generation, which is

needed to achieve the vision. In order for the shared vision to

be a catalyst for individual and organizational learning, the

organizational vision must be implicitly linked to the personal

visions of the organizational members.

Open Communication and Dialogue

Open communication and dialogue have been suggested as a

means of surfacing individual meaning structures so that they can

be questioned and refined toward a collective vision (Senge,

1990; McGill and Slocum, 1993; Kofman and Senge, 1993; Greenwood

et al., 1993; Watkins and Marsick, 1993; Isaacs, 1993; Schein,

1993). Schein (1993) argues that in order for organizational

learning and transformation to occur, the parties must be able to

frame problems in a common way and challenge their individual and

collective assumptions or mental models in a constructive way.

Organizational members must develop sufficient understanding and

trust such that they feel comfortable raising and accepting

different points of view rather than reacting defensively when

their existing mental models are challenged. He refers to this

process of open communication as dialogue. Dialogue has been

contrasted with debate, in which people seek to defend their

views, and consensus, in which people seek to limit options to

one that is collectively acceptable (Isaacs, 1993). Thus,

dialogue emphasizes active exploration and construction of

meaning amonc

which Schein

moves us towa

Connection tc

In addit

identified as

organizationa

al., 1993; Wat

cite several e

from experien

Heinz, Southw

The authors r

to be boundar

divisional, a

interaction w

Furthermore,

organizations

accept perio

Experimentat

A fourt

corporate cu

McGill and

Marsick, 199

organizatior

and Marsick,

others to ex

associated w

meaning among various organizational members and subcultures, which Schein argues becomes increasingly important as technology moves us toward more distributed, specialized knowledge forms.

Connection to the External Environment

In addition to collaborating internally, organizations identified as learning organizations network extensively beyond organizational boundaries (McGill and Slocum, 1993; Greenwood et al., 1993; Watkins and Marsick, 1993). McGill and Slocum (1993) cite several organizations whose strategic advantage is learning from experience: San Diego Zoo, Home Depot, Sony, 3M, Wal-Mart, Heinz, Southwest Airlines, Levi Strauss, Motorola, and Honda. The authors note that all of these companies encourage employees to be boundary spanners, that is, to work across departmental, divisional, and corporate lines to gain new insight from every interaction with customers, suppliers, and competitors. Furthermore, the learning is purposeful and ongoing; these organizations actively seek regular customer feedback rather than accept periodic, focused input.

Experimentation and Risk-taking

A fourth characteristic of learning organizations is a corporate culture that encourages experimentation and risk-taking (McGill and Slocum, 1993; Greenwood et al., 1993; Watkins and Marsick, 1993; Isaacs, 1993; Garvin, 1993). This includes having organizational leaders who model calculated risk taking (Watkins and Marsick, 1993; Watkins and Marsick, 1993) and who encourage others to experiment and innovate by minimizing the consequences associated with failure (McGill et al., 1992; Garvin, 1993).

McGill et al.

Packard, cont

declining ear

competitive p

organization

companies, su

formal progra

and apply new

Employee Invo

Another

employee invo

Watkins and

how Johnsonv

authority ar

that informa

distributed

few manager

that we mus

our traditi

rescue the

leadership

establishes

whereas the

organizatio

(1988) empi

surveyed sx

university

McGill et al. (1992) describe how John Young, as CEO of Hewlett-Packard, continued experimenting with restructuring despite declining earnings. The restructuring not only improved HP's competitive position but conveyed a strong signal to the organization that experimentation is important to success. Other companies, such as Chaparral Steel and General Electric, have formal programs that encourage supervisors and managers to study and apply new processes and technology.

Employee Involvement and Empowerment

Another factor exhibited by learning organizations is employee involvement and empowerment (Watkins and Marsick, 1993; Watkins and Marsick, 1993). Watkins and Marsick (1993) describe how Johnsonville Foods improved profitability by decentralizing authority and establishing self-directed work teams. She argues that information, resources, and decision-making must be distributed across the organization rather than controlled by a few managers. This is similar to Kofman and Senge's (1993) view that we must dispel the myth of the hero leader. They argue that our traditional view of leaders as great individuals who will rescue the community must be transformed into a view of shared leadership and servant leaders. The former perspective establishes and reinforces a belief in the group's powerlessness whereas the latter position engages all members of the organization to work toward organizational improvement. Fisher's (1988) empirical study appears to support this position. Fisher surveyed skilled and management employees at a mid-size university and found increased participation in work-related

learning ex

characteris

setting sta

job, and fir

includes the

either expre

growth.

Systems and

The si

they seem to

learning (Gr

Issacs, 1993

Two related,

reward syste

organizations

(Watkins and

philosophy of

motivated to

to attain gre

and rewarding

positive beha

One crit

literature (Co

1998; Gee et a

with the learn

empowerment, a

learning experiences among employees with various sets of characteristics. One group includes employees who participate in setting standards for their job, are involved with others on the job, and find their work personally meaningful. Another group includes those who perceive a high climate for achievement and either express a high sense of competence or a high need for growth.

Systems and Practices that Support Learning

The sixth characteristic of learning organizations is that they seem to institutionalize systems and practices that support learning (Greenwood et al., 1993; Watkins and Marsick, 1993; Issacs, 1993; McGill et al., 1992; Watkins and Marsick, 1993). Two related, frequently cited systems are the appraisal and reward systems. An important factor in promoting learning in organizations is providing frequent, constructive feedback (Watkins and Marsick, 1993; Marsick, 1986). An underlying philosophy of this viewpoint is that employees are naturally motivated to work and to learn. Therefore, feedback helps them to attain greater levels of achievement. Similarly, recognizing and rewarding them for learning reinforces and encourages the positive behaviors, resulting in continuous learning.

Critique of the Learning Organization

One criticism that has been directed toward this body of literature (Coopey, 1998; Snell and Chak, 1998; Easterby et al., 1998; Gee et al., 1996) is that many of the practices associated with the learning organization, particularly shared vision, empowerment, and dialogue, may be used in a manipulative manner.

Gee and his

vision and c

corporate se

sustain the

shared visio

shape behavi

indoctrinatin

and values he

those at the

control over

corporations

in the intere

constructed i

equates to pu

Until th

addressed, the

realized (Coop

1998). Easter

from hierarchi

flattened peer

employees at l

goals and frame

feedback, have

discourse and

Although

perspective, i

study draws on

Gee and his colleagues (1996) argue that the concepts of shared vision and commonly held core values are problematic in a corporate setting where profitability is needed in order to sustain the enterprise. In the absence of genuine dialogue and shared vision, workplace practices designed to build commitment, shape behavior, and increase productivity are actually means of indoctrinating or socializing employees to conform to the vision and values held by an elitist management structure. Furthermore, those at the apex of the hierarchy possess most of the power and control over resources in the organization. Employees in corporations are analogous to ants in an ant colony: they behave in the interests of the colony because their environment has been constructed in such a way that pursuing their own interests equates to pursuing the colony's interests (Gee et al., 1996).

Until the issue of asymmetrical power relations is addressed, the potential of learning organizations may not be realized (Coopey, 1998; Snell and Chak, 1998; Easterby et al., 1998). Easterby and his colleagues (1998) suggest that the shift from hierarchical, command and control, organizations to flattened peer networks may provide more opportunities for employees at lower organizational levels to challenge existing goals and frameworks. Specific practices, such as upward feedback, have also been suggested as a means of expanding discourse and critical reflection (Snell and Chak, 1995).

Although the power dynamic offers an interesting perspective, it is not addressed in the present study. This study draws on the learning organization literature in order to

establish a

used to bett

learning. T

perceived cl

learning. T

emphasized,

work. The re

the learning

definition,

all members

value.

O

Althou

the researc

there are m

thus multip

subject. M

summarized

Merriam and

(991) which

it is worth

for contemp

to individu

as a learne

control, and

emphasize ad

personal dev

establish a set of organizational characteristics which can be used to better understand the perceived climate for individual learning. The focus is on how these characteristics affect the perceived *climate* for learning rather than on the *content* of learning. The latter question, whose vision and values are emphasized, would extend well beyond the scope of the present work. The researcher's hope, ultimately, is that the ideals of the learning organization will one day be realized. By definition, Senge's (1990) learning organization is one in which all members work together to create the results they desire and value.

Other Factors Influencing Individual Learning

Although the present study focuses on the learning climate, the researcher would be remiss in neglecting to acknowledge that there are multiple factors that affect individual learning and thus multiple perspectives from which to approach a study of the subject. Many of these factors have been well researched and summarized elsewhere in comprehensive works (see for example, Merriam and Caffarella, 1991; Long, 1992; Brockett and Hiemstra, 1991) which cannot and should not be replicated here. However, it is worthwhile to acknowledge them as alternative frameworks for contemplating adult learning. Some of these factors relate to individual attributes and identity, for example, self-concept as a learner, individual cognitive and learning styles, locus of control, and previous formal education. Other approaches emphasize adult development over the life span in terms of personal development (for example, ego development, personality

37

development,

transitions,

Two

learning cli

chapter, the

learning att

holds true n

that have fc

settings, in

workplace co

contribute t

over which t

leaders and

influence or

life span.

manipulate

within that

characteri

learning e

development, and moral development), life stages and phases, transitions, and life events.

Two considerations led to the decision to examine the learning climate in this study. As addressed earlier in this chapter, the influence of the learning environment on individual learning attitudes and actions has been well established. This holds true not only in formal learning settings but in studies that have focused specifically on learning within organizational settings, including the workplace. More importantly, in the workplace context, the organizational characteristics which contribute to the learning climate for individuals are a variable over which the organization has some control. Organizational leaders and Human Resources practitioners have little or no influence on personal traits or developmental processes over the life span. However, they have the ability to design or manipulate aspects of the organization to facilitate learning within that context, provided that they are aware of those characteristics and their relative importance to creating a learning environment.

Th

various

environ

skills

examine

charact

depend

indepe

charac

commu

the ex

experi

empowe

'espec

Questi

- Wha

  per

- Wha

  cha

- How

  inf

  lea

CHAPTER THREE

METHOD

The purpose of this study was to determine the impact of various organizational characteristics on creating a work environment in which individuals feel encouraged to develop new skills and knowledge and learn as a part of work. It also examined whether and how the various organizational characteristics interact to create a learning environment. The dependent variable for the study was "learning environment;" the independent variables included six organizational characteristics: a shared vision for the organization, open communication and dialogue within the organization, connection to the external environment, a corporate culture that encourages experimentation and risk-taking, employee involvement and empowerment, and systems and practices that support learning (especially appraisal and reward). The specific research questions being addressed in the study were as follows:

- What organizational characteristics are related to employees' perceptions of the workplace as a learning environment?

- What is the relative importance of these organizational characteristics in fostering an environment for learning?

- How do the various organizational characteristics interact to influence employees' perceptions of the workplace as a learning environment?

This chap

and address

research que

This st

purpose of s

population i

behaviors of

different va

approach was

body of exist

attitudes abo

through quest

employees at

researcher to

characteristi

generalize in

of individual

In order

original surv

"learning env

vision for th

within the or

a corporate c

taking, emplo

practices tha

addressed in

This chapter will explain the research design for this study and address how the data were analyzed in order to answer the research questions.

Research Design

This study used post hoc analysis of survey data. The purpose of survey research is to generalize from a sample to a population in order to make inferences about certain opinions or behaviors of the population or to explore relationships between different variables (Babbie, 1990; Borg & Gall, 1989). A survey approach was preferable for this study because there is a large body of existing data was available. These data contain attitudes about various aspects of the work environment gathered through questionnaires administered to a cross-section of employees at a profit-driven enterprise. This enabled the researcher to explore the relationships of these organizational characteristics to attitudes about workplace learning and to generalize inferences about these relationships to the population of individuals in a workplace setting.

In order to conduct the present study, data from the original survey were re-conceptualized into a dependent variable, "learning environment," and six independent variables: shared vision for the organization, open communication and dialogue within the organization, connection to the external environment, a corporate culture that encourages experimentation and risk-taking, employee involvement and empowerment, and systems and practices that support learning. These modifications will be addressed in the section entitled "Re-conceptualization of Data

for the Pres

context and

The se

company enga

headquartere

offices loca

replacement

suppliers.

nationwide ne

are marketed

multiple dist

the parent co

This di

employees nat

through senio

perform wareh

hourly employ

equipment mai

personnel, te

executives fr

administrativ

management, p

for the Present Study," which appears after a discussion of the context and procedures for collecting the existing data.

Context of the Study

The setting for the study was a division of a Fortune 500 company engaged in the automotive industry. This division is headquartered in the midwest and has warehousing and sales offices located nationwide. This division procures automotive replacement parts from numerous national and international suppliers. The parts are warehoused and distributed through a nationwide network of nineteen warehouses. Ultimately, the parts are marketed and sold nationally and internationally through multiple distribution channels, which include stores linked to the parent company and independent parts outlets.

This division employs approximately 13,000 full-time active employees nationwide in various capacities, from hourly employees through senior executives. The vast majority of hourly employees perform warehousing and distribution-related functions; some hourly employees perform skilled work, for example, plant and equipment maintenance. The salaried employees include support personnel, technical professionals, supervisors/managers, and executives from warehousing operations as well as various administrative areas: engineering, finance, materials management, personnel, purchasing, and sales/service/marketing.

The sa
described pr
two percent.
desirable fr
composition
in which the
distribution
distribution
characterist

Ch

Job Level
Executive
Manager/S
Technical
Support
Hourly
Race
White/Cau
Black/Afr
Hispanic
Asian/Pac
American
Gender
Male
Female
Tenure
Less than
1 to 5 Ye
6 to 10 Ye
11 to 15 Y
16 to 20 Y
21 to 25 Y
26 to 30 Y
31+ Years

*Note: Not a
therefore, pe

<u>Participants</u>

The sample comprised 5,507 employees from the population
described previously. This represented a response rate of forty-
two percent. Although this response rate is lower than is
desirable from an organizational standpoint, the demographic
composition of the sample is useful for a study such as this one
in which the unit of analysis is the individual. The
distribution of respondents appears consistent with the
distribution of the population. Specific demographic
characteristics are provided in Table 3.1.

TABLE 3.1 Demographic Characteristics of the Sample

Characteristic	Valid n	Percent of Respondents*
Job Level		
Executive	61	1
Manager/Supervisor	573	12
Technical Professional	493	10
Support	275	6
Hourly	2,896	58
Race		
White/Caucasian	3,241	65
Black/African American	655	13
Hispanic	205	4
Asian/Pacific Islander	35	1
American Indian-Alaskan Native	39	1
Gender		
Male	3,246	65
Female	998	20
Tenure		
Less than 1 Year	63	1
1 to 5 Years	70	1
6 to 10 Years	192	4
11 to 15 Years	513	10
16 to 20 Years	947	19
21 to 25 Years	709	14
26 to 30 Years	1,263	25
31+ Years	532	11

*Note: Not all participants responded to demographics questions;
therefore, percentages do not total 100%.

Data w

cover page,

section. Th

purpose, the

of terms, an

survey was t

environment.

first sevent

used consist

twelve categ

company dire

development,

[ecosystem] e

quality, and

were unique h

grouped into

related to on

items, except

type items ba

disagree. T

ended written

In order

decision maki

establish the

Data Collection

Description of the Instrument

Data were collected by means of a questionnaire containing a
cover page, 100 attitudinal items, and a written comments
section. The cover page included an explanation of the survey
purpose, the procedures for ensuring confidentiality, definitions
of terms, and marking instructions. The stated purpose of the
survey was to "obtain your opinions on key aspects of your work
environment." The attitudinal items comprised two sections. The
first seventy items were grouped into twelve categories that were
used consistently by all divisions in the corporation. The
twelve categories are people, teamwork, your job, understand
company direction and ability to contribute, employee
development, communication understanding, safety, support for the
[ecosystem] environment, your supervisor, customer satisfaction,
quality, and continuous improvement. The remaining thirty items
were unique by division. Although the divisional items were not
grouped into specific categories, they generally addressed issues
related to one's job, work environment, and leadership. All
items, except for additional demographic questions, were Likert-
type items based on a scale from "strongly agree" to "strongly
disagree." The last page of the survey provided space for open-
ended written comments.

Establishment of Reliability

In order to use a survey instrument such as this one for
decision making or research purposes, it is important to
establish the reliability and validity of the instrument. The

43

issue of re

will be add

twelve categ

derived thro

was determi

random sampl

Several fact

different nu

loadings fro

then calcula

highest for

The 12-facto

vision and v

appropriate.

the internal

category or

tested and ac

divisional it

calculation o

very few of t

Surveys

A local coord

the whenever

received their

Participation

issue of reliability will be addressed in this section; validity will be addressed in the final section of this chapter. The twelve categories used in the primary portion of the survey were derived through an exploratory factor analysis. Replicability was determined by splitting the total sample into two equal-sized random samples and performing factor analyses on each sample. Several factor analyses were conducted in each sample, selecting different numbers of factors. Correlations between factor loadings from each sample for different numbers of factors were then calculated. Correlations between factor loadings were highest for the 11- and 12-factor solutions (average $r > .99$). The 12-factor solution corresponded more closely to corporate vision and values statements and was therefore deemed more appropriate. Chronbach's alpha was also calculated to determine the internal consistency reliability of items comprising a category or dimension. All factors in the twelve categories were tested and achieved an alpha of .70 or greater. The thirty divisional items were not included in the factor analysis or calculation of alpha. However, the present study incorporated very few of these items.

Procedure

Surveys were administered between February and July, 1996. A local coordinator administered the survey on-site on company time whenever possible. Sales employees in remote locations received their survey and a reply envelope in the mail. Participation in the survey was voluntary, and all responses were

anonymous.

for data pro

    Re-c

   Because

address how

well as the

   Items f

dependent va

variables.

are noted her

phase, the in

literature on

analysis was

of at least .

phase, subjec

the items. A

the dependent

   Two type

one. From a

considered by

findings and

workplace as

validity was

on learning or

reflective of

anonymous. The completed surveys were mailed to an outside firm

for data processing and compilation.

Re-conceptualization of Data for the Present Study

Because this study uses a post hoc design, this section will

address how the data were adapted for use in the present study as

well as the steps taken to ensure validity and reliability.

Creation of Variables

Items from the original survey were re-grouped to form the

dependent variable, learning environment, and the six independent

variables. The creation of variables involved four phases, which

are noted here and explained in the next section. In the first

phase, the initial groupings were derived theoretically from the

literature on learning organizations. Next, a reliability

analysis was performed to ensure that a reliability coefficient

of at least .70 was achieved on all variables. In the third

phase, subject matter experts were consulted to further confirm

the items. A second reliability analysis was then performed on

the dependent variable and the six independent variables.

Validity

Two types of validity are important in a study such as this

one. From a practical standpoint, face validity must be

considered by the researcher who wishes to communicate the

findings and gain support for implementing actions to improve the

workplace as a learning environment. In this study, face

validity was addressed by grounding the study in the literature

on learning organizations and using survey items and terminology

reflective of that theoretical base.

From a

ascertained

our understa

act and inte

in the workp

reliability

experts. Th

of the items

together with

contribute si

eliminated.

The con

ensure that

actually meas

researchers

absolute sens

experts in ar

thought relat

consultation

and another

To estab

was mailed to

an emphasis o

The experts we

including item

items interspe

From a research perspective, content validity must be ascertained in order for the study to contribute meaningfully to our understanding of how various organizational characteristics act and interact to create an environment for individual learning in the workplace. Content validity was addressed both through a reliability analysis and through verification by subject matter experts. The reliability analysis ensured statistical coherence of the items, in other words, that the items should be grouped together within the same variable name. Items that do not contribute significantly to the particular group will be eliminated.

The consultation with subject matter experts helped to ensure that the items intended to represent each variable actually measured that characteristic or construct. Because researchers cannot ascertain social science constructs in an absolute sense, consensus was sought from multiple subject matter experts in an attempt to improve specificity and clarity of thought relative to the constructs being investigated. Expert consultation included two phases, one for the dependent variable and another for the independent variable.

To establish the dependent variable, a letter (Appendix 1-A) was mailed to four experts in the field of adult learning, with an emphasis on workplace learning and organizational learning. The experts were provided with a list of ten survey questions, including items determined through factor analysis and additional items interspersed as distracters. They were asked to select and

rate those

and support

Three

fourth exper

initial cont

in the depen

experts. Su

to strengthe

order to avo

which is sub

experiences

additional s

of learning.

variable is

- My organi
- I am give

 organizat

- My job ma
- My organi

 and exper

- I feel en

 things. (

The ind

different le

Development e

groupings of

rate those items that best indicate one's perceived opportunity and support for individual learning and skill development.

Three of the four subject matter experts responded. The fourth expert received two follow-up contacts, in addition to the initial contact and subsequent mailing. The items incorporated in the dependent variable were selected by at least two of the experts. Supplemental contacts from the experts suggested a need to strengthen the integral, transformative aspect of learning in order to avoid the misconception of learning as adjunct training which is subsequently applied on the job. Although one experiences certain constraints when using existing data, an additional survey item was added to broaden the conceptualization of learning. The final set of items included in the dependent variable is as follows:

- My organization places no barriers to people's contributions.
- I am given a real opportunity to improve my skills in my organization.
- My job makes good use of my skills and abilities.
- My organization allows the full range of all people's talents and experience to be utilized.
- I feel encouraged to come up with new and better ways of doing things. (item added)

The independent variables were established by mailing a different letter (Appendix 1-B) to four Organizational Development experts. The second letter contained tentative groupings of questions derived theoretically and confirmed

47

through a reliability analysis. The experts were asked to affirm

or delete items based on their appropriateness to the grouping.

All four subject matter experts generally agreed with the

items listed. The final set of items includes those which were

confirmed by at least three experts. In very few cases, comments

were provided regarding the wording of items that may have

provided greater clarity on the original survey. However, there

was no overall pattern to the comments. The items incorporated

in the independent variables are the same as those contained in

Appendix 1-B.

After the survey items for each variable had been

identified, the item ratings were standardized. A composite

score for each variable was then calculated using the average of

the standardized ratings for all items included in the particular

variable.

Reliability

Since the items from the original survey were re-grouped

into new variables, it was necessary to establish the reliability

of the modified set of items. This was done by performing

reliability analyses. The resulting reliability coefficients of

the dependent variable and the six independent variables all

achieved a reliability coefficient of .70 or greater (the minimum

value from the original survey addressed earlier under "Data

Collection - Establishment of Reliability"). The actual

reliability coefficients for each of the variables are displayed

in table 3.2.

Table 3.2 Reliability Coefficients of Variables

Variable Name	Alpha
Perceived Learning Climate (dependent variable)	.8576
Shared Vision	.8108
Open Communication and Dialogue	.8942
Connection to the External Environment	.8123
Experimentation and Risk Taking	.7563
Involvement and Empowerment	.9096
Systems and Practices that Support Learning	.8730

Data Analysis

After the dependent and independent variables had been finalized, data analyses were performed. Descriptive statistics were produced in order to acquaint the researcher with the data and ensure that all variables were approximately normally distributed over the full range of data. Subsequent analyses addressed specific research questions.

To address question #1, "What organizational characteristics are related to employees' perceptions of the workplace as a learning environment," a correlation matrix of the new variables and scatterplots, drawn with a regression line, were used. These procedures allowed the researcher to determine the significance of the relationship of each independent variable to the dependent variable. Due to the large sample size, a conservative approach was preferable. Therefore, the researcher sought a significance level of .01.

To address question #2, "What is the relative importance of these organizational characteristics in fostering an environment

for learning," multiple regression was used to determine the relative significance of each variable as a predictor of the outcome variable. The distribution of errors was also examined.

To address question #3, "How do the various organizational characteristics interact to influence employees' perceptions of the workplace as a learning environment, the researcher combined existing variables to create interaction terms that could be entered into a multiple regression equation. Two variables were examined for possible interaction effects: shared vision and involvement and empowerment.

The selection of the first variable was based on the learning organization literature, particularly the work of Senge (1990). Senge argues that shared vision is a compelling force that provides the focus and energy needed for generative learning. Therefore, it seems plausible that the effect of employees' perceptions of other organizational characteristics on their perception of the organization as a supportive learning environment could, in fact, depend on their level of shared vision.

The second variable examined for possible interaction was involvement and empowerment. This decision arose from the researcher's experience working with both represented and non-represented employees in various job functions and levels at company facilities nationwide. The researcher has observed that employees who are actively involved in identifying and analyzing problems assume a more active role in resolving them, including gathering information from diverse sources, testing assumptions,

and devising possible solutions. When employees are not only involved, but empowered to take action, they engage in experimentation, feedback, and refinement of innovative solutions. Thus, it seems plausible that the effect of other organizational characteristics on the perceived learning climate could depend on the employee's perceived level of involvement and empowerment.

CHAPTER FOUR

FINDINGS

This study examined the impact of six organizational characteristics on creating a work environment in which individuals feel encouraged to develop new skills and knowledge and learn as a part of work. The specific research foci included identifying which of the six organizational characteristics are related to employees' perceptions of the workplace as a learning environment; determining the relative importance of the six characteristics in creating that perception; and understanding how the six characteristics interact to create that perception.

This chapter examines the results of the data analyses for each of the research questions. The text begins with an overview of the data characteristics, examines findings pertinent to the specific research questions, and concludes with a proposed model. Throughout this chapter, words in italics represent the variable names as displayed in the tables and appendices. Most notably, all of the independent variables, except the employee's perception of connection to the external environment, were significant at the .01 level. In addition, the effect of shared vision on the perception of a supportive learning climate was found to depend on the perceived level of involvement and empowerment. The effect of the interaction was also found to depend on the employee's job level.

Characteristics of the Data

Normality of Distribution

The values for both the dependent variable and the
independent variables were generally normally distributed
(Appendix 4-A). One observation regarding the dependent variable
(learning climate) is particularly noteworthy. Although the
distribution is slightly negatively skewed, there were
approximately five percent (202 out of 4,482) of subjects who
scored in the extreme positive tail of the distribution. These
subjects also scored extremely high on the independent variable
experimentation and *risk* taking, which represents their
perception of that organizational characteristic. One-half of
the respondents who scored high on learning climate also scored
at least two standard deviations above the mean on *risk*, and the
six subjects with the highest climate scores also had the highest
risk scores.

To account for the slight skewness, two separate analyses
were generated. In one iteration, the complete data set was
used. For the second iteration, the cases in the extreme
positive tail were removed. Because the two iterations revealed
no difference and a complete data set is preferable, the complete
data set was used to produce the findings presented in this
chapter.

Data Analyses to Address Research Questions

Organizational Characteristics

The first research question was "What organizational characteristics are related to employees' perceptions of the workplace as a learning environment?" All of the independent variables were individually significant as displayed in Table 4.1. With the exception of connection to the external *environment*, which was only moderately correlated given the large sample size, the independent variables correlated with climate at a level of .7 or greater. In some cases, particularly *systems*, *communication*, and *involvement*, the independent variables were highly correlated with each other. This factor was taken into account when running multiple regression, which will be addressed next.

Table 4.1 Relationship of Learner's Perception of
Organizational Characteristics (independent variable) to
Learner's Perception of the Learning Climate (dependent
variable)

Correlations

		CLIMATE	VISION	COMMUNIC	ENVIRON	RISK	INVOLVE	SYSTEMS
CLIMATE	Pearson Correlation	1.000	.721**	.826**	.574**	.725**	.861**	.826**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	4482	3843	3000	4073	4085	3798	3702
VISION	Pearson Correlation	.721**	1.000	.772**	.709**	.744**	.753**	.747**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
	N	3843	4029	2956	3960	3887	3729	3621
COMMUNIC	Pearson Correlation	.826**	.772**	1.000	.650**	.781**	.889**	.863**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	3000	2956	3162	3125	3072	2993	2891
ENVIRON	Pearson Correlation	.574**	.709**	.650**	1.000	.677**	.609**	.619**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	N	4073	3960	3125	4298	4164	3940	3817
RISK	Pearson Correlation	.725**	.744**	.781**	.677**	1.000	.752**	.763**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	4085	3887	3072	4164	4243	3865	3781
INVOLVE	Pearson Correlation	.861**	.753**	.889**	.609**	.752**	1.000	.891**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
	N	3798	3729	2993	3940	3865	3983	3701
SYSTEMS	Pearson Correlation	.826**	.747**	.863**	.619**	.763**	.891**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	3702	3621	2891	3817	3781	3701	3860

**. Correlation is significant at the 0.01 level (2-tailed).

Relative Importance of Characteristics

The second research question was "What is the relative importance
of these organizational characteristics in fostering an
environment for individual learning?" Multiple regression was
run with various combinations of the variables in the model.
(Refer to Appendix 4-B for complete SPSS output; a portion has
been extracted and displayed as Table 4.2.) In the first
iteration, all of the variables were included (Table 4.2).

Table 4.2 Results of Multiple Regression with All

Organizational Characteristics (independent variables)

included in a Model to Predict Learner's Perception of the

Learning Climate (dependent variable)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.876[a]	.767	.766	.3779	.767	1350.569	6	2461	.000

a. Predictors: (Constant), SYSTEMS, ENVIRON, VISION, RISK, INVOLVE, COMMUNIC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.941E-02	.008		3.810	.000
	VISION	5.082E-02	.018	.048	2.758	.006
	COMMUNIC	.273	.028	.244	9.614	.000
	ENVIRON	-2.81E-02	.014	-.029	-1.959	.050
	RISK	7.927E-02	.017	.084	4.791	.000
	INVOLVE	.453	.027	.432	17.094	.000
	SYSTEMS	.151	.025	.141	6.099	.000

a. Dependent Variable: CLIMATE

In the second iteration, external *environment* was excluded

because it was only moderately correlated with learning *climate*

as addressed previously. In subsequent iterations, *systems* and

practices that support learning, open *communication*, and

involvement and empowerment were excluded one at a time and

simultaneously due to a relatively high inter-correlation with

other independent variables. In all cases, R-square reached

approximately .76. *Communication, risk,* systems, and *involvement*

were consistently significant, and shared *vision* was either significant or approaching significance at the .01 level. Connection to the external *environment* was not significant at the .01 level. One must be cautious in failing to reject the null hypothesis that connectedness to the external environment has no effect on the perceived learning climate. However, the large sample size warrants the exclusion of variables that do not attain a significance level of .01. The researcher must note that the addition of independent variables did not substantially improve the model. The bivariate model containing only *involvement* achieved an R-square of .741.

Interaction of Characteristics

The third research question was "How do the various organizational characteristics interact to influence employees' perceptions of the workplace as a learning environment?" Interaction effects were checked for two variables: shared vision and involvement and empowerment. (Refer to Appendix 4-C for complete SPSS output; a portion has been extracted and displayed as Table 4.3.) When regression was run with all of the original variables and all possible interaction terms that included vision, *vision* did not interact significantly with any other variable. When regression was run with all of the original variables and all possible interaction terms that included involvement, *involvement* interacted significantly only with vision (p = .016) as displayed in Table 4.3.

Table 4.3 Interaction Effects of the Independent Variable, Involvement, with Other Independent Variables

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.673E-02	.010		5.881	.000
	VISION	7.576E-02	.021	.072	3.689	.000
	COMMUNIC	.264	.029	.236	8.985	.000
	ENVIRON	-3.12E-02	.016	-.032	-1.922	.055
	RISK	8.630E-02	.018	.091	4.683	.000
	INVOLVE	.454	.027	.433	17.080	.000
	SYSTEMS	.145	.026	.136	5.670	.000
	INVXRISK	-1.57E-02	.024	-.015	-.660	.509
	INVXCOMM	-3.35E-02	.037	-.027	-.898	.369
	INVXENV	2.774E-02	.020	.027	1.422	.155
	INVXSYS	2.149E-02	.032	.018	.670	.503
	VISXINV	-6.23E-02	.026	-.057	-2.404	.016

a. Dependent Variable: CLIMATE

Modified Model

The analyses described above allowed the researcher to refine the original model. Regression was re-run with the following variables: *communication, risk, systems, vision, involvement,* and *visxinv,* an interaction term representing the interaction of involvement and vision. (Refer to Appendix 4-D for complete SPSS output; a portion has been extracted and displayed as Table 4.4.) *Environment* was excluded because it was not found to be significant at the .01 level. All of the variables were found to be significant, and R-square was .768 as shown in Table 4.4.

58

Table 4.4 Results of Multiple Regression for the Modified

Model using Organizational Characteristics (independent

variables) to Predict Learner's Perception of the Learning

Climate (dependent variable)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876[a]	.768	.767	.3765

a. Predictors: (Constant), VISXINV, INVOLVE, RISK, VISION, SYSTEMS, COMMUNIC

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.771E-02	.009		6.489	.000
	VISION	7.081E-02	.018	.067	3.926	.000
	COMMUNIC	.249	.028	.223	8.834	.000
	RISK	7.543E-02	.016	.080	4.742	.000
	INVOLVE	.453	.026	.432	17.310	.000
	SYSTEMS	.149	.024	.140	6.115	.000
	VISXINV	-6.52E-02	.011	-.060	-5.713	.000

a. Dependent Variable: CLIMATE

The resulting model is as follows:

$Climate_i = \beta_0 + \beta_1 Communication_i + \beta_2 Risk_i + \beta_3 Systems_i +$

$\beta_4 Involvement_i + \beta_5 Vision_i + \gamma_1 Involvement_i * Vision_i + e_i$

Where:

$Climate_i$ = The employee's perceived support and encouragement for

individual learning

β_0 = Intercept

β_1Communications$_i$ = The effect of the employee's perception of

   open communication and dialogue in the organization

β_2Risk$_i$ = The effect of the employee's perception of encouragement

   for experimentation and risk taking in the organization

β_3Systems$_i$ = The effect of the employee's perception of the

   existence of systems and practices that supporting learning in

   the organization

β_4Involvement$_i$ = The effect of the employee's perception of

   involvement and empowerment in the organization

β_5Vision$_i$ = The effect of the employee's perception of shared

   vision in the organization and the perception of involvement

   and empowerment

γ_1Involvement$_i$ * Vision$_i$ = The effect of the interaction of the

   employee's perception of shared vision in the organization and

   the perception of involvement and empowerment

 e_I = The error term

   When the appropriate values are substituted for their

symbolic equivalent, the resulting equation is:

Climate$_i$ = .058 + .249Communication$_i$ + .075Risk$_i$ + .149Systems$_i$ +

Involvement$_i$ + Vision$_i$ -.065Involvement x Vision$_i$ + e$_i$

   In order to interpret the p value, one must make certain

statistical assumptions about the random part of the model.

Specifically, one must assume that the errors are independent,

normally distributed, and homoscedastic. The assumption of

independence cannot be tested empirically. Because the data are

drawn from within one corporation, one could argue that there may

be some degree of dependence in the data. However, the fact that

the data are drawn from numerous departments, job levels and sites nationwide reduces this risk and suggests that the independence assumption is not unreasonable.

The remaining assumptions, normal distribution of errors and homoscedasticity can be verified empirically through a histogram of errors and a scatterplot of residuals versus predicted values, respectively. The histogram of errors appears normal, and the scatterplot indicates no pattern to the relationship between the residuals and predicted values (Appendix 4-E). Therefore, the assumptions for interpreting the p value have been satisfied.

Post Hoc Data Analyses

After examining the original research questions, the researcher elected to explore one additional factor, job level. This decision arose from her observation, through working with people at all levels of the organization, that organizational characteristics and specific incidents are often experienced, perceived, and interpreted very differently depending on an employee's position within the organizational hierarchy. Analysis of covariance was used to examine the effect of job level relative to all of the variables in the modified model described previously: open communication, experimentation and risk taking, systems and practices that support learning, and the interaction of involvement and empowerment with shared vision. The results (Appendix 4-F) revealed that job level interacted significantly with *communication*, *risk*, and the interaction of *involvement and vision*. There was a significant interaction between job level and *communication*. The effect was strongest

for managers and weakest for executives and hourly employees. The effect of job level on *risk* was strongest for managers and secretarial/clerical employees. The effect of job level on *involvement and vision* was consistent across all groups except hourly employees, for whom the effect was the weakest.

Final Model

The results of the analyses of covariance described in the previous section permit further refinement to the earlier model. The revised model is:

$Climate_{ij}$ = α_j + β_1Communication$_{ij}$ + γ1jCommunication * Job Level$_{ij}$ + β_2Risk$_{ij}$ + γ2jRisk * Job Level$_{ij}$ + β_3Systems$_i$ + β_4Involvement$_{ij}$ + β_5Vision$_{ij}$ + γ3jInvolvement * Vision * Job Level$_{ij}$ + e$_{ij}$

Where:

$Climate_{ij}$ = The perceived support and encouragement for individual learning for employee i at job level j

α_j = The effect of job level

β_1Communication$_{ij}$ = The main effect of the employee's perception of open communication and dialogue in the organization for employee i at job level j

γ1jCommunication * Job Level$_{ij}$ = The effect of the interaction between the employee's perception of open communication and dialogue in the organization and the employee's job level for employee i at job level j

β_2Risk$_{ij}$ = The main effect of the employee's perception of encouragement for experimentation and risk taking in the organization for employee i at job level j

62

$\gamma 2j$Risk * Job Level$_{ij}$ = The effect of the interaction between the
employee's perception of encouragement for experimentation and
risk taking in the organization and the employee's job level
for employee i at job level j

β_3Systems$_i$ = The effect of the employee's perception of the
existence of systems and practices that supporting learning in
the organization for employee i

β_4Involvement$_{ij}$ = The main effect of the employee's perception of
involvement and empowerment in the organization for employee i
at job level j

β_5Vision$_{ij}$ = The main effect of the employee's perception of
shared vision in the organization for employee i at job level
j

$\gamma 3j$Involvement * Vision * Job Level$_{ij}$ = The effect of the three-
way interaction between the employee's perception of
involvement and empowerment in the organization, shared vision
in the organization, and the employee's job level for employee
i at job level j

e_{ij} = The residual error for employee i at job level j

Summary of Key Findings

The final model reflects the four major findings of this
study. First, the independent variables representing
organizational characteristics were strongly correlated with the
dependent variable, perceived learning climate. However, they
were also highly inter-correlated, causing a multi-variate model
to be only slightly more predictive than a bivariate model.
Second, the organizational characteristic of connection to the

external environment was not significant. The third key finding

was that involvement and empowerment interacted with shared

vision. Finally, job level interacted significantly with two

organizational characteristics—open communication and dialogue

and **expe**rimentation and risk taking—and the effect was strongest

for managers/supervisors.

CHAPTER FIVE

DISCUSSION

This chapter will expound on the findings presented in the preceding chapter. From the researcher's perspective, this study produced four findings which warrant discussion. The first section will examine each one individually. Subsequent sections will address the implications of the collective findings for theory and future research and recommendations for practice in organizational settings.

Examination of the Findings

Holistic Nature of the Work Environment

One finding was that five of the six independent variables (perceived level of vision, involvement, risk, communication, and systems) were significantly correlated with the dependent variable, perceived learning climate. In some cases, the independent variables were also highly correlated with each other. There are at least two possible explanations for the inter-relatedness of these variables.

One explanation is that the organizational characteristics are interdependent and function in a systemic manner to constitute the work environment. In an interview with Patricia Galagan (Galagan, 1991), Peter Senge acknowledges that organizational systems, policies, and practices are reflective of the mental models of organizational members who create and perpetuate them. Accordingly, it is problematic to disconnect them and attempt to examine them as component parts. However,

from a theoretical and practical standpoint, such microanalyses are needed in order to improve our understanding and ability to facilitate all levels of learning in organizations.

In addition to actually interacting in an interdependent sense, another explanation is that employees perceive the work environment or culture in which they are enmeshed in a holistic way. Because the variables in this study actually measure employees' perceptions of specific organizational characteristics, the fact that they are highly inter-correlated may indicate that employees perceive their environment in a more holistic sense as involving, supportive, open, and so forth as opposed to restrictive and closed. It may be difficult to examine, conceptually, factors which are not easily disentangled from each other. This is perhaps one of the reasons why previous studies (Beard, 1991; Jude-York, 1991; and Clardy, 1992) have concluded that there is a positive relationship between individual learning and a broader, more generalized phenomenon of a supportive organizational climate.

Connection to the External Environment

The one independent variable that was not significant in the multiple regression equation is the employee's perception of connection to the external environment. Two factors seem to provide a plausible explanation.

One obvious factor in any study that attempts to measure a psychological or social construct is the way in which the phenomenon is measured. It is possible that the questions used to define this organizational characteristic were not the

appropriate ones. None of the subject matter experts who

reviewed the survey items for the independent variables suggested

any additions, deletions, or modifications to this category. One

aspect that may be missing from the way in which this

organizational characteristic is defined is the notion of

actively seeking customer input and feedback.

A seemingly more likely explanation of why this variable was

insignificant is that the impact of the external environment may

be more related to team and organizational learning than to

individual learning. Considering the day-to-day activities of

most employees in an industrial setting, an individual is very

likely to experience organizational characteristics such as

involvement and empowerment, encouragement to take risks, and

open communication. Unless the employee is a salesperson with

direct customer contact responsibilities or a consumer research

analyst, it is more likely to be the work team or organization,

rather than the individual employee, that interacts with people

or information from the external environment on a daily basis.

Therefore, this variable may be important for team and

organizational learning because those entities typically have

direct interaction with and impact on customers and suppliers.

Kim (1993) provides an organizational learning model which tends

to support this position. Adapting an earlier model by March and

Olsen, Kim asserts that individuals act based on their individual

beliefs. The collective effect of these individual actions

create organizational actions, which produce an environmental

response. The final phase of the cycle occurs when the

environmental response affects individual beliefs, which can then

lead to alternative individual and organizational actions.

Therefore, the link between the individual employee and the

external environment is mediated by the organization.

<div align="center">Vision</div>

The results for the independent variable, shared vision,

were somewhat surprising initially. Senge (1990) describes

shared vision as a powerful force for providing focus and energy

for learning. Therefore, the researcher initially expected that

variable to be consistently significant regardless of the other

variables in the model. A subsequent re-examination of the

learning organization literature, particularly the work of Peter

Senge, and the survey questions revealed a problematic

measurement issue.

In order for a shared vision to compel people to action, it

must be personally meaningful (Senge, 1990). The vision must be

linked to their personal values in order to create and sustain

the commitment level necessary to achieve the vision. In the

present study, shared vision was measured according to how well

employees understood the objectives, understood how their work

was connected to the objectives, and whether everyone in the

organization was working toward the same objectives. None of the

items measured the congruence of the employee's personal mission

and values with the company's objectives. It is certainly

possible for employees to understand the objectives without

agreeing with them or finding them intrinsically meaningful.

Because the study used an existing data set which does not

contain items pertaining to the meaningfulness of the vision, the variable could not be adjusted to permit further analysis.

The interaction of involvement and empowerment with shared vision merits further discussion. In essence, this finding suggests that the effect of shared vision on the perceived learning climate depends on the employee's level of involvement and empowerment. This section will draw on theory, research, and practical experience to explore possible reasons why involvement and empowerment might enhance the vision effect.

Several studies (Mohrman et al., 1996; Black and Gregerson, 1997; Pearson, 1987) have found a positive relationship between employee involvement or participation and outcomes such as performance and satisfaction. Although the present study focuses on learning climate rather than efficacy or performance as the outcome, these studies are insightful because they address the involvement effect. Black and Gregerson's (1997) work is particularly relevant in this regard. The researchers examined participation in decision-making, which they define similarly to involvement and empowerment in the present study. They suggest that the positive relationship between participation and other outcomes can be explained through the theoretical frameworks of value attainment and expectancy theory.

The value attainment argument is that employees are satisfied when they are able to meet intrinsic needs within the work environment. To the extent that participation in decision making increases employees' opportunity to influence the work environment in ways which they value, employees will be

satisfied. Therefore, involvement may enhance the effect of other variables, in this case, shared vision, on employees' holistic perceptions of the work environment. If employees perceive alignment between the company's goals and their individual goals, that is, a shared vision for the organization, but are not involved and empowered to act on the vision, they may experience the work environment in a holistic sense as non-supportive and inhibiting. However, given the same level of perceived vision, and higher levels of involvement and empowerment, individuals may perceive the learning climate, holistically, as positive and supportive.

In terms of expectancy theory, Black and Gregerson suggest how participation enhances the relationship between effort and performance. When employees are involved in decision making, they have an opportunity to apply relevant knowledge and skills. Because they believe that their involvement will lead to better quality decisions, they expend greater effort, which leads to higher performance and desired outcomes. The motivation-effort-performance cycle is continuously reinforcing. Applied to the current study, this argument suggests that when employees are involved in creating a shared vision for the organization, they perceive greater encouragement and compulsion to obtain the knowledge and skills necessary to participate effectively in formulating and achieving the vision.

A third possible reason why involvement may enhance the effect of shared vision is drawn from the researcher's workplace experience. As an organizational development consultant who has

worked with numerous management-employee groups at various levels in various functional units, the researcher has consistently observed that greater levels of involvement and interaction between more senior managers and their employees result in greater understanding and appreciation of the other's perspective. For lower level employees, such perspective taking appears to have four effects: a greater recognition of how and why the organizational vision and goals were formulated; what strategies need to be executed effectively to achieve the goals; the importance of employees executing their individual roles and job tasks effectively within an interdependent system; and greater demonstrated commitment to realize the vision. The enhanced understanding and commitment lead to increased learning and innovation within the employee's own job and a more active role in driving improvements in processes and practices across other areas of the organization. Similar to the value attainment and expectancy theory arguments, this view concurs that involvement and empowerment lead to greater effort and improved results. However, the researcher proposes a subtle difference in motivation and rationale. Specifically, when leaders involve employees, they make explicit their mental models of how the organization functions and why specific goals and strategies have been established. They also introduce an element of personal vulnerability and need for others to take action in order for the organization to succeed. Thus, the motivation and perceived encouragement for learning stem from viewing goals as purposeful and meaningful, rather than arbitrarily imposed and irrelevant,

and from a realization of the need for personal responsibility and action to achieve organizational success. This argument does not mean to suggest that employees would work toward a vision that conflicted with their personal interests and values. However, it suggests that employees will embrace and act upon an organizational vision for reasons other than personal gain if they understand the underlying rationale and feel a personal, custodial responsibility to achieve the vision.

When an interaction effect is present, one must consider the directionality of the effect. It is possible that shared vision enhances the involvement effect rather than the reverse; however, several factors make that explanation unlikely. From a statistical standpoint, involvement and empowerment was more highly correlated with learning climate than was shared vision. Involvement was also consistently significant at the .01 level whereas the significance of shared vision varied slightly depending on the presence of other independent variables in the model. Reverse directionality is also questionable from a practical standpoint. Even if an employee were extremely high in shared vision, and therefore intrinsically motivated to learn and develop new skills, it seems unlikely that the person would perceive the learning climate as supportive and encouraging in the absence of involvement and empowerment.

Effect of Job Level

The fourth finding that merits discussion is that the effect of two independent variables—open communication and dialogue and encouragement of experimentation and risk taking—on the

employee's perception of support and encouragement for individual learning depended on the employee's job level. That these two variables would be positively related to learning climate was to be expected from the learning organization literature addressed in chapter two. However, the interesting finding was that the effect was strongest for managers/supervisors.

To examine this finding and suggest a possible explanation, the researcher seeks to establish a context for readers based on her organizational experience. The manager/supervisor group represents, at the most, three levels of employees. They report to either a higher level managerial employee or an executive and directly supervise, typically, between six salaried and twenty-five hourly employees. (The job level information on the original survey does not permit further differentiation of this group.) The researcher has observed three common factors among this group. First, they interact more frequently with employees of *both* higher levels and lower levels than themselves. Conversely, employees at other job levels tend to interact laterally and upward. Second, managers/supervisors feel responsible for conveying or representing appropriate organizational messages and actions between the two levels, but most importantly, to their direct reports. Perhaps because of this responsibility, they listen to formal messages and observe informal actions more closely than do employees at other levels, considering the likely impact of statements and actions as they unfold in the organization. The third common factor is that managers often express a perceived discrepancy between the stated

messages and actions two levels above them. As a result, they feel uncertain and uncomfortable about how to provide appropriate leadership to the employees whom they supervise.

In the subject organization, there are many formal organizational messages that support individual and organizational learning. For example, vision, value, and goal statements include sentiments such as becoming a learning organization, the value of human resources, the importance of innovation, the need for continuous improvement, and so forth. When senior leaders encourage their employees to try new methods, express alternative viewpoints, and report problems, and those behaviors are rewarded (or at least not punished) supervisors/managers perceive consistency between the stated messages and actions. They can then execute their supervisory/managerial roles, confident that they are doing so in accordance with the organizational mandate. Conversely, when supervisors/managers view or experience retribution because of a failed experiment or a reported problem, a discrepancy occurs. The researcher suggests that because supervisors/managers attend closely to both stated messages and actions, their perception of encouragement for experimentation and risk taking and open communication in the organization affects their perception of support and encouragement for individual learning to a greater extent than occurs at other job levels.

Implications for Theory and Future Research

The collective set of findings has several theoretical implications for the field of workplace learning. Overall, the

findings support the importance of the learner's perception of context to attitudes toward learning, in this case, perceived support and encouragement for individual learning. In addition, the use of learning organization characteristics to conceptualize the learning environment in the workplace appears to have promise as a framework within which individual learning is embedded. The findings in this study suggest that a connection to the external environment could be eliminated from a model which seeks to explain individual learning in organizations rather than organizational learning.

In order to refine a model that explains how organizational characteristics influence employees' perceptions about the encouragement and support for individual learning, further research is necessary. The findings of this study suggest possible enhancements to the ways in which the organizational characteristics are measured and how the data are analyzed.

Refinements to the Measurement of Organizational Characteristics

De-couple involvement and empowerment

In terms of the organizational characteristics to be measured, the interaction of involvement and empowerment with shared vision indicates a possible need to distinguish between involvement and empowerment and consider them as two variables. A re-examination of Watkins and Marsick's (1993) work revealed a subtle distinction between these practices in terms of their propensity to stimulate learning. They argue that participatory practices in the workplace create more "space" for learning, that is, more room for new beliefs, ideas, and theories, but that

empowerment is critical to enabling actions that lead to learning and transformation. The organization must enable employees to take initiative by providing them with the authority and accountability to enact the vision.

The set of items from which data were obtained for use in the present study does not permit adequate differentiation of these two variables. Future research efforts might benefit from constructing or identifying items that represent, exclusively, involvement or empowerment. Examples of involvement include participation in identifying problems and generating potential solutions and involvement in work-related decisions, without being able to take action to implement a solution or to make the decision and experience its consequences. Empowerment would be defined as being encouraged to take risks to solve a problem, having the authority to take action, and being held accountable for one's actions.

Shared vision

The independent variable, shared vision, could be improved with the addition of items pertaining to the alignment of an employee's personal vision with the organizational vision. As noted earlier in the discussion of specific findings, Senge (1990) suggests that a vision must be personally meaningful to compel one to action. Using the set of items available, the present study defined this variable in terms of understanding the relationship of one's work to the work and goals of the total organization. Future research in this area could be enhanced by adding two aspects to this measurement. The first aspect is the

degree to which employees find the organizational vision to be personally meaningful. The second, related aspect is the degree to which employees perceive that the organizational vision is consistent with their personal vision. The former aspect is intended more broadly, that is, to identify whether the organizational vision falls within the scope of activities and values to which the person attaches importance. The latter aspect is intended to measure the degree of compatibility between the organizational vision and the employee's personal vision.

Systems and Practices that Support Learning

Another variable that could be refined in future studies is systems and practices. The present study was only able to measure two aspects of this construct. However, information systems should also be included if possible. McGill and Slocum (1993) address the importance of having accurate, timely and useful data and information available to employees for use in decision making. Future research may benefit from including these three facets of information flow within the organization.

Instrumentation

In addition to refining the conceptualization and measurement of specific variables, future researchers will want to consider two instrumentation factors. One consideration is the survey instrument in total; the other consideration pertains to the job level information.

From a measurement standpoint, one difficulty in the present study that could be improved in future research endeavors is the high inter-correlation of the variables. One option that may

reduce the inter-correlation is to define the variables more precisely using some of the recommendations discussed earlier. This would require an instrument specifically designed for this purpose. In an organizational setting, where employee surveys are often expected to provide information about a multitude of organizational characteristics to a variety of people and groups, such customization if problematic. An alternative, although perhaps equally difficult option, would be to incorporate data from more than one instrument. At a minimum, one could utilize a different instrument to measure the dependent variable than that used to measure the independent variables. This option might improve the predictive value of any individual variable but would not necessarily improve the analysis of a multi-variate model. More extensive work would be needed in order to combine data from a variety of instruments that would measure specific organizational characteristics. Once again, organizations may prefer to minimize the frequency and variety of employee surveys in order to minimize the time and cost involved in survey design and administration.

Another enhancement to subsequent survey instruments would be to refine the number of managerial/supervisory job levels. This would allow the researcher to explore further the interaction of shared vision, involvement and empowerment, and job level. Specifically, one would be able to determine if the strength of the effect was consistent across different managerial levels or whether the effect was stronger or weaker toward the first-line supervisor or senior manager level.

Refinements to Data Analysis

The present study examined the relationship of organizational characteristics to individual learning using the individual employee as the unit of analysis. Another useful perspective for analyzing this relationship would be to examine organizational subcultures. Learning organization theorists have suggested that interaction and learning within organizations occurs within "communities of commitment" (Kofman and Senge, 1993) or "communities of practice" (Schein, 1993). Within these organizational subcultures, individuals share common frames of reference, common language, and common assumptions (Schein, 1993). Within this framework, it may be preferable to examine in tact organizational units, for example, natural communities or subcultures that exist within an organization. This would require additional coding of the specific respondents and their relationships within the organization at the time of data collection as well as different analytical techniques.

A useful approach for analyzing the data in terms of organizational subcultures is social network analysis. Wasserman and Faust (1994) define and describe the principles and terminology associated with this framework. From this perspective, the social environment can be viewed as patterns of relationships among interacting units. Accordingly, individual actors, in this case employees, and their actions are viewed as interdependent units, and individual behavior is facilitated or constrained within the network structural environment. A social network consists of "a finite set or sets of actors and the

relation or relations defined on them" (p. 20). A critical, distinguishing feature of this perspective is the use of relational information to study theories. To apply this framework to the present study, one would need to determine the frequency and type of interaction between individuals and groups throughout the organization. One would then analyze the data relative to these structural, or social, networks. An apparent drawback of this approach in large organizations is the painstaking effort required to accurately capture the social networks. This is particularly true as organizations change their work structure to become more competitive, for example, by increasing geographic dispersion, performing more work cross-functionally, and establishing matrixed reporting relationships.

Implications for Practice

The results of this study provide two overarching recommendations for organizational leaders and human resources professionals who seek to facilitate individual transformative learning in their organizations. This section will attempt to provide strategic guidance, recognizing that the specific tactics needed to implement the recommendations successfully within any particular organization will be somewhat unique.

The first recommendation for leaders at all organizational levels is to involve employees and encourage them to experiment and take risks within the scope of their job. By involving employees in decisions that affect their work, encouraging them to try new ways of accomplishing tasks, and then supporting those efforts, employees are likely to feel encouraged to learn and

develop new skills, knowledge, and methods related to their work. The researcher's experience has been that leaders often feel powerless to affect transformational learning because of systems and practices that are prevalent, or are lacking, elsewhere in the organization. Although the impact of individual, transformational learning on a particular job or within a particular work group may be significantly less than the potential impact of transformational learning at the level of an entire company or business unit, the learning can still have an immediate, tangible impact. Such involvement and experimentation at the individual job level also reinforces desirable learning behaviors and establishes a foundation for future development as organizational thinking patterns and systems evolve.

Leaders seeking to create large scale transformational change will need to proceed beyond involvement. As Watkins and Marsick (1993) point out, involving people within a confined scope, without altering the structure and culture of the organization that disempower them, will not lead to large scale change. One of their action imperatives for sculpting a learning organization is to empower people toward a collective vision. The findings of this study support and build upon that recommendation. Specifically, this study suggests the importance of focusing on the role of managers/supervisors. That group is most affected by the interaction of involvement and empowerment with shared vision. They are also in a position within the organizational hierarchy to convey organizational messages and direct the ongoing activities of individuals and work teams.

Therefore, the organization must ensure clarity of vision, and empowerment to realize the vision, among this group. Based on her practical experience, the researcher cautions that the importance of shared vision, involvement, and empowerment at this level does not indicate that a large scale change effort should begin with this group. Rather, the leverage point needed to create an environment for empowerment toward a shard vision is much higher in the organization, residing with senior executives. By involving managers in creating a collective vision, and empowering them toward that vision, they will perceive a climate for transformational learning within their job scope. They are then well positioned to model and cascade individual learning and support for learning through subsequent job levels.

Appendices

DEPENDENT VARIABLE VALIDATION LETTER

Sue Abbey
ADDRESS

DATE

NAME OF EXPERT
ADDRESS OF EXPERT

Dear NAME OF EXPERT:

I am a doctoral student at Michigan State University and also work as an Organizational Development Manager for a division of General Motors. My advisor, John Dirkx, suggested that I contact you for input on one aspect of my dissertation proposal. M dissertation focuses on continuous learning in the workplace. Using learning organization theory and research as a point of departure, I am interested in organizational factors that create an environment in which individuals feel encouraged to learn and develop new knowledge and skills as part of work. (I use the term "work-related learning" in the broadest sense to encompass formal, informal, and incidental learning applied in a workplace setting.).

In order to determine the relative importance of various factors in fostering a learning climate, I plan to use existing employee survey data. First, I must identify a set of items that measures employees' perceptions about their opportunity and encouragement for individual skill development (dependent variable). I would appreciate your assistance and expertise with this task as explained on the next page. This should only take a few minutes.

Below is a list of ten items. Please perform the following:

1. Select those items that you believe might indicate a person's perceived opportunit
   and encouragement for individual skill development. Indicate your choice by placing
   a "x" in the column entitled "Yes."

2. Rank order the items you selected according to their relevance in measuring a
   person's perception of opportunity and encouragement for learning and skill
   development. Rank the items using the following scale: 1= most relevant/most
   important to include in the dependent variable, 2= next most relevant/important to
   include, and so forth.

YES	RANK	SURVEY QUESTION
		My organization places no barriers to people's contributions.
		My supervisor/manager has the information needed to answer my questions.
		How satisfied are you with the training you received for your present job
		Conditions in my job allow me to be about as productive as I could be.
		I am given a real opportunity to improve my skills in my organization (plant, staff, unit, etc.).
		Considering everything, how satisfied are you with your job
		In my work, I find it easy to apply the training I have received.
		My job makes good use of my skills and abilities.
		My organization allows the full range of all people's talents and experience to be utilized.
		Safety issues in my area are resolved promptly.

Thank you for your input on this important piece of my dissertation. You may use the
enclosed envelope for your reply or send an e-mail to ABBEYSU1@pilot.msu.edu.
would greatly appreciate receiving your input by DATE. If you would like to contact me
in person with any questions or suggestions, my phone number is 248-853-4344.

Sincerely,

Susan R. Abbey

cc: John Dirkx

INDEPENDENT VARIABLES VALIDATION LETTER

Sue Abbey
ADDRESS

DATE

NAME OF EXPERT
ADDRESS OF EXPERT

Dear NAME OF EXPERT:

I am a doctoral student at Michigan State University and also work as an Organizational Development Manager for a division of General Motors. My advisor, John Dirkx, suggested that I contact you for input on one aspect of my dissertation proposal. M dissertation focuses on continuous learning in the workplace. Using learning organization theory and research as a point of departure, I am interested in organizational factors that create an environment in which individuals feel encouraged to learn and develop new knowledge and skills as part of work. (I use the term "work-related learning" in the broadest sense to encompass formal, informal, and incidental learning applied in a workplace setting.).

In order to determine the relative importance of various factors in fostering a learning climate, I plan to use existing employee survey data. With input from subject matter experts, I have identified a set of items for the dependent variable (employees' perceptions about their opportunity and encouragement for individual learning and skill development). I must now identify appropriate survey items for each of the independent variables. I would appreciate your assistance and expertise with this task as explained below. This should take approximately 15 minutes.

The attached two pages contain a list of variable names (bold type) and tentative surve items to measure each variable. Please identify any items you believe do not belong in the particular grouping and indicate by placing an "x" in the column entitled "Exclude."

Thank you for your input on this important piece of my dissertation. You may use the enclosed envelope for your reply or send an e-mail to ABBEYSU1@pilot.msu.edu. would greatly appreciate receiving your input by DATE. If you would like to contact me in person with any questions or suggestions, my phone number is 248-853-4344.

Sincerely,
Susan R. Abbey

EXCLUDE	VARIABLES / SURVEY QUESTIONS
*********	**1. Collectively Shared Vision for the Organization**
	Everyone in my organization is working toward the same objectives.
	[Corporate] senior management gives employees a clear picture of the direction in which [company] is headed.
	I understand the goals of my organization (plant, staff, unit, etc.)
	I can see the relationship between what I do (my job responsibilities, objectives, etc.) and [Division's] goals and objectives.
	I understand how the work of my department fits into the total work performed by [Division].
*********	**2. Open Communication and Dialogue**
	Different departments in my organization cooperate with each other to get the job done.
	I receive information about updates, changes, and decisions that affect m job.
	My supervisor/manager takes the time to fully explain changes in plans or procedures.
	I have enough information to do my job well.
	When employees express different points of view, these alternative viewpoints are valued by [Divisional] management.
	Where I work, people are willing to openly confront and solve problems (rather than sweep them under the rug)
	Top management encourages employees and supervisors to report important information up-the-line, even if it is "bad news."
	My organization (plant, staff, unit, etc.) is working hard to build trust among people.
	If needed, I have regular opportunities to express my ideas or ask questions of the top management Plant Manager/Director & Staff of m organization (plant, staff, unit, etc.)
	How satisfied are you with the information you receive from management on what's going on in the company?
	I am satisfied with the information I receive about my location (its performance, plans, etc.)
*********	**3. Connection to the External Environment**
	People in my organization (plant, staff, unit, etc.) know who their customers are.
	I understand what my organization must do to meet or exceed our customers' requirements.
	My organization uses customer input to focus its activities.
	[Division] is sensitive to its customers (it understands what customers need and want; it is attuned to changing market conditions.

CONTINUED ON NEXT PAGE

87

EXCLUDE	VARIABLES / SURVEY QUESTIONS
*********	**4. Encouragement of Experimentation and Risk-Taking**
	Continuous improvement is emphasized in my organization.
	My organization (plant, staff, unit, etc.) is actively working on implementation of quality improvement strategies in my area.
	[Divisional] top management is willing to try new methods in accomplishing out work.
*********	**5. Employee Involvement and Empowerment**
	My work gives me a feeling of personal accomplishment.
	I receive the support I need to do an effective job.
	When I make a decision, I can usually expect my supervisor to back me up.
	Sufficient effort is made to get the opinions and thinking of the people who work here.
	How satisfied are you with your involvement in decisions that affect your work?
	My supervisor/manager acts on my ideas, suggestions or concerns.
	In the decision making process, [Divisional] top management involves people who have relevant information about the decision.
	I have the authority I need to do my job effectively.
	My immediate supervisor is permitted to make decisions necessary to do an effective job.
	Top management within [Division] has created an environment in which employees want to do the best they can.
*********	**6. Appraisal and Reward Systems that Support Learning**
	My supervisor/manager gives me feedback that helps me improve m performance.
	Top management within [Division] has created an environment in which employees want to do the best they can.
	Top leadership of my organization rewards actions that reflect the beliefs and values of the quality improvement process.
	I have a clear idea of the results expected of me for my job.
	I get enough feedback about my performance to know if I'm performing up to expectations.
	My supervisor appreciates and recognizes employees for contributions, either individually or as a team.
	How satisfied are you with the recognition you receive for doing a good job?

HISTOGRAMS OF VARIABLES

CLIMATE

CLIMATE

Std. Dev = .80
Mean = -.00
N = 4482.00

VISION

VISION

Std. Dev = .75
Mean = -.02
N = 4029.00

COMMUNIC

Std. Dev = .69
Mean = .11
N = 3162.00

ENVIRON

Std. Dev = .80
Mean = -.01
N = 4298.00

RISK

Std. Dev = .81
Mean = -.01
N = 4243.00

INVOLVE

Std. Dev = .76
Mean = -.01
N = 3983.00
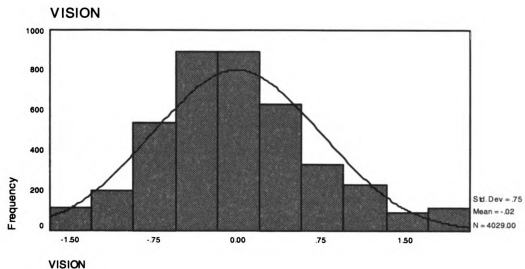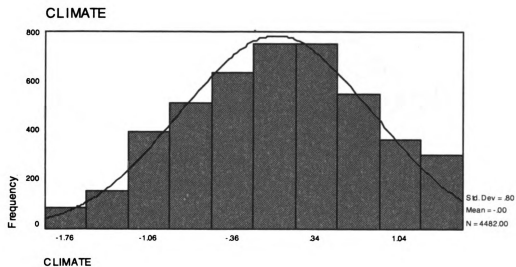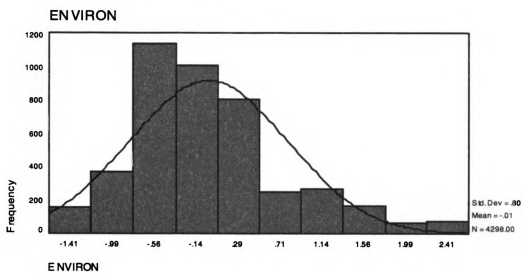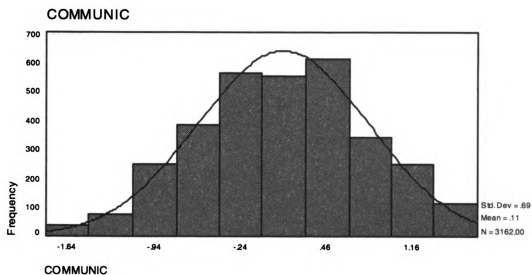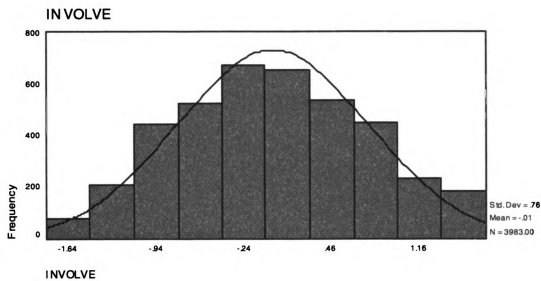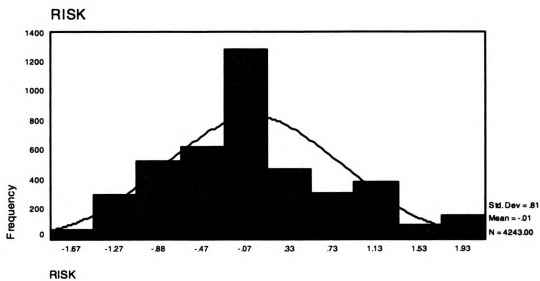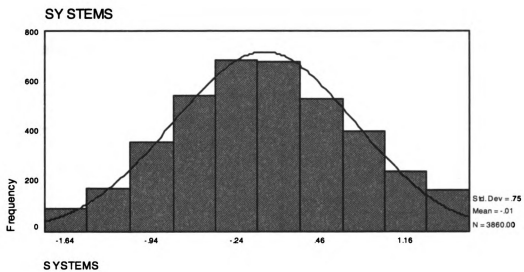
SYSTEMS

MULTIPLE REGRESSION RESULTS FOR UNIQUE VARIABLES

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	SYSTEMS, ENVIRON, VISION, RISK, INVOLVE, COMMUNIC[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: CLIMATE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.876[a]	.767	.766	.3779	.767	1350.569	6	2461	.000

a. Predictors: (Constant), SYSTEMS, ENVIRON, VISION, RISK, INVOLVE, COMMUNIC

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1157.128	6	192.855	1350.569	.000[a]
	Residual	351.419	2461	.143		
	Total	1508.547	2467			

a. Predictors: (Constant), SYSTEMS, ENVIRON, VISION, RISK, INVOLVE, COMMUNIC

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.941E-02	.008		3.810	.000
	VISION	5.082E-02	.018	.048	2.758	.006
	COMMUNIC	.273	.028	.244	9.614	.000
	ENVIRON	-2.81E-02	.014	-.029	-1.959	.050
	RISK	7.927E-02	.017	.084	4.791	.000
	INVOLVE	.453	.027	.432	17.094	.000
	SYSTEMS	.151	.025	.141	6.099	.000

a. Dependent Variable: CLIMATE

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	SYSTEMS, VISION, RISK, INVOLVE, COMMUNIC[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: CLIMATE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.874[a]	.765	.764	.3789	.765	1615.435	5	2485	.000

a. Predictors: (Constant), SYSTEMS, VISION, RISK, INVOLVE, COMMUNIC

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1159.725	5	231.945	1615.435	.000[a]
	Residual	356.797	2485	.144		
	Total	1516.522	2490			

a. Predictors: (Constant), SYSTEMS, VISION, RISK, INVOLVE, COMMUNIC

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.171E-02	.008		4.124	.000
	VISION	3.882E-02	.017	.037	2.250	.025
	COMMUNIC	.263	.028	.236	9.331	.000
	RISK	7.189E-02	.016	.076	4.494	.000
	INVOLVE	.457	.026	.436	17.353	.000
	SYSTEMS	.150	.025	.140	6.090	.000

a. Dependent Variable: CLIMATE

94

MULTIPLE REGRESSION RESULTS WITH INTERACTION TERMS

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	VISXSYS, INVOLVE, ENVIRON, RISK, VISXENV, VISION, SYSTEMS, VISXRISK, COMMUNIC, VISXINV, VISXCOMM[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: CLIMATE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.878[a]	.770	.769	.3758

a. Predictors: (Constant), VISXSYS, INVOLVE, ENVIRON, RISK, VISXENV, VISION, SYSTEMS, VISXRISK, COMMUNIC, VISXINV, VISXCOMM

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1161.766	11	105.615	747.995	.000[a]
	Residual	346.781	2456	.141		
	Total	1508.547	2467			

a. Predictors: (Constant), VISXSYS, INVOLVE, ENVIRON, RISK, VISXENV, VISION, SYSTEMS, VISXRISK, COMMUNIC, VISXINV, VISXCOMM

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.410E-02	.009		5.958	.000
	VISION	7.975E-02	.019	.076	4.176	.000
	COMMUNIC	.257	.029	.230	8.914	.000
	ENVIRON	-2.87E-02	.016	-.029	-1.842	.066
	RISK	8.535E-02	.017	.090	5.014	.000
	INVOLVE	.449	.027	.428	16.680	.000
	SYSTEMS	.151	.025	.141	6.012	.000
	VISXRISK	-2.29E-02	.023	-.024	-.986	.324
	VISXCOMM	1.583E-02	.039	.014	.405	.686
	VISXENV	2.640E-02	.017	.030	1.521	.128
	VISXINV	-6.07E-02	.038	-.055	-1.614	.107
	VISXSYS	-1.91E-02	.035	-.018	-.546	.585

a. Dependent Variable: CLIMATE

96

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	VISXINV, INVOLVE, ENVIRON, RISK, INVXSYS, INVXENV, VISION, INVXRISK, SYSTEMS, COMMUNIC, INVXCOMM[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: CLIMATE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.878[a]	.770	.769	.3758

a. Predictors: (Constant), VISXINV, INVOLVE, ENVIRON, RISK, INVXSYS, INVXENV, VISION, INVXRISK, SYSTEMS, COMMUNIC, INVXCOMM

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1161.770	11	105.615	748.006	.000[a]
	Residual	346.777	2456	.141		
	Total	1508.547	2467			

a. Predictors: (Constant), VISXINV, INVOLVE, ENVIRON, RISK, INVXSYS, INVXENV, VISION, INVXRISK, SYSTEMS, COMMUNIC, INVXCOMM

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.673E-02	.010		5.881	.000
	VISION	7.576E-02	.021	.072	3.689	.000
	COMMUNIC	.264	.029	.236	8.985	.000
	ENVIRON	-3.12E-02	.016	-.032	-1.922	.055
	RISK	8.630E-02	.018	.091	4.683	.000
	INVOLVE	.454	.027	.433	17.080	.000
	SYSTEMS	.145	.026	.136	5.670	.000
	INVXRISK	-1.57E-02	.024	-.015	-.660	.509
	INVXCOMM	-3.35E-02	.037	-.027	-.898	.369
	INVXENV	2.774E-02	.020	.027	1.422	.155
	INVXSYS	2.149E-02	.032	.018	.670	.503
	VISXINV	-6.23E-02	.026	-.057	-2.404	.016

a. Dependent Variable: CLIMATE

MULTIPLE REGRESSION RESULTS FOR MODIFIED MODEL

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	VISXINV, INVOLVE, RISK, VISION, SYSTEMS, COMMUNI C[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: CLIMATE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876[a]	.768	.767	.3765

a. Predictors: (Constant), VISXINV, INVOLVE, RISK, VISION, SYSTEMS, COMMUNIC

b. Dependent Variable: CLIMATE

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1164.352	6	194.059	1368.778	.000[a]
	Residual	352.170	2484	.142		
	Total	1516.522	2490			

a. Predictors: (Constant), VISXINV, INVOLVE, RISK, VISION, SYSTEMS, COMMUNIC

b. Dependent Variable: CLIMATE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.771E-02	.009		6.489	.000
	VISION	7.081E-02	.018	.067	3.926	.000
	COMMUNIC	.249	.028	.223	8.834	.000
	RISK	7.543E-02	.016	.080	4.742	.000
	INVOLVE	.453	.026	.432	17.310	.000
	SYSTEMS	.149	.024	.140	6.115	.000
	VISXINV	-6.52E-02	.011	-.060	-5.713	.000

a. Dependent Variable: CLIMATE

ERRORS AND RESIDUALS

Histogram

Dependent Variable: CLIMATE

Regression Standardized Residual
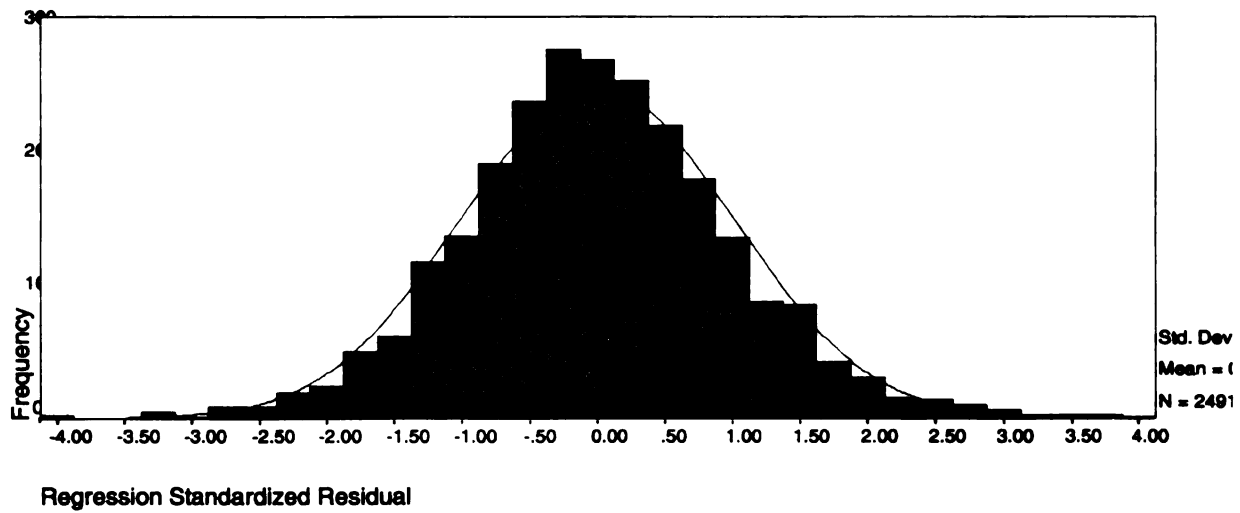
Scatterplot

Dependent Variable: CLIMATE

Regression Standardized Predicted Value
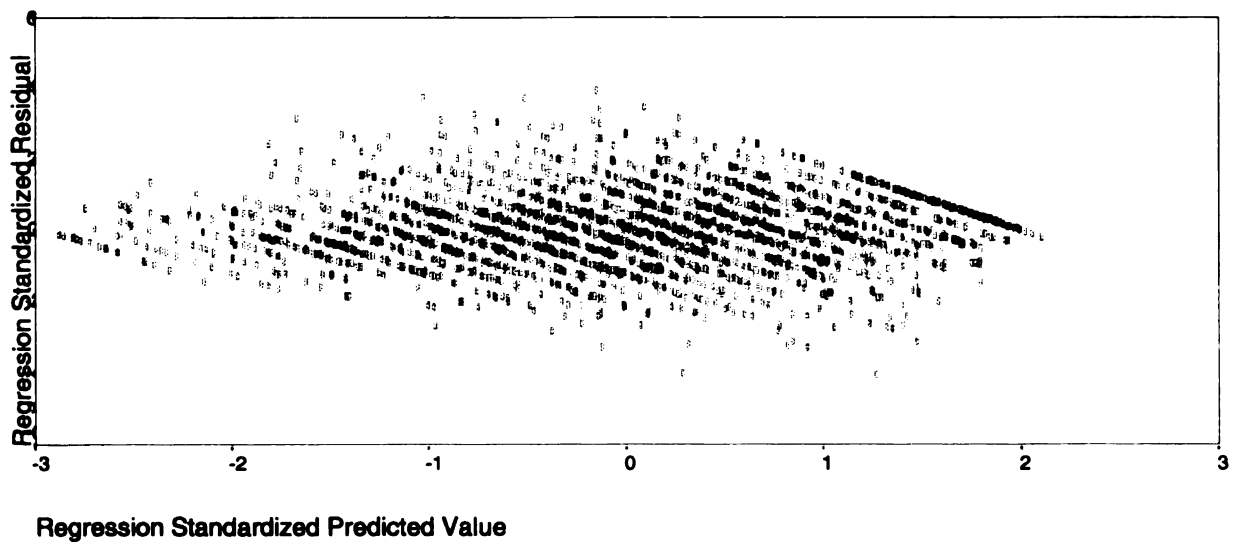
APPENDIX 4-F

RESULTS OF ANALYSIS OF COVARIANCE

The data analyses contained in this appendix use the following
job level codes taken from the survey instrument:

Job Level	Description
1	Executive
2	Manager / Supervisor
3	Non-Supervisor / Technical
4	Secretarial / Clerical
5	Hourly Skilled Trades
6	Hourly Production or Other

Univariate Analysis of Variance

Between-Subjects Factors

		N
LEV	1	18
	2	247
	3	132
	4	128
	5	159
	6	2050

Tests of Between-Subjects Effects

Dependent Variable: CLIMATE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1125.991[a]	11	102.363	550.760	.000
Intercept	.733	1	.733	3.946	.047
LEV	10.959	5	2.192	11.793	.000
COMMUNIC	152.518	1	152.518	820.616	.000
LEV * COMMUNIC	2.697	5	.539	2.902	.013
Error	505.904	2722	.186		
Total	1682.578	2734			
Corrected Total	1631.895	2733			

a. R Squared = .690 (Adjusted R Squared = .689)

Parameter Estimates

Dependent Variable: CLIMATE

Parameter	B	Std. Error	t	Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	9.208E-02	.010	9.107	.000	6.602E-02	.118
[LEV=1]	-.212	.141	-1.511	.131	-.575	.150
[LEV=2]	-.113	.035	-3.219	.001	-.203	-2.246E-02
[LEV=3]	-.203	.047	-4.278	.000	-.325	-8.065E-02
[LEV=4]	-.167	.041	-4.051	.000	-.273	-6.067E-02
[LEV=5]	-.177	.037	-4.792	.000	-.273	-8.193E-02
[LEV=6]	0[a]	.	.	.	.	.
COMMUNIC	.855	.015	58.179	.000	.817	.893
[LEV=1] * COMMUNIC	.130	.162	.800	.424	-.288	.548
[LEV=2] * COMMUNIC	.134	.042	3.177	.002	2.537E-02	.244
[LEV=3] * COMMUNIC	.124	.073	1.706	.088	-6.342E-02	.312
[LEV=4] * COMMUNIC	9.481E-02	.059	1.618	.106	-5.627E-02	.246
[LEV=5] * COMMUNIC	4.556E-02	.055	.822	.411	-9.729E-02	.188
[LEV=6] * COMMUNIC	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

Between-Subjects Factors

		N
LEV	1	55
	2	543
	3	457
	4	251
	5	172
	6	2219

Tests of Between-Subjects Effects

Dependent Variable: CLIMATE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1377.339[a]	11	125.213	461.484	.000
Intercept	10.666	1	10.666	39.311	.000
LEV	84.420	5	16.884	62.227	.000
RISK	246.260	1	246.260	907.615	.000
LEV * RISK	7.304	5	1.461	5.384	.000
Error	999.836	3685	.271		
Total	2377.368	3697			
Corrected Total	2377.176	3696			

a. R Squared = .579 (Adjusted R Squared = .578)

Parameter Estimates

Dependent Variable: CLIMATE

Parameter	B	Std. Error	t	Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	.154	.012	13.366	.000	.124	.184
[LEV=1]	-.420	.109	-3.865	.000	-.700	-.140
[LEV=2]	-.378	.031	-12.040	.000	-.459	-.297
[LEV=3]	-.379	.031	-12.260	.000	-.458	-.299
[LEV=4]	-.288	.036	-7.971	.000	-.382	-.195
[LEV=5]	-.262	.044	-5.990	.000	-.375	-.150
[LEV=6]	0[a]	.	.	.	.	.
RISK	.585	.014	42.072	.000	.549	.620
[LEV=1] * RISK	.219	.108	2.030	.042	-5.908E-02	.497
[LEV=2] * RISK	.119	.036	3.293	.001	2.583E-02	.212
[LEV=3] * RISK	9.331E-02	.043	2.176	.030	-1.720E-02	.204
[LEV=4] * RISK	.153	.045	3.380	.001	3.642E-02	.270
[LEV=5] * RISK	.112	.058	1.922	.055	-3.821E-02	.263
[LEV=6] * RISK	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

Between-Subjects Factors

		N
LEV	1	54
	2	516
	3	432
	4	236
	5	152
	6	1994

Tests of Between-Subjects Effects

Dependent Variable: CLIMATE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1554.204[a]	11	141.291	739.873	.000
Intercept	2.646	1	2.646	13.856	.000
LEV	35.285	5	7.057	36.954	.000
SYSTEMS	282.153	1	282.153	1477.496	.000
LEV * SYSTEMS	1.971	5	.394	2.064	.067
Error	643.940	3372	.191		
Total	2198.683	3384			
Corrected Total	2198.144	3383			

a. R Squared = .707 (Adjusted R Squared = .706)

Parameter Estimates

Dependent Variable: CLIMATE

Parameter	B	Std. Error	t	Sig.	99% Confidence Interval Lower Bound	99% Confidence Interval Upper Bound
Intercept	.105	.010	10.053	.000	7.780E-02	.131
[LEV=1]	-.286	.106	-2.693	.007	-.559	-1.226E-02
[LEV=2]	-.285	.026	-10.846	.000	-.352	-.217
[LEV=3]	-.251	.028	-9.043	.000	-.323	-.180
[LEV=4]	-.147	.032	-4.549	.000	-.231	-6.384E-02
[LEV=5]	-.110	.037	-2.947	.003	-.207	-1.384E-02
[LEV=6]	0[a]	.	.	.	.	.
SYSTEMS	.789	.014	54.850	.000	.752	.826
[LEV=1] * SYSTEMS	5.495E-02	.102	.540	.589	-.207	.317
[LEV=2] * SYSTEMS	7.587E-02	.031	2.411	.016	-5.216E-03	.157
[LEV=3] * SYSTEMS	-1.51E-02	.037	-.405	.685	-.111	8.098E-02
[LEV=4] * SYSTEMS	8.853E-02	.042	2.092	.037	-2.056E-02	.198
[LEV=5] * SYSTEMS	4.844E-02	.056	.863	.388	-9.623E-02	.193
[LEV=6] * SYSTEMS	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Univariate Analysis of Variance

Between-Subjects Factors

		N
LEV	1	54
	2	498
	3	422
	4	226
	5	147
	6	1913

Tests of Between-Subjects Effects

Dependent Variable: CLIMATE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	811.233[a]	11	73.748	182.384	.000
Intercept	12.963	1	12.963	32.059	.000
LEV	87.119	5	17.424	43.090	.000
VISXINV	19.942	1	19.942	49.318	.000
LEV * VISXINV	262.191	5	52.438	129.682	.000
Error	1313.359	3248	.404		
Total	2126.100	3260			
Corrected Total	2124.592	3259			

a. R Squared = .382 (Adjusted R Squared = .380)

Parameter Estimates

Dependent Variable: CLIMATE

Parameter	B	Std. Error	t	Sig.	99% Confidence Interval Lower Bound	99% Confidence Interval Upper Bound
Intercept	.161	.017	9.747	.000	.118	.203
[LEV=1]	-.470	.142	-3.309	.001	-.837	-.104
[LEV=2]	-.457	.042	-10.962	.000	-.565	-.350
[LEV=3]	-.393	.042	-9.412	.000	-.500	-.285
[LEV=4]	-.395	.055	-7.243	.000	-.536	-.255
[LEV=5]	-.223	.063	-3.533	.000	-.385	-6.022E-02
[LEV=6]	0[a]	.	.	.	.	.
VISXINV	.350	.020	17.237	.000	.297	.402
[LEV=1] * VISXINV	-.932	.108	-8.666	.000	-1.209	-.655
[LEV=2] * VISXINV	-.882	.044	-19.889	.000	-.996	-.767
[LEV=3] * VISXINV	-.952	.059	-16.176	.000	-1.104	-.800
[LEV=4] * VISXINV	-.615	.077	-8.020	.000	-.812	-.417
[LEV=5] * VISXINV	8.673E-02	.088	.986	.324	-.140	.314
[LEV=6] * VISXINV	0[a]	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Abraham, K. G., and Taylor, S. K. (1996). Firms' use of outside contractors: Theory and evidence. Journal of Labor Economics 14(July 1996), 394-424.

American Society for Training and Development. (1996). The 1996 American Society for Training and Development Report on Trends that Affect Corporate Learning and Performance (2nd ed.). Alexandria, VA: American Society for Training and Development.

Arad, S. (1997). A framework for the study of relationships between organizational characteristics and organizational innovation. Journal of Creative Behavior, 31(1), 42-58.

Baskett, H. K. Morris (1993). "Workplace factors which enhance self-directed learning: A report of a project on self-directed learning in the workplace." Paper presented at the International Symposium on Self-Directed Learning (7th, West Palm Beach, FL, January 21-23, 1993). (ERIC Document Reproduction Service No. ED 359 354).

Bassi, L. (1992). "Reorganization of work and workplace education: Scope and impact." Washington, D.C.: Southport Institute.

Bassi, L.J., and VanBuren, M.E. (1999). The 1999 ASTD State of the Industry Report (Product #99ASTDIR), American Society for Training and Development, January, 1999, 1-27.

Bassi, L.J., and VanBuren, M.E. (1998). The 1998 ASTD State of the Industry Report, Training and Development, 52(1), 21-49.

Beard, L. (1991). Learning in the workplace. (Doctoral dissertation, University of Calgary (Canada). Dissertation Abstracts International, 53(10), 3474-A.

Berman, E., Bound, J., and Griliches, Z. (1994). Changes in the demand for skilled labor within the U.S. manufacturing industries: Evidence from the annual survey of manufacturers. Quarterly Journal of Economics, 109, 367-97.

Bernard, A. B., and Jensen, J. B. (1994). "Exporters, skill upgrading and the wage gap." Mimeo, MIT and U.S. Bureau of the Census.

Bettis, R. A., Bradley, S. P., and Hamel, G. (1992). Outsourcing and industrial decline. The Academy of Management Executive, 6(1),7-20.

Bishop, J. H. (1996). Is the market for college graduates headed for a bust? Demand and supply responses to rising college wage premiums. New England Economic Review, May/June 1996, 115-135.

Black, J. S. and Gregersen, H. B. (1997). Participative decision-making: An integration of multiple dimensions. Human Relations, 50(7), 859-878.

Bradbury, K.L, Kodrzycki, Y. K., and Mayer, C. J. (1996). Spatial and labor market contributions to earnings inequality: An overview. New England Economic Review, May/June 1996, 1-10.

Brockett, R. G., and Hiemstra, R. (1991). Self-direction in adult learning: Perspectives on theory, research, and practice. New York: Routledge.

Brooker, R., and Butler, J. (1997). The learning context within the workplace: As perceived by apprentices and their workplace trainers. Journal of Vocational Education and Training, 49(4), 487-510.

Brookfield, S. (1986). Understanding and facilitating adult learning. San Francisco: Jossey-Bass.

Brooks, J. H., II, and DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first year of college. Journal of College Student Development, 36(4), 347-60.

Cappelli, P. (1996). Technology and skill requirements rising: Implications for establishment wage structures. New England Economic Review, May/June 1996, 139-153.

Cappelli, P. (1993). Are skill requirements rising? Evidence from production and clerical jobs. Industrial and Labor Relations Review, 46(3), 515-530.

Carnevale, A. P., and Carnevale, E. S. (1994). Growth patterns in workplace training. Training and Development, May, S22-S28.

Chan, T. C., (1996). "Environmental impact on student learning." Collection of articles published by Valdosta State College, GA, School of Education. (ERIC Document Reproduction Service No. ED 406 722).

Clardy, A. B. (1992). Vocationally-oriented self-directed learning projects (VO SDLPs): An exploratory study of the types of VO SDLPs and the organizational and individual factors affecting their occurrence. (Doctoral dissertation, University of Maryland, College Park). Dissertation Abstracts International, 53(10), 3425-A.

Confessore, G. J., and Confessore, S. J. (1992). Guideposts to self-directed learning: Expert commentary on essential concepts. King of Prussia, PA: Organization Design and Development, Inc.

Coopey, J. (1998). Learning to trust and trusting to learn. Management Learning, 29(3), 365-382.

Courtenay, B. C. (1994). An examination of the empirical basis for involving adult learners in planning their learning experiences. International Journal of Lifelong Education, 13(4), 291-300.

Courtney, S. (1992). Why adults learn: Towards a theory of participation in adult education. New York: Routledge.

Darkenwald, G. G., and Gavin, W. J. (1987). Dropout as a function of discrepancies between expectations and actual experiences of the classroom social environment. Adult Education Quarterly, 37(3), 152-63.

Darkenwald, G. G. (1989). Enhancing the adult classroom environment. New Directions for Continuing Education, 43, Fall 1989, 67-75.

Darkenwald, C. G., and Merriam, S. B. (1982). Adult Education: Foundations of practice. New York: Harper and Row.

Deavers, K. L. (1997). Outsourcing: A corporate competitiveness strategy, not a search for low wages. Journal of Labor Research, 18(4), 503-517.

Dent, Harry S., Jr. Job Shock: Four New Principles Transofrming our Work and Buisiness. New York: St. Martin's Press, 1995.

Dixon, N. M. (1994). The organizational learning cycle: how we can learn collectively. London: McGraw-Hill.

Drucker, P. F. (1995). Managing in a time of great change. New York: Truman Talley Books/Dutton.

Earthman, G. I., and Lemasters, L. (1996). "Review of research on the relationship between school buildings, school achievement, and student behavior." Paper presented at the Annual Meeting of the Council of Educational Facilities Planners, International (Tarpon Springs, FL, October 8, 1996). (ERIC Document Reproduction Service No. ED 416 666).

Easterby-Smith, M., Snell, R., and Gherardi, S. (1998). Organizational learning: Diverging communities of practice? Management Learning, 29(3), 259-272.

Ellett, C. D., McMullen, J. H., Rugutt, J. K., and Culross, R. R. (1997). "Linking personal learning environment, quality of teaching and learning, and learning efficacy: An initial study of college students." Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL. March 1997). (ERIC Document Reproduction Service No. ED 410 770).

Fisher, J. C. (1988). Impact of anomia and life satisfaction on older adult learners. Educational Gerontology, 14, 137-146.

Foster-Harrison, E. S., and Adams-Bullocs, A. (1998). Creating an inviting classroom environment. Booklet published by Phi Delta Kappa Educational Foundation, Bloomington, IN. (ERIC Document Reproduction Service No. ED 419 809).

Frazis, H. J., Herz, D. E., and Horrigan, M. W. (1995). Employer-provided training: Results from a new survey. Monthly Labor Review, 118(5), 3-17.

Fujita-Stark, P. J., and Thompson, J. A. (1994). "The effects of motivation and classroom environment on the satisfaction of noncredit continuing education students." Paper presented at the Annual Forum of the Association for Institutional Research (34th, New Orleans, LA, May 29-June 1, 1994.) (ERIC Document Reproduction Service No. ED 373 646).

Galagan, P. (1991). The learning organization made plain: An interview with Peter Senge, Training and Development, October 1991, 45(10), 37-44.

Garvin, D. A. (1993). Building a learning organization. Harvard Business Review, 71(4), 78-91.

Gee, J. P., Hull, G., and Lankshear, C. (1996). The new work order: Behind the language of the new capitalism. Boulder, CO: Westview Press, Inc.

Greenwood, T., Wasson, A., and Giles, R. (1993). The learning organization: Concepts, processes, and questions. Performance and Instruction, April, 7-11.

Grzyb, S. W. (1997). "Effects of organizational role and culture on participation in continuing professional education." Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, March 24-28, 1997). (ERIC Document Reproduction Service No. ED 409 284).

Handy, C. (1990). The age of unreason. Cambridge, MA: Harvard Business School Press.

Harrison, B., and Kelley, M. R. (1993). Outsourcing and the search for "flexibility," Work, Employment and Society, 7(June 1993), 213-35.

Hill, S. (1994). Workplace learning is taking a new course. Manufacturing Systems, 12(8), 42-48.

Howell, D. R., and Wolff, E. N. (1991). Trends in the growth and distribution of skills in the U.S. workplace, 1960-1985. Industrial and Labor Relations Review, 44, 486-502.

Isaacs, W. N. (1993). Taking flight: dialogue, collective thinking, and organizational learning. Organizational Dynamics. 22(2), 24-39.

Johnston, W. B., and Packer, A. E., eds. (1987). Workforce 2000: Work and workers for the 21st century. Indianapolis: Hudson Institute, 1987.

Jude-York, D. A. (1991). Organizational learning climate, self-directed learners, and performance at work. (Doctoral dissertation, The Fielding Institute). Dissertation Abstracts International, 53(7), 2206-A.

Keefe, J. H. (1991). Numerically controlled machine tools and worker skills. Industrial and Labor Relations Review, 44, 503-519.

Kim, D. H. (1993). The link between individual and organizational learning. Sloan Management Review, 35(1), 37-50.

Kirsch, I. S., and Jungblut, A. (1986). Literacy: Profiles of American adults. Princeton: Educational Testing Service.

Knowles, M. S. (1988). The modern practice of adult education. (Rev ed.). New York: Cambridge.

Knox, A. B. (1986). Helping adults learn: A guide to planning, implementing, and conducting programs. San Francisco: Jossey-Bass.

Kofman, F., and Senge, P. M. (1993). Communities of commitment: The heart of learning organizations. Organizational Dynamics, 22(2), 5-23.

Lawler, E. E., III, Mohrman, S. A., and Ledford, Jr., G. E. (1995). Creating high performance organizations: Practices and results of employee involvement and Total Quality Management. San Francisco: Jossey-Bass.

Lawler, E. E., III, Mohrman, S. A., and Ledford, Jr., G. E. (1992). Employee involvement in Total Quality Management: Practices and results in Fortune 1000 companies. San Francisco: Jossey-Bass.

Lee, C. (1991). Who gets trained in what. Training, 28(10), 47-59.

Long, H. B. (1992). Self-directed learning: Application and research. Oklahoma Research Center for Continuing Professional and Higher Education of the University of Oklahoma.

Marquardt, M. (1996). Building the learning organization: A systems approach to quantum improvement and global success. New York: McGraw-Hill.

Marsick, V. J., and Watkins, K. E. (1994). The learning organization: An integrative vision for HRD. Human Resource Development Quarterly, 5(4), 353-360.

Marsick, V. J. (1986). Informal learning in the workplace: Models of practice. Paper presented at a conference entitled "The Adult: Models of Practice," sponsored by the Kellogg Foundation (New York, NY, November 13-15, 1986). (ERIC Document Reproduction Service No. ED 280 345).

McGill, M. E., and Slocum, J. W. (1993). Unlearning the organization. Organizational Dynamics, 22(2), 67-79.

McGill, M. E., Slocum, J. W., Jr., and Lei, D. (1992). Management practices in learning organizations. Organizational Dynamics, 21(1), 67-79.

Merriam, S. B., and Caffarella, R. S. (1991). Learning in adulthood: A comprehensive guide. San Francisco: Jossey-Bass.

Milkman, R., and Pullman, C. (1991). Technological change in an auto assembly plant: the impact on workers' tasks and skills. Work and Occupations, 18, 123-147.

Mohrman, S. A., Lawler, E. E.,III, and Ledford, G. E., Jr. (1996). Do employee involvement and TQM programs work? Journal for Quality and Participation, 19(1), 6-10.

Murphy, K. M., and Welch, F. (1993). Industrial change and the rising importance of skill. In Danziger, S., and Gottschalk, P. (Eds.), Uneven Tides: Rising inequality in America, New York: Russell Sage Foundation.

National Center on the Educational Quality of the Workforce (1995). "First Findings: Results of the EQW employer survey." Philadelphia: National Center on the Educational Quality of the Workforce.

Osterman, P. (1994). How common is workplace transformation and who adopts it?" Industrial and Labor Relations Review, 47, 173-187.

Outsourcing Institute. (1996). "The top ten reasons why companies outsource." Outsourcing Institute Home Page, October, 1996.

Packer, A. (1991). "The Demographic and economic imperatives," In Hornbeck, D. W., and Salamon, L. M. (Eds.), Human capital and America's Future. Baltimore: The John Hopkins University Press.

Pearson, C. A. L. (1987). Participative goal setting as a strategy for improving performance and job satisfaction: A longitudinal evaluation with railway track maintenance gangs, Human Relations, 40(8), 473-488.

Pedler, M. (1991). The learning company. Berkshire, England: McGraw-Hill Book Company Europe.

Quinn, J. B., and Hilmer, F. G. (1994). Strategic outsourcing. Sloan Management Review, 35(4), 43-58.

Research and Policy Committee. (1996). American workers and economic change: A statement by the Research and Policy Committee of the Committee for Economic Development. New York: Committee for Economic Development.

Schein, E. H. (1993). On dialogue, culture, and organizational learning. Organizational Dynamics, 22(2), 40-51.

Senge, P. M. (1990). The fifth discipline: The art and practice of the learning organization. New York: Doubleday/Currency.

Sharpe, M. (1997). Outsourcing, organizational competitiveness, and work. Journal of Labor Research, 18(4), 535-547.

Snell, R., and Chak, A. M. (1998). The learning organization: Learning and empowerment for whom? Management Learning, 29(3), 337-364.

Social Sciences and Humanities Research Council of Canada (1992). Conditions enhancing self-directed learning in the workplace: A report to the participants. Ottawa, Ontario. (ERIC Document Reproduction Service No. 352 563).

Szafran, R. F. (1996). The effect of occupational growth on labor force task characteristics. Work and Occupations, 23(1), 54-86.

Tesluk, P. E. (1997). Influences of organizational culture and climate on individual creativity. Journal of Creative Behavior, 31(1), 27-41.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence, Journal of Higher Education, 68(6), 599-623.

Ulrich, D., Von Glinow, M. A., and Jick, T. (1993). High-impact learning: Building and diffusing learning capability. Organizational Dynamics, 22(2), 52-66.

U.S. Department of Education (1991). America 2000: An education strategy.

Walberg, H. J., and Greenberg, R. C. (1997). Using the learning environment inventory. Educational Leadership, 54(8), 45-47.

Warner, C., and Williams, J. (1995). "Attitudes of adult students regarding the learning environment at East Tennessee State University." Paper presented at the National conference on the Adult Learner. (San Antonio, TX, May 29, 1995). (ERIC Document Reproduction Service No. ED 391 961).

Wasserman, S., and Faust, K. (1994). Social network analysis: Methods and applications. New York: Cambridge University Press.

Watkins, K. E., and Marsick, V. J. (1993). Sculpting the learning organization: Lessons in the art and science of systemic change. San Francisco: Jossey-Bass.

Watkins, K. E., and Marsick, V. J. (1993). Sculpting the learning organization: Consulting using action technologies. New Directions for Adult and Continuing Education, 58(Summer 1993), 81-90.

Zuboff, S. (1988). In the age of the smart machine: The future of work and power. New York: Basic Books.

1997 Industry Report. (1997). Training, 34(10), 33-75.

1995 Industry Report. (1995). Training, 32(10), 37-74.