AN EXPLORATION OF THE RELATIONSHIPS AMONG ORGANIZATIONAL SIZE, FLEXIBLE WORK PRACTICES, TRAINING, AND ORGANIZATIONAL PERFORMANCE USING THE 2002 NATIONAL ORGANIZATIONS SURVEY

Dissertation

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By

David Andrew Boulay, M.B.A.

* * * * *

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Dissertation Committee:
Professor Joshua D. Hawley, Adviser
Professor Ronald L. Jacobs
Professor Stephen L. Mangum

Approved by

Adviser
College of Education & Human Ecology
ABSTRACT

The purpose of this study was to examine the relationships among flexible work practices, training, and organizational performance and how these relationships vary with organizational size. Structural equation modeling was used to examine the nature of these relationships allowing the simultaneous examination of a full set of relationships. A path model was developed based on the literature review. The path model proposed that organizational size has direct effects on flexible work practices and training separately, flexible work practices and training covary with each other, and flexible work practices and training have direct effects on organizational performance. The data from the 2002 National Organizations Survey (NOS) were utilized for the analysis.

The results showed a negative relationship between organizational size and flexible work practices, a positive relationship between organizational size and training, and a strong covarying relationship between flexible work practices and training. However, no significant relationship was identified with organizational performance. The results of the study contribute to the literature regarding the relationships among organizational size, flexible work practices, and training. Our understanding of these relationships provides insight into the importance of flexible work practices and training across organizations of all sizes.
This study provides several implications for conducting future research. These research directions include further unpacking the relationships among organizational size, flexible work practices, and training, understanding how the relationship between flexible work practices and training may effect frequently changing competence, as well as a further examination of the impact of flexible work practices and training on organizational performance. This study provides implications for human resource development practitioners and workforce development policymakers to consider systematic approaches in the use of flexible work practices and training.
Dedicated to my parents,
Gilbert and Erna Boulay
And to my daughter,
Kelsey
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VITA

August 17, 1967 .........................Born - Binghamton, New York

1990 ........................................B.S. Management,
Binghamton University


1991 – 1996 ...............................Business Manager, Pillsbury

1996 – 1997...............................Production Manager, Franklin International

1997- 2000 .................................Plant Manager, Cintas

1998 .........................................M.B.A., Franklin University

2000 – 2001 ...............................Superintendent, Luigino’s

2002-Present ..............................Business and Workforce Specialist,
The Ohio State University, Extension

PUBLICATIONS

Research Publication


FIELDS OF STUDY

Major Field: Education

Workforce Development and Educational Policy  Joshua D. Hawley, Ed.D.

Human Resource Development  Ronald L. Jacobs, Ph.D.

Research Methods and Statistics  Xiaodong Liu, Ph.D.

Leading Organizations Through Change  Garee W. Earnest, Ph.D.
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CHAPTER 1

INTRODUCTION

Globalization has produced an environment of constant organizational change. Nearly three billion people have joined the market economy within the past fifteen years requiring that organizations connect with their customers and suppliers, regardless where they exist (Friedman, 2005). McMichael (2004) describes the concept of the world factory and notes that it signals the “rise of a global production system and a world labor force” (p. 81).

Within this emerging business context, knowledge has become a critical feature of organizational competitiveness. Knowledge as an entity can be shared, used, and developed, making it a renewable resource unlike any other in organizations. Knowledge has become a key factor for improving and sustaining organizational performance (Dröge, Claycomb, & Germain, 2003; Teece, Pisano, & Shuen, 1997). Managing knowledge has become a priority for organizations (Garavan, Morley, Gunnigle, & Collins, 2001; Hendry & Pettigrew, 1995).

The use of employee knowledge has sparked an interest in new management approaches to achieve more complex goals (Godard & Delaney, 2000). In general, these management approaches are designed to increase flexibility in the use of employee talent, ensure greater autonomy in decision-making at lower levels of the organization, and
motivate desired behaviors through incentive compensation systems as a means to engender greater commitment (Cappelli & Neumark, 2001; Kirkman, Lowe, & Young, 1999; Kalleberg & Moody, 1994). These features have been referred to in the literature by such names as flexible work practices, high performance work practices, innovative work practices, and self-managed work groups, and seek to enable organizations to achieve new goals through the efforts of its employees (Godard, 2001).

Training is critical to the implementation of these management approaches (Donovan, Hannigan & Crowe, 2001). Training can range from technical training to impart specific job-related skills, to managerial training to impart the ability to plan and schedule the work of others, to awareness training to provide an awareness of important ideas (Jacobs, 2003). Training represents a core facet of organizational activity to help develop the knowledge and skills necessary for carrying out the changes in work practices (Jacobs, 2003; Swanson, 1995).

How training is used in organizations depends on the nature and context of the organization. For one thing, organizations facing competitive market conditions more often understand the potential strategic value of their training and take more care in its development and implementation (Kitching & Blackburn, 2002; Teece, Pisano, & Shuen, 1997). For instance, Quazi and Jacobs (2004) showed that companies in Singapore adopting ISO 9001 invariably experience increases in the number of training programs for all employees. In the same way, organizational size and structures may impact the use of flexible work practices and training. The average small organization had one location and ten employees, while the average large organization had sixty-one locations and 3,300 employees (Small Business Administration, 2006). These organization differences
may lead to differences in their management approaches to develop and apply knowledge.

Of particular interest are small and medium-sized enterprises (SMEs) for these organizations cumulatively account for half of the country’s gross domestic product, employ 50.7 percent of the private sector work force, and generated 60 to 80 percent of the net new jobs over the past decade (SBA, 2006).

Statement of the Problem

Organizations are increasingly competing in the global marketplace, making knowledge ever more important for ensuring organizational effectiveness. Within this context, organizations have adopted management approaches to gain an increased capacity to achieve new and more challenging goals. These management approaches are generally characterized by the need to increase flexibility in the use of employee talent, ensure greater autonomy in decision-making at lower levels of the organization, and implement incentive compensation systems as a means to engender greater commitment. These management approaches have variously been called by different names, such as flexible work practices.

Flexible work practices raise the importance of employee knowledge which in turn has raised the critical supporting role of training. Several studies have shown that when organizations engage in these practices, the nature and frequency of employee training increases (Gittleman, Horrigan, & Joyce, 1998; Osterman, 1999). Clearly, the greater use of flexible work practices results in a higher need for employee knowledge, which results in more training programs.
Lynch and Black (1998) wrote that this relationship represents complementary investments of training and related investments. For example, to implement flexible job assignments, organizations must first invest in employee knowledge through cross-training. Then the organization must systemically utilize job rotation practices to facilitate the use of this knowledge. Cross-training needs to be increased as new employees are engaged in the rotation practices or as job procedures change. We can hypothesize that, if effective, an on-going approach of cross-training and job rotation will reinforce each other and lead to enhanced productivity.

However, as organizations undertake the use of flexible work practices, understanding how these actions affect the resulting training efforts in those organizations appears more complex than considering frequency alone (Lopez, Peon, & Ordas, 2005). Indeed, a review of the literature does not show any studies that provide insight into the strength of relationships among organizational performance, flexible work practices, and training, when the size of organizations is taken into account (Bowen & Ostroff, 2004; Whitfield, 2000). Any consideration of flexible work practices and training should be reviewed both from the context of organizational performance and the nature of the organization. However, little research attention has focused on flexible work practices and training in SMEs despite their vital economic role collectively (Hornsby & Kuratko, 2003; Heneman, Tansky, & Camp, 2000).

If globalization is promoting a context of frequent change, knowledge is a critical feature of organizational performance that is facilitated through flexible work practices and developed through training, then understanding the relationships among flexible
work practices, training, and organizational performance across organizational size is necessary.

The purpose of this study is to explore the relationships among the use of flexible work practices, the nature of training, and organizational performance across organizations of differing sizes.

Research Questions
The research questions explored in this study are the following:

A) What is the relationship between organizational size and flexible work practices? What are the differences between large organizations and small and medium-size enterprises?

B) What is the relationship between organizational size and training? What are the differences between large organizations and small and medium-size enterprises?

C) What is the relationship between flexible work practices and training across organizational size?

D) What is the relationship between flexible work practices and organizational performance? What are the differences between large organizations and small and medium-size enterprises?

E) What is the relationship between training and performance? What are the differences between large organizations and small and medium-size enterprises?
Definition of terms

Major terms for this study are operationally defined as follows:

Flexible work practices (FWPs)

Flexible work practices are the systematic practices that facilitate employee participation in efforts to improve organizational performance. Also referred to as alternative, high involvement, high performance, and new work practices (Godard, 2001).

Self-managed work teams

Self-managed work teams are on-going employee groups with some degree of responsibility and discretion over decisions regarding methods of work, schedules, assignment of tasks, and feedback on performance.

Flexible job assignment

Flexible job assignment refers to systematic methods that enhance flexibility, efficiency, or both (Kirkman, Lowe, & Young, 1999).

Employee involvement

Employee involvement refers to when employees are engaged in the communications and continuous improvement efforts of the organization.
Incentive pay

Incentive pay refers to wage systems that link individual performance with organizational performance.

Performance

Performance is measured in organizational level outcomes and results that may include productivity, quality, customer service, and financial outcomes.

Training

Training is the process of developing knowledge, skills, and abilities in employees for the achievement of organizational goals.

Small and Medium-sized Enterprises

Small and medium-sized enterprises represent a size classification of organizations with less than 500 employees. Most policymakers categorize small and medium-size enterprises as micro, small, and medium sized firms. Micro enterprises are classified as organizations with less than ten employees, small organizations consist of 10 to 49 employees, and medium sized organizations consist of 50 to 499 employees.
Limitations

The limitations for this study are as follows:

- The results are limited by the instrument used.
- The results are self-reported in nature and some variables are based on respondent perceptions.
- The respondents may not have had sufficient knowledge to respond accurately.
- The results are limited to the population of organizations in the United States. The results cannot be generalized to other nations.

Significance

The results of this study add knowledge in theoretical and practical ways. Overall, results of this study provide insights into the relationships of flexible work practices, training, and performance across organizational size. Specifically, this study adds to the research in the following ways:

- Generates new knowledge regarding the behaviors of organizations with respect to flexible work practices and training.
- Gains new insights into the behaviors of small and medium-sized enterprises, an under researched context in this area of inquiry.
- Contributes to the understanding of the relationship between flexible work practices and training.

Exploring the relationships among flexible work practices, training, and organizational performance provides insight into the capability of organizations to develop and apply knowledge for improved performance. Management approaches such
as flexible work practices and training are intended to align employee competence with organization survivability. The pervasiveness and level of use of these new management approaches in organizations of all sizes makes understanding their role in the organization an important area of inquiry. This is particularly the case in small and medium sized enterprises, which collectively serve a significant role in the global economy.

This study supports practitioner decision-making regarding the use of flexible work practices and training within an organization. Furthermore, the findings of this study will provide insight for workforce development policy makers regarding the role of both flexible work practices and training. Understanding how organizations differ in their use of flexible work practices and training raises questions how policies encourage or discourage organizations to implement systematic practices that develop and apply skills and knowledge of front-line employees.

Finally, this study adds to the scholarly work that explores the use of flexible work practices and training. This study provides empirical insight into the differences in the use of flexible work practices and training by small and medium-sized enterprises and large organizations. Furthermore, this study offers a foundation to further examine a strong reinforcing relationship between flexible work practices and training.
CHAPTER 2

REVIEW OF THE LITERATURE

This chapter contains four major sections. The first section discusses the role of human resources in organizations. The second section explores flexible work practices. The third section introduces human resource development with an emphasis on training. The fourth section examines the relationship between flexible work practices (FWPs) and training. This chapter concludes with a proposed conceptual framework based on the literature review.

The Role of Human Resources in Organizations

This section is organized into two parts. The first part discusses human resource systems. The second part introduces the development of organizational flexibility through human resources.

Human Resource Systems

The increased importance of knowledge requires a greater attention to human resources and their role in organizational success. Organizations are increasingly competing in the global marketplace, making knowledge ever more important for ensuring organizational effectiveness. Organizations have turned to management
approaches that promote flexibility through the use of employee talent. These management approaches, referred to as flexible work practices, increase the use of employee knowledge by requiring front-line employees to become more engaged decision-makers. In turn, this has raised the critical supporting role of training. Any examination of flexible work practices and training needs to be reviewed both from the context of organizational performance and the nature of the organization.

The resource based view of the organization provides a theoretical foundation for understanding the role of employee knowledge in organizations of any size. According to this theory, valuable and rare organization resources can be difficult to replicate and therefore lead to sustained advantages in organizational performance (Barney, 1991). The resource based view emphasizes a link between an organization’s strategy, its internal resources, and performance. In other words, the resources and capabilities of the organization are the unit of analysis which includes all assets, processes, information, and knowledge (Barney & Hesterly, 1999). Barney (1991) argued these resources can be divided into four categories: financial, physical, organizational (i.e. trust, teamwork), and human resources.

Interrelated management practices and policies may facilitate human resources to support sustainable performance (Wright, McMahan, & McWilliams, 1994). Lado and Wilson (1994) described a set of distinct but interrelated activities, functions, practices, and policies that are designed to create an organization’s human resource system. Human resource systems can contribute to organizational performance as long as these practices elicit and reinforce a set of behaviors that result in organization benefit (Lado & Wilson, 1994). In other words, practice and policies can reinforce behaviors to develop employee
knowledge and also encourage employees to apply their knowledge. Human resource systems can facilitate or inhibit the development and utilization of employee skills into valuable resources of the organization (Lado & Wilson, 1994; Wright, et al., 1994).

As shown in figure 2.1, human resource systems consist of human capital pools and employment relationships (Wright, Dunford, & Snell, 2001). Both human capital pools and employment relationships are impacted broadly by people management systems. People management systems consist of attributes that include staffing, work design, training, and communication.

A human resource system can be considered a set of interdependent elements (Brickley, Smith, & Zimmerman, 2004). The authors proposed three components which include the assignment of decision rights, or location of decision-making within the organization, the methods of rewards, and the system of evaluation. These design components are interrelated meaning that changes in one component require changes in another component. Therefore, a human resource system should be reinforcing. The notion of interrelated components provides a conceptual basis for understanding of flexible work practices.
Lepak and Snell (1999) theorized that there is no optimal human resource system. These scholars write that human resource systems adjust based on changing employment modes, relationships, and configurations within an organization. In other words, they described a contingency approach to the implementation of human resource systems.

For organizational resources to support sustained organizational performance, these resources must adapt to changing conditions. Frequent change is inevitable because technology and competition change the way business is conducted (Friedman, 2005; McMichael, 2004). These conditions are changing requirements in employee knowledge. Autor, Levy, and Murnane (2001) provided insight into the impact of technology in the workplace. Their in-depth case study explored the influences that technology has on the design of work, increased skill demands, and compensation practices. As technology and globalization increase competition, organizations face increased unpredictability and respond with increased process flexibility (Wharton & White, 1988). Gerwin’s (1993)
study of manufacturers concluded that flexibility is a necessary condition to address
global competition. Gerwin further showed that flexibility is not simply an adaptive
response to environmental changes but also serves a proactive function as well.
Flexibility enhances the ability to compete. Therefore, human resource systems that
develop and apply knowledge should be able to promote organizational flexibility.

Developing of Flexibility through Human Resources

Teece, Pisano, Shuen (1997) argued that the choice of resources is not sufficient,
but that it is the development, renewal, and application of these resources that provides
flexibility leading to sustained organizational performance in a changing environment.
They introduced the notion that organizational resources, such as human resource
systems, can promote a dynamic capability. They described dynamic as the capacity to
renew competencies and capability as the role of management to adapt and integrate
resources.

These dynamic capabilities are situated in the processes of the organization, such
as managerial processes, or routines and practices that get things done (Teece et al.,
1997). The dynamic capability of managerial practices can facilitate organization
flexibility and lead to sustained performance. Logically, human resource systems, as a set
of managerial processes, can provide a dynamic capability for the organization. In fact,
they argued that skill acquisition, learning, and the management of knowledge represent
fundamental strategic issues for flexibility (Teece et al., 1997).

Teece et al. (1997) further argued that these capabilities are path dependent. In
other words, past decisions and organizational context impact current capabilities.
Therefore, managerial processes and routines may be contingent on the size and structure of an organization. For example, the Small Business Administration (2006) highlights significant differences between an average small organization and an average large organization. The average small organization consisted of one location and ten employees while the average large organization consisted of 61 locations and 3,300 employees. These structural differences suggest differences in the management approaches across organizational size.

Small and medium-sized enterprises (SMEs), organizations with less than 500 employees, represent a significant aspect of the economy. According to the Small Business Administration (2006), these organizations account for 99.9 percent of all businesses. Organizations with less than 100 employees accounted for 97 percent of all organizations, while organizations with less than 19 employees accounted for 88 percent of all organizations (OECD, 2002). In 2001, these organizations collectively generated $4 trillion in economic output, represented a third of the nation’s international trade, nearly half of all innovations, and accounted for 68 million jobs or 50.7 percent of the private sector workforce (OECD, 2002).

However, little research has examined human resource systems across the wide breadth of organizational size. Specifically, little attention has been given to the study of small and medium-sized organization human resources systems in surveys, literature reviews, and empirical studies relative to large organizations. This has led to a gap in the understanding of the needs, practices, behaviors, and outcomes of SMEs (Hornsby & Kuratko, 2003; Heneman, Tansky, & Camp, 2000). The structural differences between small and large organizations, the important economic role of small and medium-sized
enterprises, and the lack of research attention on the wide breadth of organizational size provides a rationale for research focused on management approaches within a human resource system that promote flexibility across organizational size.

The use of flexible work practices and training represent managerial decisions that can provide a dynamic capability of an organization’s resources. The use of these interrelated practices and policies may facilitate the use of employee knowledge for organization improvement. Training provides an approach to the development of knowledge. Following the logic of dynamic capabilities, an organization’s sustained performance may stem from management approaches that use work practices and training in order to develop flexibility. Of particular focus for this study is how flexible work practices and training are implemented across organizational size.

Flexible Work Practices

This section is organized into three parts. The first part defines flexible work practices (FWPs) and its components. The second part reviews FWPs in organizations. The third part reviews the literature on FWPs and organizational performance.

Flexible Work Practice Definitions and Components

The concept of flexible work practices has been one of the more commonly researched aspects of human resource systems (Appelbaum & Batt 1994; Godard & Delaney, 2000, Kochan, 2000). The research on FWPs derives from an initial thesis that competitive pressures induced managers to rethink their human resource management beliefs and values (Kochan, Katz, & McKersie, 1986). Flexible work practices have been
described in numerous ways with a broad range of variables. Even the terminology to describe FWPs has varied. Flexible work practices have been identified as high performance, innovative, alternative, and new work practices (Godard, 2001).

A vigorous theoretical and empirical debate on the role of flexible work practices in American workplaces is found primarily in the fields of industrial relations and human resource management. The importance of a skilled and motivated workforce is a common theme despite differing paradigms in these fields (Huselid & Becker, 1996).

The industrial relations debate derives from the labor and management relations paradigm and the shift from traditional management approaches to practices of participation. Godard and Delaney (2000) proposed that the field’s research is based on the notion that, “positive performance effects arise in part from the creation of more cooperative labor management relations, which induce employees to work harder and share ideas in the pursuit of ‘mutual gains’ with employers” (p. 482). Similarly, the resource-based view of the organization that pervades the field of human resource management argues that competence derived from organizational resources provides an ability to address competitive pressures.

Human resource management has predominantly explored flexible work practices as management approaches that sustain organizational performance through bottom-line improvements and value creation (Becker & Gerhart, 1996). Becker and Gerhart (1996) identified two main approaches in FWPs research. One approach has examined the notion of universal best practices across all organizations. This perspective has researched how specific practices may improve organizational performance regardless of their context. The other approach has explored a fit of practices dependent upon the organizational
context (Delery & Doty, 1996; Youndt, Snell, Dean, & Lepak, 1996). From the perspective of fit, Becker and Gerhart (1996) wrote that work practices which translate knowledge into organizational performance develop over time within an organization’s context.

A wide variety of variables have been used to operationalize FWPs (Blasi & Kruse, 2006; Cappelli & Neumark, 2001; Godard & Delaney, 2000). Becker and Gerhart’s (1996) review is often cited as an indicator of the wide variety of variables. They identified twenty-seven different practices used in five studies to operationalize flexible work practices. Not one of these variables was used by more than three studies. While the use of variables may initially appear to be scattered, four themes can be identified. They are self-direction, flexible job assignments, employee involvement, and pay incentives (Blasi & Kruse, 2006; Cappelli & Neumark, 2001; Kirkman, Lowe, & Young, 1999; Kalleberg & Moody, 1994). Total quality management (TQM) is a fifth variable often identified. However, TQM is better identified as a systematic continuous improvement methodology and therefore promotes the implementation of practices such as employee involvement, flexible job assignments, and self-direction. Interestingly, training does not consistently stand out as a theme of flexible work practices.

Self-directed or self-managed work teams refer to the decision rights of front-line employees to direct aspects of their work. Flexible job assignments are approaches that create process flexibility through employee capability to perform job specific duties in more than one position. Kirkman et al. (1999) described flexible job assignments as an umbrella term for approaches that enhance flexibility, increase efficiency, or do both. Employee involvement refers to engaging front-line employees in problem-solving teams.
and communication approaches such as regular meetings to solicit employee input. Finally, pay incentives include profit sharing and pay for skill approaches designed to align employee knowledge with organizational performance through financial rewards.

Godard (2001) suggested these work practices can be distinguished between on-line and off-line FWPs. On-line practices refer to work practices that occur where work is done. Flexible job assignments (i.e.-rotation) primarily occur on-line. Some forms of self-direction and employee involvement occur on-line as well. Off-line practices occur away from the main area of performing production or service activities. Pay incentives can be characterized as an off-line practice. Additionally, some forms of self-direction and employee involvement, such as formal meetings, occur off-line. The distinction between on-line and off-line practices provides insight into the immediacy of work practice implementation relative to where the main work activity occurs.

Much of the research on FWPs has focused on how work practices are combined as bundles. Bundles of flexible work practices represent a set of integrated practices and policies that provides a positive impact on organizational performance relative to the same practices implemented individually (MacDuffie, 1995). Based on a systems perspective, research into bundles of work practices theorizes that no individual practice or policy provides an advantage, but that a set of reinforcing policies and practices enhance organizational performance. Huselid (1995) argued through previous research findings and conventional wisdom that organizations adopting one FWP are likely to use other flexible practices as well.

Empirical studies have depicted bundles in many ways. Huselid (1995) utilized an employee skills index and employee motivation index. Youndt, Snell, Dean, and Lepak
(1996) created an administrative human resource system index and a human capital enhancing index, and Guest and Hoque (1994) used an index described as good, bad, ugly, and lucky. Regardless of the index used to measure work practice bundles, the themes of self-direction, flexible job assignments, employee involvement, and pay incentives are consistently identified.

Flexible Work Practices in Organizations

How organizations have implemented bundles of work practices has been a focus of FWP theorizing. Gittleman, Horrigan, and Joyce (1998) contended that while large organizations may face substantial fixed costs, potential economies of scale makes the adoption of practices likely. They further hypothesized that smaller organizations are inherently more flexible and less bureaucratic and therefore may be likely to implement flexible work practices. Heneman, Tansky, and Camp (2000) suggested that bundles of work practices may be more applicable to small and medium-sized enterprises (SMEs) than to larger organizations since the notion of bundles align with how SMEs owners and managers view personnel issues. The authors noted that SME leaders did not describe human resources in functions but focused on human resource practices as a set of interrelated activities. They further stated that SMEs may be excellent subjects to study the synergies of bundles because they align with the interests and orientations of SME leaders.

Empirical work on flexible work practices has provided mixed results. Osterman (1995) showed that smaller organizations were more likely to adopt. Gittleman et al. (1998) found that larger establishments were more likely to implement FWPs. Kalleberg
and Moody (1994) also found that large organizations tend to adopt bundles of flexible work practices more readily than smaller organizations. Venable (2000) used qualitative analysis of interviews with executives of thirty-one exporting manufacturers with between 50-500 employees. Venable established that smaller manufacturers do not incorporate FWPs to the levels of larger firms. However, he also concluded that each organization regardless of size has at least one factor to their advantage to implement flexible work practices.

Gittleman, Horrigan, and Joyce (1998) examined the use of flexible work practices using variables such as work teams, total quality management, quality circles, peer review of employee performance, worker involvement in purchase decisions, and job rotation. Their findings showed that 42 percent of all size establishments used at least one practice while 70 percent of establishments with 50 or more employees used at least one practice. They also showed that the choice of work practices varied significantly across organizations and no universal best practices emerged.

Osterman (2000) examined the diffusion of flexible work practices by using the 1992 National Survey of Establishments and a replicated 1997 version. These surveys provided a national representative sample of for-profit establishments with at least 50 employees. The survey focused on four practices that included self-managed teams, total quality management, quality circles, and job rotation. Osterman’s work uncovered a rapid rate of diffusion between 1992 and 1997, although some practices, like self-directed work teams, increased at a slower pace than other measures. The diffusion of two or more practices into establishments increased from 26 percent in 1992 to 71 percent in 1997. Three or more practices increased from 14 percent in 1992 to 39 percent in 1997.
Blasi and Kruse (2006) constructed a high performance index to examine the diffusion of flexible work practices. They used 1994 and 1997 national random samples of establishments that excluded employers with less than 20 employees. They argued, based on the theory of diffusion of innovations, that FWPs represent organizational software. They hypothesized that the diffusion rates of organizational software tend to be slower than concrete or hardware innovations (Rogers, 1995). This is due to the challenges of changing existing social patterns. Blasi and Kruse used eight measures that include self-managed teams, work-related meetings, hours of training, benchmarking, job rotation, flatness of organization, recruitment, and benefits.

In an apparent contradiction to Osterman and Gittleman et al., Blasi and Kruse (2006) showed that only one percent of establishments achieved an extensive diffusion of work practices. In other words, FWP implementation faces slow diffusion rates due to the complexities of changing organizational social patterns. They concluded that the more disruptive an innovation is to existing organizational patterns, the less likely the innovation will spread. Work related meetings, less disruptive to organizational social patterns, were much more likely to be adopted than self-managed work teams which are considered to be highly disruptive. Extending Godard’s notion of on-line and off-line work practices, the empirical work by Blasi and Kruse suggests that on-line practices appear to be more disruptive to organizational social patterns and therefore are more slowly implemented.

Hunter (2000) examined the level of flexible work practice adoption in service establishments, a departure from the primary research settings in manufacturers. Hunter used the National Employers’ Survey to identify sector similarities and differences in the
use of flexible work practices. He showed that service establishments are half as likely as manufacturing establishments to use total quality management and self-managed work teams, but are more likely to use flextime and job sharing. Hunter discovered job rotation as the only similarity among the service and manufacturing sectors.

As shown in table 2.1, studies on FWPs have generally not examined a wide range of organizational size. In fact, there is a tendency in the literature to use organizational size as a control variable or to exclude smaller organizations in empirical studies. This tendency may result in an incomplete understanding of FWP implementation across the wide variation of organizational size.

<table>
<thead>
<tr>
<th>Organizations excluded</th>
<th>Studies on Flexible Work Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50 employees</td>
<td>Osterman, (2000)</td>
</tr>
<tr>
<td>&lt; 20 employees</td>
<td>Blasi &amp; Kruse, (2006); Cappelli &amp; Neumark (2001)</td>
</tr>
</tbody>
</table>

Table 2.1: Exclusion of organizations by size

For example, Huselid and Becker (1996) used data consisting of mean employment level of 4,700 employees with 80%-85% of the organizations below the mean. The decision to exclude organizations based on number of employees potentially curtails the full range of variation and risks a mis-estimation of the magnitude of correlation (Kalleberg, Knoke, Marsden, Spaeth, 1994). The authors suggested that
research based on samples restricted with respect to organizational size risks constructing theories that apply only for larger organizations. Yet, understanding how FWPs are implemented across a wide range of organizational size requires a full range of variation. This, in turn, provides insight into management approaches across the full economic spectrum to apply knowledge for enhanced organizational performance.

Flexible Work Practices and Organizational Performance

Various outcome measures have been used to examine the effects FWPs have on organizational performance. A majority of the studies examined the relationship with productivity measures (Way, 2002; Osterman, 2000; Hunter, 2000; Ichniowski, Shaw, & Premushi, 1997; Koch & McGrath, 1996; Delaney & Huselid, 1996; MacDuffie, 1995; Arthur, 1994). Others have explored measures of quality performance (MacDuffie, 1995; Ichniowski, Shaw, & Premushi, 1997; Banker, Field, Schroeder, & Sinha, 1996; Osterman, 2000). A smaller number of studies have examined measures such as return on assets, returns on equity, total sales, and tobin’s q, or the ratio of stock market value to the replacement cost of capital (Delery & Doty, 1996; Huselid & Becker, 1996; Chadwick & Cappelli, 1999). To varying degrees of strength, the collection of empirical studies suggests a positive association between FWPs and organizational performance. Several studies are notable for their unique approaches to examine this relationship.

Banker, Field, Schroeder, and Sinha (1996) conducted a longitudinal study of flexible work practice teams and their effects on quality and labor productivity. The research setting comprised of multiple production lines within a manufacturing facility of a Fortune 500 company. They measured work teams based on a continuum of autonomy
and describe how greater autonomy is flexible relative to traditional hierarchical decision-making. They showed that increased levels of autonomy lead to increased quality and productivity performance.

Conducting a cross-national study, Chow (2005) found a strong relationship between FWPs and organizational outcomes. Shih, Chiang, and Hsu (2006) used structural modeling equation to explore the relationship between FWPs and organizational performance. Using latent variables for decentralized decision-making, comprehensive training, and employee participation, they discovered a strong relationship between organizational performance, the propensity to adopt flexible work practices, and further improved organizational performance.

Way (2002) assessed how FWPs affect organizational performance by utilizing a dataset of organizations between 20 and 100 employees. His research provided mixed empirical support. Way found that FWPs lead to decreased turnover and higher productivity. However, he further showed that using FWPs did not produce outcomes exceeding the increased labor costs of using these practices. Luc Sels, Maes, Delmotte, Faems, & Forrier (2006) introduced a framework in the FWP literature by exploring the value enhancing and cost raising impacts of FWPs in organizations. Their research showed that FWPs do not offer a surplus value for smaller organizations when implementation costs are included.

Ellinger, Ellinger, Yang, and Howton (2002) examined the relationship of the learning organization concept and a firm’s financial performance. While the principles of the learning organization do not identically match FWPs, they used similar measures in their study. Specifically, their use of dimensions such as inquiry and dialogue and
systems to capture and share learning represent notions of self-direction, cross-training, and other typical measures of FWPs. They surveyed a random sample of 400 mid-level manufacturing managers employed predominantly in large firms. They correlated their perception measures with performance measures from secondary data sources. The results showed a positive correlation between dimensions of these management approaches and measures of the organizational performance.

While these studies suggest that FWPs lead to enhanced organizational performance, gaps remain in the understanding of the strength of these relationships. Furthermore, Bowen and Ostroff (2004) described how the literature has framed a positive relationship between flexible work practices and organizational performance but have left unanswered the process through which this occurs. One process that has remained relatively unexamined is the interaction between flexible work practices as a way to apply knowledge and skills and related decisions to develop knowledge through training. To better understand this relationship this study first explores the role of developing human resources in organizations.

**Human Resource Development**

This section is organized into three parts. The first part discusses human resource development. The second part reviews training in organizations. The third part reviews the literature on training and organizational performance with a particular emphasis on differences across organizational size.
Understanding Human Resource Development

Learning how to improve performance has been an essential part of humanity (Swanson & Holton, 2001). In today’s society, developing knowledge has become a process with multifaceted implications. The intersection of individual learning and organizational performance is becoming more important as globalization intensifies competition. The development of knowledge in an organizational context affects both individuals and organizations. The field of human resource development provides an interdisciplinary approach to understanding how we learn to improve within the organizational contexts of our society (Swanson & Holton, 2001).

Human resource development can be defined as “the process of improving organizational performance and individual learning through the human accomplishments that result from employee development, organization development, and career development” (Jacobs, 2006, p. 21). Employee development represents training and educational programs that provide knowledge to meet work expectations (Jacobs, 2005). These efforts provide the essential knowledge foundations for work expectations related to flexible work practices. Career development addresses organizational needs such as career management and employee interests such as career planning. Career development programs include efforts such as tuition assistance, mentoring and coaching, and career counseling. Finally, organization development programs are designed to facilitate change through human and structural processes. These three human resource development facets represent a comprehensive approach to developing human resources.

System theory is a foundation of human resource development (Swanson & Holton, 2001; Jacobs, 1990). System theory provides a basis for comprehensively
considering how human resource development processes and programs impact the many facets of an organization. Additionally, this theoretical contribution provides an understanding of the whole organization and the relationships of the parts within the organization. Therefore, system thinking suggests that training may not be the only solution for every performance problem.

However, employee development, and specifically training, serves an essential role in the development of knowledge. Training can range from technical training to impart specific job-related skills, to managerial training to impart the ability to plan and schedule the work of others, to awareness training to provide an awareness of important ideas (Jacobs, 2003). Training processes can occur in many forms and functions. Training approaches include on-the-job or off-the-job, instructor led or self-directed, and formal or informal. Regardless of the approach, training in the workplace is focused on developing employee knowledge in order to perform their current work or to prepare for new work in a changing setting (Swanson & Holton, 2001). Relevant to this study is how training is implemented across organizational size with a specific emphasis on how organizations differ in their approaches to training.

Training in Organizations

Numerous studies have examined the training approaches of organizations of all sizes. The U.S. Dept. of Education found employer size is associated with employer support for formal job related training and education (2004). This study defined formal employer support as instruction, courses or classes at the workplace, courses or classes during paid work hours, and paying for or reimbursing educational expenses. Adults
surveyed who worked for large employers (500 employees or more) were more likely to receive employer support (78%) than adults who worked for employers with 25–499 employees (73%), who report receiving more employer support than adults from employers with 1–24 employees (43%). Other research found that the larger the organization, the more likely it invests in formal training (Betcherman, 1993; Knoke & Kalleberg, 1994; Frazis, Herz, & Horrigan, 1995; Lynch & Black, 1998; National Association of Manufacturers 2003). This research suggests that large organizations are more active providers of training than small and medium-sized enterprises (SMEs). However, this may not accurately reflect SME decisions to invest in training.

While the previous studies focus primarily on formal and off-the-job training, Merriam and Caffarella (1999) identified informal learning, such as on-the-job training, as an important way for adults to acquire new knowledge. Bruce, Aring, and Brand (1998) showed that informal learning accounts for as much as 70 percent of all workplace learning necessary to provide critical skills for worker and company productivity. Barron, Berger, and Black (1997) further found that surveys focusing solely on formal training may miss a majority of training. In fact, some studies have found that SMEs are active providers of training when a notion broader than formal training is considered.

Fernald and Solomon (2000) showed that small business owners perceive training to be essential for the organization’s competitiveness. Schöne (2006) showed that SMEs may train employees more effectively than large organizations. By using an employer-employee data set of 2100 Norwegian establishments, he used measures of formal training incidence (number of employees trained) and intensity (total organization costs) to assess training by organizational size. Schöne discovered a negative relationship
between organizational size and the proportion of workers trained. In other words, as the organizational size increased, fewer employees were trained. This evidence may be indicative of the ability of SMEs to train all employees more effectively than large firms.

Storey (2004) further argued that SMEs make appropriate decisions for their training. His study of six countries showed weak evidence that SMEs providing formal training actually performed better than SMEs that did not provide such training. He wrote this evidence supports the notion that SMEs make well-informed decisions about their investments in formal training.

Other studies found SMEs to be active providers of training. Rowden’s (2000) study of SMEs in the United States identified an extensive role of incidental and informal workplace learning. Fernald and Solomon (2000) further demonstrated that the most useful training methods for small businesses were on-the-job approaches. Hill and Stewart (1999) used case study methodology to show that SMEs are engaged in human resource development activities including training. Johnson’s (2002) results demonstrated that the learning gap between large and small organizations narrows when informal learning is considered. Specifically, smaller organization training activities increase significantly more relative to larger organizations when informal learning is considered. As one example, Johnson found that 47 percent of organizations with 5-24 employees provide off the job classroom training whereas 77 percent provide on-the-job training.

Westhead and Storey (1996) explained the difference in training approaches between large and SME organizations may be generated by differences in uncertainty. Specifically, large organizations experience internal uncertainty while external uncertainty is more characteristic of SMEs. Internal uncertainty is represented by issues
such as whether top management decisions are carried out throughout the organization, generally an issue of little concern in SMEs. As the authors suggested, external uncertainty is most likely attributable to little market power and influence. This external uncertainty may result in short-term decisions, responsive behaviors, and less formal approaches to develop skills and abilities of employees. Hill and Stewart (1999) showed that training activities in SMEs are often informal, reactive, and short-term in focus.

Therefore using formal training measures exclusively may not accurately depict training activities across organizational size. This literature shows that SMEs and large organizations differ in their approaches to training. As organizational size increases, organizations appear to rely on more formal training approaches. Therefore, small organizations should not be considered scaled down versions of large organizations (Gray, 2004; Westhead & Storey, 1996).

Training and Organizational Performance

Barron, Berger, and Black (1997) showed that empirical studies measure formal training more accurately than informal training. Given that the literature on small and medium-sized enterprises indicates these organizations are informal, short-term, and reactive with their training, it can be inferred that the relationship between training and organizational performance is not clear or at least not fully explained (Jacobs & Washington, 2003; Cosh, Hughes, & Weeks, 2000; Patton, Marlow & Hannon, 2000). However, a few studies in recent years have identified a positive relationship between training and organizational performance. The three primary measures used to examine the relationship between training and organizational performance in SMEs is
productivity, organization growth, and quality. LaPlagne and Bensted (1999) showed that investments in training and innovation have a positive relationship with productivity growth in medium and large-sized organizations (greater than 20 employees). Specifically, their results show a minimal benefit of only training, while the joint introduction of training and innovation provided discernable productivity improvements. Moore, Blake, Phillips, and McConaughy (2003) identified a positive relationship between state sponsored training investments and organization productivity. Huang’s (2001) empirical assessment of Taiwanese SMEs identified a positive relationship between sophisticated training systems, management support, and training effectiveness in business performance. Gray (2004) showed a link between management development in SMEs and growth of the firm. Jones (2004) also found a positive relationship between training and employment growth. Cosh, Hughes, and Weeks (2000) provided a longitudinal study of SMEs that measures intensity of training as well as incidence of training. They showed a positive correlation between training investments and organization growth. Sadler-Smith, Spicer, Chaston (2001) indicate casual relationships between learning and firm growth. Their study showed that higher growth small manufacturers report behaviors that are conducive to lifelong learning. Edelman, Brush, and Manolova (2002) showed a positive relationship between developing employee skills and an organization’s quality performance.

Pate, Martin, Beaumont, and McGoldrick (2000) suggested that an organization’s investments in training paid off in “positive outcomes of psychological contracts, such as organizational commitment, continuance commitment, and job satisfaction” as well as knowledge transfer in the workplace (p. 155). The case study company accomplished
these positive outcomes by providing a broad focus on education rather than training, making education accessible through flexible learning centers, and implementing a career management system for employees.

Bartel’s (2000) extensive analysis of training return on investment studies showed a positive correlation between training and its return on investment. She noted there are two primary foci to the literature. One type examines large samples of organization level data and the other type conducts case studies of few firms. The positive correlation was found regardless of the approach.

Despite this emerging evidence of a positive relationship, Cosh et al. (2000) characterized the evidence on training and performance in SMEs as partial, indirect and inconclusive due to varying strength of results. Bartel (2000) noted that both large samples of organization level data and case studies often lack the precision necessary for useful return on investment analysis. Patton, Marlow, and Harmon (2000) wrote these inconsistent outcomes may be related to the possibility there is no causal relationship, methodological issues in measuring and isolating the impact of training on performance, and complexity imposed by the wide heterogeneity of SMEs.

Several researchers have suggested new approaches to empirically assess the impact of training on firm performance (Huang, 2001; Cosh et al. 2000; Bartel, 2000; Patton et al., 2000; LaPlagne & Bensted, 1999). Recommendations include new methodological approaches, longitudinal assessments, measures of intensity and persistence combined with training incidence, as well as assessment of training systems using broader measures of training. Patton et al. (2000) further suggested using
approaches that identify organization-wide outcomes in the widest sense instead of seeking to identify specific causal relationships.

Training and Flexible Work Practices

This section discusses the literature on the relationship between FWPs and training. Lynch and Black (1998) characterized a complementary relationship between training and other organizational investments due to the mutually reinforcing effects of these investments. Delaney and Huselid (1996) pointed out that motivated employees are not effective if they are not skilled. Furthermore, the effectiveness of skilled employees is limited if they are not motivated to perform their job. While the use of FWPs may effect employee motivation, training may affect employee skill levels. Training may be vital to the implementation and sustainability of flexible work practices and FWPs may promote further training. Therefore, FWPs and training may have reinforcing effects, thus, creating a virtuous cycle of these work practices.

For example, the initiation of job rotation practices assumes an initial investment in related training such as job specific cross-training. Training can be viewed as a necessary condition to implement FWPs. Additionally, as job requirements change or rotation practices are expanded, additional training will be necessary. In a circular fashion, increases in training promote the use of FWPs, which in turn promotes more training, thus encouraging more use of FWPs.

However, Whitfield (2000) noted a lack of empirical research on the interaction of training and FWPs despite the implications that new and existing workers engaged in FWPs require more training. Bowen and Ostroff (2004) identified a need to examine the
strength of the relationships of human resource processes and content. Specifically, they stressed focusing on mutually reinforcing practices and their effects on performance. While they did not explicitly address the interactive properties of training and FWPs, like Whitfield, they established a gap in the research examining reinforcing effects of human resource practices.

Even though empirical studies that examine the relationship between FWPs and training are sparse, these few studies provide interesting insights. Osterman (1999) established a relationship between training and FWPs. Specifically, Osterman showed that in establishments with two or more flexible practices, training was 35 percent higher than establishments with fewer practices. Gittleman et al. (1998) identified that establishments devoted to training basic skills and job skills were more likely to adopt flexible practices than organizations with lower investments. Whitfield (2000) discovered a strong relationship between the adoption of individual work practices and the level of training. He showed this relationship also existed with the adoption of bundles of FWPs and levels of training.

Lopez, Peon, and Ordas (2005) hypothesized that FWPs themselves are not the source of performance, but they serve as the incentives for learning and using knowledge into practice. In other words, FWPs contribute to competitive advantage to the extent they interact with organizational learning and training. Lopez, et al. (2005) found that FWPs have a positive effect on organizational learning, which in turn has a positive effect on organizational performance. Interestingly, they did not discover a direct effect between FWPs and organizational performance. These scholars concluded that FWPs serve as incentives for learning and applying knowledge into practice. While their work is
intriguing, caution may be necessary due to the relatively low response rate (7.8%), a focus on only one country, and the exclusion of organizations with less than 200 employees.

While the empirical studies suggest reinforcing effects of FWPs and training, little is known regarding the strength of these relationships. This is particularly the case in understanding the relationship across organizational size.

Conceptual Framework

There are three primary gaps in the literature concerning the relationship among flexible work practices, training, and organizational performance across organizational size. First, the literature on the use of FWPs has generally not examined the broad range of organizational size with a tendency to exclude smaller sized organizations. This limits an understanding of organizational differences in the use of flexible work practices. Second, larger organizations may have a greater propensity to use formal training and smaller organizations are active providers of informal training. Yet, training measures beyond formal training have been lacking in empirical studies. The use of training measures that are broader than formal training may provide greater insight into the training behaviors of all organizations including small and medium-sized enterprises.

Finally, while flexible work practices and training are actively researched, little remains understood regarding the reinforcing relationships of these practices. While training effects employee skill levels, FWPs effect employee motivation to utilize these skills. The interaction of training and work practices represents a valuable framework to explore and to understand the reinforcing effects of these efforts, if any.
As shown in figure 2.2, this conceptual framework outlines the interactions among flexible work practices, training, and organizational performance. There are five important aspects of this framework. The first feature is the role organizational size has on the use of FWPs. The second feature is the role organizational size has on the implementation of training. The third feature of this framework is the interaction between training and FWPs. Training investments are necessary for the implementation of certain FWPs like job rotation. Furthermore, the implementation of FWPs, like self-directed work teams should encourage training investments to attain appropriate skill and ability levels. The interaction between FWP and training investments should be reinforcing. The fourth feature of this framework is the relationship between training and organizational performance. Training investments facilitate the use of continuous improvement methods by increasing the knowledge, skills, and abilities of employees. This, in turn, enhances organizational performance. The fifth feature is the relationship between FWPs and organizational performance. Flexible work practices facilitate employee use of knowledge, skills, and abilities. This, in turn, enhances organizational performance.
Figure 2.2: Conceptual Framework for the Study of Flexible Work Practices, Training, and Organizational performance across Organizational Size
CHAPTER 3

METHODOLOGY

This chapter describes the research methodology used to answer the research questions of the study. The first section describes the research type. The second section discusses the research setting. The third section describes the exploratory factor analysis. The fourth section explains the operationalization of variables. The fifth section discusses the data analysis procedures for each of the proposed research questions.

Research Type

This research used descriptive and structural equation modeling procedures to answer the research questions. The study is ex post facto in nature. Ex post facto research is descriptive and examines what is. This differs from experimental research which explores causal relationships between independent and dependent variables to determine direct cause and effect relationships. Instead of comparing different treatments as in experimental design, ex post facto research compares the differences in variables and examine whether they differ relative to predictors. (Light, Singer, & Willett, 1990).
Research Setting

This section is organized into three parts. The first part establishes criteria for the research setting. The second part describes the selected sample. The third part outlines the sample limitations.

Criteria for Research Setting

Four criteria were used to determine an appropriate research setting and dataset. These criteria are appropriate response rates, random sampling, data that is not restricted by employer size, and an ability to assess various attributes of flexible work practices and training.

The first criterion for an appropriate research setting is an acceptable response rate. Huselid and Becker (1996) note that low response rates, often 20-30 percent, are inherent in research on human resource practices and consequently represent a source of potential response bias. Curran and Blackburn (2001) showed that response bias may be amplified when small and medium-sized enterprises are investigated. Specifically, they identified a strong positive relationship between organizational size and response rates. As organizational size increases, response rate increases as well. Higher response rates can reduce the potential bias however achieving higher response rates can be challenging in investigations of small and medium-sized enterprises.

Second, random sampling provides the best alternative to support generalizations since this sampling approach can best approximate the heterogeneity of the population under study. The broad range of employer size based on number of employees represents a wide heterogeneity in the unit of analysis. In contrast, non-random samples risk being
over populated with organizations interested in the attributes under study. Specifically, correlating human resource practices with organizational performance in non-random samples may lack validity because the organizations studied may represent different motivation or dynamic properties than does the general population (Storey, 2004). Consequently, the use of non-random samples may not reflect the behaviors and actions across a broad range of organizational employment size.

The third criterion for an appropriate research setting is to use unrestricted data with respect to the unit of analysis. In this area of inquiry, this primarily refers to using data that includes smaller organizations. As discussed in the review of literature, there has been a tendency to truncate data and exclude smaller organizations. Most studies have used surveys with size restrictions (Kalleberg, Knoke, Marsden, & Spaeth, 1994). However, the exclusion of smaller organizations may risk reducing the full range of variation. Studies that restrict the sample range of small organizations may result in theories that better reflect larger organizations (Kalleberg, et al., 1994).

The fourth selection criterion is the ability to assess various attributes of flexible work practices and training. Flexible work practices consist of bundles of human resource practices that facilitate self-direction, flexible job assignments, employee involvement, and pay incentives for front-line employees. An ability to measure multiple aspects of FWPs is necessary to explore the potential reinforcing effects of bundling these varied practices. Furthermore, as discussed in the review of literature, training measures that are narrowly focused on formal training may provide a potential bias towards larger organizations since they are more prone to invest in formal training. In addition to formal classroom measures, training can be measured through practices such as cross-training,
the use of staff, and measures of employee skill levels. An ability to measure various aspects of flexible work practices and training is an essential criterion in order to study the broad range of choices across organizational size.

Sample and Survey Instrument

Based on these criteria, the 2002 National Organizations Study (NOS) was selected (Smith, Kalleberg, & Marsden, 2004). The NOS is a sample of work establishments in the United States that examines structure, context, and personnel practices (Kalleberg, et al., 1994). The NOS is an unrestricted diverse organization design that has been conducted in 1991, 1996-1997, and 2002. Table 3.1 shows the general characteristics of the 2002 NOS survey. It is uncommon to identify a dataset such as the National Organizations Study. Its probability sampling plan of a large number of representative establishments from a national population is rare.

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Sampling Method</th>
<th>Sample Size</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith, Kalleberg, Marsden</td>
<td>Employer information from respondents of General Social Survey interviews.</td>
<td>516</td>
<td>59%</td>
</tr>
</tbody>
</table>

Table 3.1: Summary of 2002 NOS project

To develop the 2002 NOS survey, half of all household respondents in the General Social Survey were asked to provide contact information for their place of employment including business name, address, and telephone number. From this
information, NOS surveys were completed using mixed approaches of telephone and mailed questionnaires. The 2002 NOS data set consists of 516 establishments. The NOS survey design provides a unique opportunity to examine a large number and wide variety of work establishments.

The National Organizations Survey concentrates on human resource policies and practices. Extensive data was collected on organizational structures, social demography, and the human resource characteristics of each respondent’s organization. Numerous instrument items examine the use of flexible work practices, job training programs, internal job ladders and promotion practices, staffing methods, employee benefits and incentives, as well as the use of contingent employees.

The 2002 National Organizations Survey meets the four criteria for data selection in the following ways. First, the NOS response rate was 59 percent. This is substantially higher than common rates of 20-30 percent. Second, the data is a national random sampling of establishments. This nationally representative dataset provides a capacity to support generalizations on organizations of all sizes.

Third, the organization level data is not restricted to size, industry sector, or any other dimension necessary to explore the full range of organizational use of flexible work practices and training. Finally, the 2002 NOS provides uniquely crafted questions to examine flexible work practices and training. Instrument items address numerous aspects of FWPs as well as a broad notion of training (Appendix A).
Sample Limitations

While the National Organizations Survey examines the relationship among flexible work practices and training across organizations, its design has three primary limitations. First, the NOS used perceptual measures of organization activities and organizational performance (Bartel, 2000; Dollinger & Golden, 1992). Constructing objective measures of organizational performance has been a research challenge for exploring the relationship of FWPs, training, and organizational performance. The limited accessibility of financial data from privately held firms, such as small and medium-sized enterprises, makes the use of objective organizational performance measures even more complex. Researchers have commonly turned to subjective measures of performance that include manager reported perceptions of organizational performance. Dess and Robinson (1984) showed a strong tendency to use success and failure criteria in research on smaller privately held firms. Wall and Wood (2005) examined the effects of human resource practices on organizational performance and found that fifteen out of twenty-five studies used self-reported measures of organizational performance.

While objective measures are clearly preferred, empirical evidence shows that subjective measures of performance can serve as an alternative proxy when objective data is not available (Dollinger & Golden, 1992; Powell, 1992). Dess and Robinson (1984) found that respondent perceptions of organizational performance relative to organizations in the same industry strongly correlated to objective measures. Wall, et al. (2004) found broad similarities between self-reported measures relative to their objective counterparts. Specifically, subjective measures showed a 95 percent success rate when judged against equivalent objective measures.
Delaney and Huselid (1996) used data from a National Organizations Survey (NOS) to find positive associations between FWPs and perceptual measures of organizational performance. They acknowledged that while perceptual measures are not ideal, the NOS provides data on organizational practices for which financial measures are generally not available. Kalleberg and Moody (1994) noted that financial performance measures do not reflect the variety of goals an organization pursues. They described how the NOS data provides value through subjective benchmarking since the data provides comparative indicators of performance applicable to all organization types. They further noted that these benchmark measures are implicitly industry normed because respondents presumably compare organizational performance to other organizations in the same type of work. They also emphasized the importance and rarity of this type of data in a nationally representative sample.

A second limitation of the NOS design is the risk of common method variance, specifically single-source bias. The same respondent rates the levels of work practice and training implementation as well as rates the level of organizational performance. This creates a potential bias, or halo effect, in the data (Avolio, Yammarino, & Bass, 1991). The use of perceptual measures may magnify this potential bias (Delaney & Huselid, 1996). There was no systematic attempt to develop interrater reliability.

Third, there is potential for simultaneity to occur among training, work practices, and perceptions of organizational performance. Thus, cause and effect cannot be determined since events may occur at the same time. Furthermore, simultaneity may result in an overestimation of the relationship between variables (Delaney & Huselid, 1996).
Data Preparation

Prior to the analysis, the data were transformed into useable variables. The data were prepared by addressing missing variables, item reversals, and developing composite scores of dichotomous variables.

The descriptive analysis showed missing variables for all of the instrument items identified for the proposed conceptual framework. These missing variables range from 1.0 percent to 36.2 percent. Table 3.2 shows the percentage of missing variables by size of organization of three representative instrument items. The frequency of missing variables is significant with organizations consisting of five or less employees. Two strategies were employed to address the high levels of missing variables for some items.

First, organizations with five or less employees were excluded from this study. Since this study seeks to understand the relationship of FWPs, employee training and organizational performance, organizations with few or no employees may not provide insight into the relationships between FWPs and training. Combined with the high levels of missing variables of these organizations, they were excluded from the data. Second, imputation techniques were used to address the remaining missing variable issues of the instrument items selected for the proposed constructs (Appendix B). Specifically, mean substitution procedures were used. Imputation is a process to estimate missing values by employing known relationships based on the valid values (Hair, et. al, 1998).

After imputation procedures were completed, instrument item rankings were reversed as appropriate to provide numerical consistency for the level of agreement. Finally, dichotomous variables that were selected through the exploratory factor analysis
were combined into composite variables since the structural equation modeling approach assesses variables as continuous measures.

<table>
<thead>
<tr>
<th>2002 NOS n = 516</th>
<th>Percent Missing Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td># of employees</td>
<td>Teams meet once a month to solve work related problems</td>
</tr>
<tr>
<td>Five or less</td>
<td>54.7%</td>
</tr>
<tr>
<td>6 - 10</td>
<td>5.5%</td>
</tr>
<tr>
<td>10-49</td>
<td>13.3%</td>
</tr>
<tr>
<td>50-249</td>
<td>13.8%</td>
</tr>
<tr>
<td>250-499</td>
<td>3.3%</td>
</tr>
<tr>
<td>500 plus</td>
<td>9.4%</td>
</tr>
</tbody>
</table>

Table 3.2: Representative missing variables by organizational size
Exploratory Factor Analysis

An exploratory factor analysis was conducted using SPSS 15.0. All NOS instrument items that measured aspects of FWPs and training were included in this analysis (Appendix A). Upon completion of the factor analysis, internal consistency of the instrument items was assessed using Cronbach’s alpha. This reliability approach assesses construct validity of the proposed instrument items. Construct validity is the degree to which a measure relates to other variables within a set of proposed relationships (Hair, Anderson, Tatham, & Black, 1998). This exploratory factor analysis identified NOS instrument items that combine into components to adequately measure the constructs of flexible work practices and training.

The data were analyzed using principal component analysis with varimax rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling and Barlett’s test of sphericity were used to determine the feasibility of factoring. The KMO measure determines the amount of variance in the data that can be explained by the factors. A KMO value of 0.5 or greater is considered acceptable. The KMO for FWPs and training, 0.62 and 0.59 respectively, met this criterion. Furthermore, the Barlett’s test of p< 0.05 indicated the data was factorable (Hair et al. 1998).

As shown in figure 3.1, the scree plots showed three components for FWPs and three components for training with eigenvalues greater than 1.0 (Hair et al., 1998). Based on further examination of the instrument items contained in the factored components, four FWP components (eight instrument items) and three training components (six instrument items) were identified.
Figure 3.1: Scree plots of FWPs and Training

These results show that the FWP components explained 54.9 percent of the total FWP variance and the training components explained 61.7 percent of the training variance. These results are shown in table 3.3
<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flexible Work Practices</strong></td>
<td></td>
</tr>
<tr>
<td>Self-managed teams (Q 62)</td>
<td>.831</td>
</tr>
<tr>
<td>Quality Circles and employee involvement committees (Q63)</td>
<td>.846</td>
</tr>
<tr>
<td>Hold regular meetings (Q154a)</td>
<td>.422</td>
</tr>
<tr>
<td>Pay for group incentive (Q43)</td>
<td>.790</td>
</tr>
<tr>
<td>Pay for learning new skills (Q44)</td>
<td>.640</td>
</tr>
<tr>
<td>Decisions about task assignments and methods (Q35)</td>
<td>.831</td>
</tr>
<tr>
<td>Teams meet monthly (Q36)</td>
<td>.802</td>
</tr>
<tr>
<td>Choose own leaders (Q37)</td>
<td>.444</td>
</tr>
<tr>
<td><strong>Eigenvalues – FWPs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.108</td>
</tr>
<tr>
<td></td>
<td>1.221</td>
</tr>
<tr>
<td></td>
<td>1.056</td>
</tr>
<tr>
<td><strong>Percentage of variance explained – FWPs</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26.35</td>
</tr>
<tr>
<td></td>
<td>15.36</td>
</tr>
<tr>
<td></td>
<td>13.20</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td></td>
</tr>
<tr>
<td>Staff to train other employees (Q56)</td>
<td>.608</td>
</tr>
<tr>
<td>Offer training that help where ever they go (Q60a)</td>
<td>.641</td>
</tr>
</tbody>
</table>

Table 3.3: Factor Analysis of FWPs and Training
Table 3.3 continued

<table>
<thead>
<tr>
<th>Provide CORES formal training (Q23)</th>
<th>.763</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep skills current (Q25)</td>
<td>.729</td>
</tr>
<tr>
<td>Extent formal training for teamwork (Q26a)</td>
<td>.706</td>
</tr>
<tr>
<td>Cross-trained (Q38)</td>
<td></td>
</tr>
<tr>
<td>Eigenvalues – Training</td>
<td>1.570</td>
</tr>
<tr>
<td>Percentage of variance explained – Training</td>
<td>26.18</td>
</tr>
</tbody>
</table>

| Percentage of variance explained – Training | 18.16 |
|                                           | 17.37 |

| Extraction method: Principal Component Analysis |
| Rotation Method: Varimax with Kaiser Normalization |

Table 3.3: Factor Analysis of FWPs and Training

The intercorrelation matrices for the instrument items contained in the factor components are shown in appendix C. The results provide evidence of positive associations among the instrument items. Following the factor analysis, the internal consistency of the instrument items were assessed using Cronbach’s alpha for reliability. This measure of reliability ranges from zero to one. In the cases of FWPs and Training the alpha was .425 and .409 respectively suggesting low levels of reliability. Values of .70 are generally accepted as appropriate lower limits although lower values have been deemed acceptable in exploratory research (Hair et al., 1998). The reliability of the selected instrument items that construct the latent variables in the structural equation model are further assessed through the confirmatory factor analysis of the SEM.
procedures. Finally, the instrument items were combined into composite variables for use in the structural equation modeling procedures as discussed in the following section.

Operationalization of Variables

This section describes the constructs identified for the proposed data analysis: organizational size, flexible work practices, training, and organizational performance.

Organizational size

Organizational size is defined by the number of front-line employees, referred to in the instrument as COREs. This variable is measured by the number of full-time and part-time employees (COREs) who worked at the establishment based on one date in the year examined.

Flexible Work Practices

Flexible work practices are defined as systematic management practices that facilitate employee participation in efforts to improve organizational performance. FWPs are measured by instrument items that assess self-managed teams, flexible job assignments, employee decision-making, and pay incentives.

Self-managed teams are defined as on-going teams that have some degree of responsibility and discretion over decisions regarding methods of work, schedules, assignment of tasks, and feedback on performance. Employee decision-making is defined as the extent employees are engaged in the communications and continuous improvement efforts of the establishment. Flexible job assignment is defined as systematic approaches
to task accomplishment that enhances flexibility, increase efficiency, or provides both
(Kirkman, Lowe, & Young, 1999). Pay incentives are defined as wage systems that link
individual performance with organizational performance.

As shown in table 3.4, eight instrument items were combined into five variables
by building composite variables. The variable F1 assesses the extent of self-managed
teams. F2 assesses the extent of employee involvement. F3 assesses pay incentives
related to pay for learning and group incentives. F4 assesses employee involvement
practices related to meeting and communication and F5 assesses flexibility in selecting
and prioritizing job assignments.

Training
Training is defined as the process of developing knowledge, skills, and abilities in
employees. Training is measured by three variables that represent composites of six
instrument items (Table 3.4). The variable T1 assesses cross-training and available staff
with a primary responsibility for training. T2 assesses the extent training helps employees
wherever they work. Finally, T3 assesses the use of formal training as well as the extent
training keeps front-line employee skills current.
Instrument Items by Factor Component

Flexible Work Practices

F1
What percent of your nonmanagerial and nonsupervisory employees are currently involved in self-managed teams? (instrument item # 62)

F2
What percent of your nonmanagerial and nonsupervisory employees are currently involved in quality circles or employee involvement groups or committees? (# 63)

F3
• Do any (COREs) receive pay for learning new skills? (# 44)
• Are any (COREs) paid using group incentives, such as gain sharing? (# 43)

F4
• Does (ESTABLISHMENT NAME) hold regular staff meetings in which employees can voice their opinions? (# 154a)
• Do these teams meet at least once a month to solve work-related problems? (# 36)

F5
• Do these teams make decisions about tasks or work methods? (# 35)
• Do these teams choose their own leaders? (# 37)

Training

T1
• Does (ESTABLISHMENT NAME) currently have any staff whose primary responsibility is to train other employees? (# 56)
• Are (COREs) cross-trained, that is, trained in skills for more than one job? (# 38)

T2
Your organization offers employees training and skills that will help them wherever they may work. Do you strongly agree, agree, disagree, or strongly disagree? (# 60a)

T3
• In the past two years, did (ESTABLISHMENT NAME) provide any (COREs) with formal job training? (# 23)
• To what extent does (ESTABLISHMENT NAME) train its (COREs) to keep their skills current...not at all, to some extent, or to a great extent? (# 25)
• To what extent was the formal training of (COREs) used to teach or provide teamwork skills...not at all, to some extent, or to a great extent? (# 26a)

Table 3.4: Instrument Items based on Factor Analysis

54
Organizational Performance

Organizational performance is defined as organizational level outcomes. Organizational performance is measured by the instrument items productivity and financial performance. Productivity is assessed by respondent perceptions of how the establishment is performing compared with other establishments doing similar work. Doing the same kind of work is further defined by the instrument as establishments close in size and in what they do and about which the respondent has the most knowledge. In the for-profit sector these may be competitors or other outlets in the same chain.

Financial performance is assessed by respondent perceptions of how the establishment is performing financially compared with establishments doing similar work. Doing the same kind of work is further defined in the instrument as establishments close in size and in what they do and about which the respondent has the most knowledge. In the for-profit sector these may be competitors or other outlets in the same chain. For non-profit and government organizations financial performance is further defined as the customary way to track the financial success.
Data Analysis

Data from the 2002 NOS was analyzed with AMOS 7.0. First, the demographic characteristics of establishments were analyzed to describe the frequencies, percentages, means, and standard deviations. Demographic characteristics examined include establishment size (number of employees, number of front-line employees), type of business (manufacturing, service, profit, nonprofit), as well as various aspects of the workforce (literacy, ease to hire skills).

Second, the research questions were analyzed using structural equation modeling. Structural equation modeling (SEM) provides an analytical approach to deal with a set of multiple relationships simultaneously (Hair et al., 1998). SEM provides the benefit of assessing the relationships of these proposed questions comprehensively through a global fit of measures rather than a set of mini-tests of each model component that would be necessary with multiple regression procedures (Tomarken & Waller, 2005). Furthermore, SEM can examine a set of relationships between independent and dependent variables using both continuous and discrete variables (Ullman, 1996). Structural equation modeling provides an approach to decompose correlations into different pieces for interpretation of effects.

Structural equation modeling provides two important benefits relative to other statistical procedures. First, this approach allows for the examination of latent and observed variables. The use of latent variables allows instrument items to be aggregated into constructs that may be difficult to measure. Furthermore, SEM explicitly estimates error variance whereas traditional multivariate approaches do not (Shumacker & Lomax, 2004).
There is precedence in the use of structural equation models in empirical studies exploring the relationships among organizational size, flexible work practices, training, and organizational performance. Shih, Chiang, and Hsu (2006) used the structural modeling technique citing that most empirical work has been regression-like analyses on cross-sectional data. In their analysis, they showed how SEM techniques empirically confirmed the relationships between flexible work practices and organizational performance. Other recent research has examined the relationships of work practices with organizational performance using structural equation models (Luc Sels et al., 2006; Paul & Anantharaman, 2003).

While a cause and effect assumption is made with structural equation modeling, the results do not necessarily prove causality. This model fitting procedure aligns with the null hypothesis rather than examining how means differ between the null and alternative hypothesis (Tomarken & Waller, 2005). In other words, SEM in this study is confirmatory in nature by matching the statistical fit of the data with the proposed model.

This confirmatory approach has one primary limitation. While SEM allows for examination of a global fit of the model, it does not address whether other models may be more appropriate. In other words, the study will assess the goodness of fit for the proposed model but does not address that another model may provide a stronger fit of the data.

This study followed commonly accepted procedures for SEM (Schumacker & Lomax, 2004; Hair, et al. 1998). This entails the following seven steps:

A) Develop a theoretically based model.

B) Construct a path diagram of causal relationships (Figure 3.2).
C) Convert the path diagram into a set of structural and measurement models. The measurement model specifies the variables that measure specific constructs. The underlying factors of each construct were identified by the exploratory factor analysis. The structural model represents the equations that link the constructs.

D) Choose the input matrix type and estimate the proposed model. Each measurement model was assessed using maximum likelihood estimation. Maximum likelihood estimation is widely used and provides a robust approach in conditions of small sample sizes and excessive skewness and kurtosis (Hair, et al., 1998).

E) Assess the identification of the structural model.

F) Evaluate the goodness of fit criteria. This assessment is conducted using multiple fit indices. For this study, goodness of fit was measured with five fit indices; chi square, normed chi square, the comparative fit index (CFI), tucker-lewis index (TLI), and the root mean square error of approximation (RMSEA).

G) Interpret and modify the model.

The first three steps were completed through the literature review, conceptual framework, and proposed path model. Additionally, the instrument items for the measurement model were identified through the exploratory factor analysis. The assessment of the structural model was conducted through the two-step process including the confirmatory factor analysis.

The goodness of fit was conducted using five fit indices. A statistically significant chi square ($\chi^2$) measure signifies differences between observed and estimated matrices due to sampling variations (Hair, et al., 1998). A nonsignificant chi square signifies
similarities between the matrices. Structural equation modeling seeks to obtain a nonsignificant chi square since a fit of the data and model suggest minimal differences in the fit of the data and model (Schumaker & Lomax, 2004). The chi square measure is limited by its sensitivity to excessively large and small sample sizes (Hair et al., 1998). Therefore, additional measures of fit should be considered.

The normed chi square is the ratio of the chi-square divided by the degrees of freedom. This measure provides insight into the model fit in two ways. A low number (below 1.0) suggests the model may be overfitted. A number exceeding 5.0 suggests the model is not truly representative of the observed data and likely needs modifications. A caution with this measure is its reliance on chi square and the related concerns with sample size.

The comparative fit index (CFI) compares the hypothesized model with the independence model. The independence model is the strictest version with no variables identified as being correlated. CFI ranges from 0 to 1.00 with a value of .90 or greater being recommended (Hair, et al., 1998). The Tucker-Lewis Index (TLI) evaluates the effects of model complexity. Similar to the CFI measure, the TLI ranges from 0 to 1.00 with a recommended value of .90 or greater.

The final goodness of fit index, the root mean square error of approximation (RMSEA), assesses the discrepancy per degree of freedom. A challenge of this measure is the likelihood of suggested different action relative to CFI and TLI measures because the fit indices may provide conflicting explanations (Kenny & McCoach, 2003).

Upon completion of the goodness of fit assessment, each research question and the relationship among the variables in the path model were assessed using the
standardized regression of the appropriate path for each question (Figure 3.2). The proposed research questions were analyzed as follows:

**Research Question # 1: What is the relationship between organizational size and flexible work practices? What are the differences between large organizations and small and medium-sized enterprises?**

In order to answer research question #1, the relationships between organizational size and flexible work practices were examined. The structural and measurement models relevant to these variables were analyzed and discussed. The path coefficients were assessed.

**Research Question # 2: What is the relationship between organizational size and training? What are the differences between large organizations and small and medium-sized enterprises?**

In order to answer research question #2, the relationships between organizational size and training were examined. The structural and measurement models relevant to these variables were analyzed and discussed. The path coefficients were assessed.

**Research Question # 3: What is the relationship between flexible work practices and training across organizational size?**

In order to answer research question #3, the relationship between the latent variables flexible work practices and training were examined. The structural and measurement models relevant to these variables were analyzed and discussed. The path coefficient was assessed.
Research Question # 4: What is the relationship between flexible work practices and organizational performance? What are the differences between large organizations and small and medium-sized enterprises?

In order to answer research question #4, the relationship between the latent variables flexible work practices and organizational performance was examined. The structural and measurement models relevant to these variables will be analyzed and discussed. The path coefficients were assessed.

Research Question # 5: What is the relationship between training and performance? What are the differences between large organizations and small and medium-sized enterprises?

In order to answer these research questions, the relationship between the latent variables training and performance was examined. The structural and measurement models relevant to these variables will be analyzed and discussed. The path coefficients were assessed.
Figure 3.2: Structural Equation Model for the Investigation of Flexible Work Practices, Training, and Organizational performance across Organizational Size
CHAPTER 4

RESULTS

This chapter presents the results of the study. The first section presents the descriptive statistics. The second section reports the results of the structural equation model analysis. This is accomplished through the two-step structural equation model process that includes the confirmatory factor analysis and the structural model analysis. The third section reports the results for each research question by discussing relevant paths of the structural equation model.

Descriptive Statistics

This section contains a description of organizations in the study population. The organizations are grouped by in-sample frame and not-in-sample frame establishments. This section further details the demographic information of the 341 respondents in the sample frame.

The 2002 National Organizations Survey (NOS) consists of 516 survey respondents that provide a representative sample of work establishments in the United States. The respondents represent a range of employment sizes extending from no employees to 14,011 employees. The study excluded organizations with five or fewer
employees from the sample frame for two reasons. First, as discussed earlier, the respondents with five or less employees had a higher rate of missing variables relative to all other organizational sizes. Second, the research questions study the relationships among flexible work practices, employee training, and organizational performance. Organizations with fewer employees represent all micro-business models, such as home-based businesses and independent consultants, which may not provide insight into the interactive properties of employee training, flexible work practices, and organizational performance. Specifically, micro-organizations do not have multiple front-line employees that are the basis of this research into the interaction of FWPs and training. Therefore, organizations with five or less employees were excluded from the sample frame.

The not-in-sample frame contains 175 respondents of the 516 NOS respondents. Of these not in the sample frame respondents, 167 are establishments with five or less employees. Eight of the not-in-sample frame respondents did not answer the instrument item regarding number of employees.

Consequently, the sample frame consists of 341 NOS respondents. Tables 4.1 and 4.2 provide demographic information of the sample frame establishments. The range of full-time employees is wide with a minimum of six employees and the largest organization reporting 14,011 employees. The standard deviation of full-time employees is 1,405.10. The range of employment is narrower based on the number of front-line employees (COREs). This range extends from zero front-line (CORE) employees to 3,866 employees. The standard deviation of CORE employees is 500.77. The mean number of full time employees is 563 while the mean number of CORE employees is 229.
Both measures, number of full-time employees and number of CORE employees, are positively skewed at 5.08 and 3.96 respectively. In other words, organizational size is skewed to the left. The mean year sample frame organizations were established in 1959 with a standard deviation of forty-one years. The year established is negatively skewed at -1.59. This reflects greater quantities of newer organizations with a tail tapering to the left because of fewer older organizations.

Table 4.2 provides further insight into the characteristics of these establishments. A majority (69.6%) of respondents identified themselves as service providers whereas 10.9% identified themselves as a production organization, or manufacturer. Interestingly, 17.9% identified providing both products and services.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product/Service</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces product</td>
<td>37</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td>Delivers service</td>
<td>238</td>
<td>69.8</td>
<td>80.6</td>
</tr>
<tr>
<td>Both</td>
<td>61</td>
<td>17.9</td>
<td>98.5</td>
</tr>
<tr>
<td>Neither</td>
<td>5</td>
<td>1.5</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>341</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>For Profit/ Not for Profit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Profit</td>
<td>204</td>
<td>59.8</td>
<td>59.8</td>
</tr>
<tr>
<td>Not-For-Profit</td>
<td>137</td>
<td>40.2</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>341</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Permanent workforce left involuntarily</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>52</td>
<td>31.5</td>
<td>31.5</td>
</tr>
<tr>
<td>1% - 10%</td>
<td>92</td>
<td>55.7</td>
<td>87.2</td>
</tr>
<tr>
<td>11% - 20%</td>
<td>9</td>
<td>5.5</td>
<td>92.7</td>
</tr>
<tr>
<td>21% - 50%</td>
<td>12</td>
<td>7.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>165</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>Permanent workforce temporary layoff</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>169</td>
<td>82.8</td>
<td>82.8</td>
</tr>
<tr>
<td>1% - 10%</td>
<td>24</td>
<td>11.8</td>
<td>94.6</td>
</tr>
<tr>
<td>11%-49%</td>
<td>4</td>
<td>2.0</td>
<td>96.6</td>
</tr>
<tr>
<td>50% - 100%</td>
<td>7</td>
<td>3.4</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>204</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2: Descriptive characteristics of establishments in sample frame
Table 4.2 continued

<table>
<thead>
<tr>
<th>Permanent employees: illiterate or low literacy</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>160</td>
<td>72.7</td>
<td>72.7</td>
</tr>
<tr>
<td>1% - 5%</td>
<td>41</td>
<td>18.7</td>
<td>91.4</td>
</tr>
<tr>
<td>6% - 49%</td>
<td>16</td>
<td>7.3</td>
<td>98.7</td>
</tr>
<tr>
<td>50% - 100%</td>
<td>3</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>220</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ease to hire necessary skills for CORE positions</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very easy</td>
<td>46</td>
<td>13.9</td>
<td>13.9</td>
</tr>
<tr>
<td>Somewhat easy</td>
<td>136</td>
<td>41.0</td>
<td>54.8</td>
</tr>
<tr>
<td>Not too easy</td>
<td>95</td>
<td>28.6</td>
<td>83.5</td>
</tr>
<tr>
<td>Not at all easy</td>
<td>55</td>
<td>16.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>332</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.2: Descriptive characteristics of establishments in sample frame

A majority of respondents (59.8%) identified themselves as for-profit organizations whereas 40.2% responded as non-profit organizations.

One noteworthy characteristic of the sample frame demographic profile is the percentage of the permanent workforce that left involuntarily, either through permanent layoff or termination, during the survey period in 2001-2002. While 31.5% of the respondents identified no layoffs, 68.5% identified a percentage of involuntary permanent departures within their organization. Additionally, 17.2% identified a temporary layoff of permanent employees during the same time period. These seemingly high percentages may be reflective of the general recessionary conditions of the United States economy during the survey period.
The level of workplace literacy is an interesting demographic characteristic related to the study of FWPs and training. The use of flexible work practices and training implies a literate workforce capable of continuously learning and implementing new skills. Nearly a third of the respondents identified some level of low literacy rates in their workforce. Specifically, 18.7% respondents agreed that between one and five percent of their workforce has literacy issues. An additional 7.3 % of respondents agreed that between six and twenty percent of their employees had significant literacy issues. Three respondents (1.3%) identified a literacy issue with over half of their permanent employees. While a majority of organizations (72.7%) identified no illiterate or very low literate employees, 27.3% identified some level of permanent employees with significant literacy issues.

The ability to hire new employees with the necessary skills for front-line positions is another important characteristic related to this study. While 54.9% perceived it very easy or somewhat easy to find the necessary skills for front-line employees, 45.2% found it challenging to find potential employees with necessary skills to perform work at front-line positions. Some respondents found the lack of available skills in the labor market to be severe with 16.6% identifying it was not at all easy to hire necessary skills. In other words, nearly half of all respondents identified difficulties in finding new hires with the necessary skills to perform work.

In summary, the demographic characteristics of the sample frame have similar age and size characteristics of the national population of organizations. Foremost, a majority of organizations are small and medium-sized enterprises. However, while the Small Business Administration (2006) reports that 99.7% of all organizations are small and
medium-sized, the 2002 NOS dataset consists of 78.9% small and medium-sized enterprises. One possible cause for this discrepancy may be that the NOS sampling plan focused on establishments. Larger organizations are likely to have more establishment locations that could have been selected in the NOS sampling plan.

The establishments in this study represent a wide range of establishments that are situated predominantly in the service sector and operate as for-profit organizations. The sample frame organizations reported widespread involuntary departures of employees. This may be related to the general recessionary conditions of the United States economy during the 2001-2002 survey period. Further examination, including a longitudinal assessment, would be necessary to better understand the involuntary departures. Finally, approximately a third of sample frame establishments identified significant literacy concerns with a portion of their workforce and 45.2% noted difficulty in hiring front-line employees with the necessary skills. This is similar to findings in the International Adult Literacy Survey that indicated only half of the U.S. adult population obtain the minimum literacy standard needed for the workplace (Sum, Kirsch, & Taggart, 2002).

Structural Equation Modeling

This section provides results of the structural equation modeling (SEM) analysis. The first part discusses how the NOS data addresses the assumptions of using SEM. The second part discusses the two-part model testing procedures that include the confirmatory factor analysis and structural model testing.
Assumptions of Structural Equation Modeling

Independence and multivariate normality are two fundamental assumptions of SEM procedures. Independence requires that independent observations are obtained through random sampling. The sampling design of the National Organizations Survey addresses this assumption.

The multivariate normality assumption can be tested through the examination of skewness and kurtosis of the univariate variables (McDonald & Moon Ho, 2002). The authors established that maximum likelihood estimation procedures, which are used in this study’s SEM procedures, provide a robust approach towards multivariate nonnormality caused by cases of extreme skewness and kurtosis. Kline (2004) identified that a skewness value greater than 3.0 and a kurtosis value greater than 10.0 represents a violation of multivariate nonnormality. Table 4.3 shows a nonnormality concern with one variable, the number of front-line employees. This potential violation of multivariate nonnormality may inflate the chi-square statistics and increase the likelihood of the model being rejected (Enders, 2001).
Table 4.3: Skewness and Kurtosis of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness ( &lt; 3.0)</th>
<th>Kurtosis ( &lt; 10.0)</th>
<th>Degree of nonnormality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number CORE employees</td>
<td>3.96</td>
<td>19.18</td>
<td>Severe</td>
</tr>
<tr>
<td>F1 - Employees in self-managed teams</td>
<td>1.61</td>
<td>1.27</td>
<td>Mild</td>
</tr>
<tr>
<td>F2 - Employees in involvement groups</td>
<td>1.82</td>
<td>2.18</td>
<td>Mild</td>
</tr>
<tr>
<td>F3 – Pay incentives</td>
<td>.73</td>
<td>-.24</td>
<td>Mild</td>
</tr>
<tr>
<td>F4 – Employee meetings</td>
<td>-1.02</td>
<td>.39</td>
<td>Mild</td>
</tr>
<tr>
<td>F5 – Employee decision-making in tasks</td>
<td>-.38</td>
<td>-.41</td>
<td>Mild</td>
</tr>
<tr>
<td>T1 – Staff for training/ cross training</td>
<td>-.49</td>
<td>-.28</td>
<td>Mild</td>
</tr>
<tr>
<td>T2 – Training for skills wherever work</td>
<td>-.53</td>
<td>.21</td>
<td>Mild</td>
</tr>
<tr>
<td>T3 – Training to keep skills current/ formal trg</td>
<td>.02</td>
<td>-.94</td>
<td>Mild</td>
</tr>
<tr>
<td>Organization productivity</td>
<td>-.16</td>
<td>-.22</td>
<td>Mild</td>
</tr>
<tr>
<td>Organization financial performance</td>
<td>-.25</td>
<td>.25</td>
<td>Mild</td>
</tr>
</tbody>
</table>

As shown in figure 4.1, an analysis of the instrument item number of CORE employees showed that outlier cases were the major cause of nonnormality. Removing outliers did improve the severity of skewness and kurtosis. For example, removing four outliers in the number of CORE employees item reduced skewness to 3.3 and kurtosis to 11.56. While a significant reduction, these results still violated multivariate normality.
Afifi, Clark, and May (2004) proposed running analyses twice, with and without outliers, to determine if a noticeable difference arises in the results. There were no noticeable differences when the SEM was conducted with and without the outlier organizations. However, Shumacker and Lomax (2004) wrote that when cases are extreme, data transformations are permissible to address the affects of the variables. Consequently, a log transformation was conducted with the organizational size variable, number of CORE employees.

Model Testing

The model testing process of this study followed the two-step procedure proposed by Hair, et al. (1998) and Kline (2004). The first step is a confirmatory factor analysis of the measurement model. This is conducted by freeing the parameters among the constructs to allow them to correlate. If the fit of the confirmatory factor analysis is
acceptable, then the second step is conducted to evaluate the fit of the structural model. This two-step modeling approach provides an accurate representation of indicator reliability through the measurement model then focuses on the interaction of the structural model or latent variables (Hair et al., 1998). In other words, the two-step approach best addresses the potential effects of within-construct and between-construct interaction on estimation results.

**Confirmatory Factor Analysis**

To conduct the confirmatory factor analysis, the proposed structural model was respecified as a measurement model and tested for adequacy. In other words, the latent constructs were represented by their items as measured indicators. The latent constructs were allowed to intercorrelate.

Assessing the goodness-of-fit is not a straightforward procedure with SEM since no single statistical test provides a clear description of the proposed model’s fit (Hair et al., 1998). Commonly used fit indices include Chi-square ($\chi^2$), Normed chi-square, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error Approximation Index (RMSEA).

The full measurement model provided an adequate fit to the data ($\chi^2 [19 \text{ df}, N=341] = 66.34$, Normed Chi-square = 3.49, CFI = .844, TLI = .704, RMSEA = .086 (with 90% CI lower bound = .064 and upper bound = .109)). Table 4.4 presents these results in comparison with suggested fit guidelines. The results indicate a good fit in terms of chi square and the normed chi square, but a mediocre fit in terms of CFI, TLI, and RMSEA. The measurement model appears to provide an overall mild to moderate fit to the data.
Factor loadings and measurement error variances are provided in table 4.5. The evaluation of these factor loadings showed all instrument items had significant factor loadings (p < .05) confirming the existence of strong reflection of the underlying latent variables.

Furthermore, the latent factors, flexible work practices (FWPs) and training, are positively correlated at 0.44 (p < .001). This confirmed that the correlation is statistically significant and in the expected direction providing support for the proposed model.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unstandardized</th>
<th>Standard Error</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor Loadings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FWP → F1</td>
<td>1.00</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>FWP → F2</td>
<td>1.06</td>
<td>.13</td>
<td>.79</td>
</tr>
<tr>
<td>FWP → F3</td>
<td>.03</td>
<td>.00</td>
<td>.45</td>
</tr>
<tr>
<td>FWP → F4</td>
<td>.01</td>
<td>.00</td>
<td>.31</td>
</tr>
<tr>
<td>FWP → F5</td>
<td>.01</td>
<td>.00</td>
<td>.21</td>
</tr>
<tr>
<td>Training → T1</td>
<td>.76</td>
<td>.17</td>
<td>.44</td>
</tr>
<tr>
<td>Training → T2</td>
<td>.78</td>
<td>.18</td>
<td>.49</td>
</tr>
<tr>
<td>Training → T3</td>
<td>1.00</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td><strong>Error Variances</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>511.44</td>
<td>65.16</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>322.11</td>
<td>61.66</td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>.36</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>E4</td>
<td>1.6</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>.46</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>E6</td>
<td>.48</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>E7</td>
<td>.29</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>E8</td>
<td>.56</td>
<td>.06</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.5: Maximum likelihood parameter estimates for confirmatory factor analysis.

Inter-item correlations are shown in table 4.6. These correlations were also in the predicted directions supporting the construct validity of the underlying constructs.

Additionally, these correlations were assessed to detect potential multicollinearity. Kline (2004) wrote that correlations higher than .85 represent a sign of potential multicollinearity. No high values were observed among the given constructs and therefore no further action was taken. Since there were no negative error variances, no standardized coefficients exceeded or came close to 1.0, and there were no signs of multicollinearity, it was determined appropriate to proceed with the overall fit of the model.
<table>
<thead>
<tr>
<th>Variable</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>.56</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>.03</td>
<td>.13</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F4</td>
<td>.16</td>
<td>.26</td>
<td>.07</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>.23</td>
<td>.23</td>
<td>.10</td>
<td>.19</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>-.04</td>
<td>.00</td>
<td>.18</td>
<td>.06</td>
<td>-.08</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>.13</td>
<td>.10</td>
<td>.14</td>
<td>.28</td>
<td>.02</td>
<td>.19</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>.10</td>
<td>.10</td>
<td>.25</td>
<td>.27</td>
<td>.16</td>
<td>.17</td>
<td>.24</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 4.6: Inter-item correlations

**Structural model**

The full structural model provided an adequate fit to the data ($\chi^2 [40 \text{ df}, N=341] = 99.04$, Normed Chi-square = 2.48, CFI = .844, TLI = .743, RMSEA = .066 (with 90% CI lower bound = .050 and upper bound = .083)). Overall, these fit indices suggest a marginally acceptable fit to the data. The chi-square statistic and normed Chi-square showed acceptable fit. The CFI and TLI measures indicated a weak fit. Finally, the RMSEA showed an acceptable fit.

As shown in figure 4.2, three out of five paths proposed in the theoretical model were statistically significant at $p < .01$. The two paths found not to be statistically significant were paths that connected FWP to organizational performance and training to organizational performance. Each path result is further discussed in the next section related to the research questions.
Figure 4.2: Standardized regression results
Results for Each Research Question

This section discusses the results for each research question. Based on the fit of the data with the structural model, the research questions were assessed. Figure 4.3 shows the structural model with standardized solutions that relate to the research questions. The values for each path represent standardized regression coefficients.

Research Question #1
What is the relationship between organizational size and flexible work practices? What are the differences between large organizations and small and medium-size enterprises?

The relationship between organizational size and FWPs is important to understand how organizations differ in their use of work practices to utilize knowledge for enhanced performance.

This research question was tested based on the parameter estimates between flexible work practices and organizational size. Specifically, the path results between the measured variable organizational size and the latent variable FWP is of interest. The standardized path coefficient between organizational size and FWP is -0.21. The relationship is statistically significant at -2.498 p< .05. Thus, the results show a significant inverse relationship between FWPs and organizational size.

Specifically, given a one standard deviation increase in organizational size, FWPs decrease 0.21. In other words, for every increase of 500 front-line employees (COREs), the use of FWPs decreases by .21. Flexible work practices are represented in this study as a bundle of practices that encompass self-directed teams, employee involvement, flexible
job assignments, and pay incentives. Smaller organizations are more likely to display the
instrument item attributes that measure front-line employee use of self-direction,
involvement in decision-making, flexibility in job assignments, and related incentive pay.

This is further demonstrated in a review of the dataset. Table 4.7 shows the
average score of five respondent organizations located around the dataset mean based on
the number of CORE employees and five respondent organizations one standard
deviation above the mean. As shown, the five respondent organizations around the
dataset mean on average, rate their use of FWP higher (31.0) than the five larger
respondent organizations that are approximately one standard deviation above the mean
(21.6).

<table>
<thead>
<tr>
<th>Average Size</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>FWP Sum</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>Training Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>241</td>
<td>10.6</td>
<td>9.0</td>
<td>3.0</td>
<td>5.8</td>
<td>2.6</td>
<td>31.0</td>
<td>3.4</td>
<td>3.2</td>
<td>6.8</td>
<td>13.4</td>
</tr>
<tr>
<td>750</td>
<td>7.0</td>
<td>4.0</td>
<td>2.8</td>
<td>5.4</td>
<td>2.4</td>
<td>21.6</td>
<td>4.1</td>
<td>3.6</td>
<td>7.0</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Table 4.7: Average scores at the mean and one standard deviation above
Research Question #2

What is the relationship between organizational size and training? What are the differences between large organizations and small and medium-size enterprises?

The relationship between organizational size and training is important to understand how organizations differ in their implementation of training to develop knowledge.

This research question was tested based on the parameter estimates between training and organizational size. Specifically, the path results between the measured variable organizational size and the latent variable training is of interest. The standardized path coefficient between organizational size and training is 0.40. The relationship is statistically significant at 3.34 p<.001. Thus, the results show a significant positive relationship between training and organizational size.

Specifically, given one standard deviation of change in organizational size, training increases 0.40. In other words, for every increase of 500 front-line employees (COREs), the use of training increases by 0.40. Training in this study is represented by a set of attributes that include the use of cross-training, staff with a responsibility for training, the use of formal training, and the extent skills are current and useful where they are used. Thus, the results show that larger organizations are more likely than smaller organizations to use and agree with these training attributes.

This is further demonstrated in a review of the dataset. Table 4.7 shows the average scores of five respondent organizations around the dataset mean and of five respondent organizations situated nearly one standard deviation above the mean. As shown, the five respondent organizations around the dataset mean, rate their use of
training slightly lower (13.4) than the five larger respondent organizations that are one standard deviation above the mean (14.7).

Research Question #3

What is the relationship between flexible work practices and training across organizational size?

The relationship between flexible work practices and training is important to understand whether there is a complementary relationship. The review of the literature does not show any studies that provide insight into the strength of relationships among flexible work practices and training when the size of the organizations is taken into account (Bowen & Ostroff, 2004; Whitfield, 2000).

This research question was tested based on the correlation between FWPs and training. Specifically, the two-arrowed path between FWPs and training is of interest to understand the interactive relationship between the two variables. The standardized path coefficient between FWPs and training is 0.44. The relationship is significant at 3.79 p< .001. Specifically, given one standard deviation increase in training, FWPs increase 0.44. Likewise, one standard deviation increase in FWPs correlates with a 0.44 increase in training. Thus the results show a significant reinforcing relationship between FWPs and training. As organizations increase their use of practices that promote flexibility in frontline employee work, organizations increase their use of training. Furthermore, as training is increased, organizations are more likely to increase their use of flexible work practices.

Figure 4.3 provides a representation of the relationship between FWPs and training. Flexible work practices and training, can be implemented independently and
involve a set, or bundle, of management practices and approaches. The arrows indicate an interactive relationship between the two sets of practices as evidenced by the correlation results of this study.

Figure 4.3 – The Relationship between FWPs and Training
Research Question #4

*What is the relationship between flexible work practices and organizational performance? What are the differences between large organizations and small and medium-size enterprises?*

This research question was tested based on the intercepts between the parameter estimates of FWPs and organizational performance. Of specific interest is the path result between the FWPs and organizational performance. The standardized path coefficient between these variables is -0.01. This relationship was not statistically significantly at p< .05. Thus, no significant relationship can be identified between FWPs and organizational performance as measured by perceived levels of productivity and financial performance.

Research Question #5

*What is the relationship between training and performance? What are the differences between large organizations and small and medium-size enterprises?*

This research question was tested based on the intercepts between the parameter estimates of training and organizational performance. Specifically, the path result between training and organizational performance is of interest. The standardized path coefficient between these variables is 0.24. This relationship was not statistically significantly at p< .05. Thus, no significant relationship can be identified between training and organizational performance as measured by perceived levels of productivity and financial performance.
CHAPTER 5
SUMMARY, DISCUSSION, AND IMPLICATIONS

This chapter consists of three sections. The first section summarizes the results of the study. The second section discusses the results. The final section provides implications of the results for researchers, practitioners, and policy makers.

Summary of Results

The purpose of this study was to describe how various management practices, identified as flexible work practices and training, interact across a broad spectrum of organizational size. The following is a summary of the results of the study:

• There was a negative relationship between organizational size and flexible work practices. In other words, as organizational size increases, the use of flexible work practices decreases.

• There was a positive relationship between organizational size and training. In other words, as organizational size increases, training increases.

• There was a strong interactive relationship between flexible work practices and training.
There was no relationship between flexible work practices and organizational performance. The use of flexible work practices is not shown to impact organizational performance.

There was no relationship between training and organizational performance. The use of training is not shown to impact organizational performance.

Discussion

The results showed the SEM procedures supported the conceptual framework. Some relationships of the model presented significant findings while other relationships were not significant. This section discusses some possible interpretations of the results and presents an explanation of the findings.

Flexible Work Practices and Organizational size

The extent of FWPs appears to vary with the size and structure of organizations. In this study, the use of flexible work practices appears more frequent in smaller sized organizations. Smaller organizations are more likely to have front-line employees with greater involvement in self-managed teams and employee involvement groups, involved in job rotation, receive pay for learning, and make decisions about work tasks, assignments, and group leaders. This result can be interpreted at least four ways.

First, smaller organizations may respond differently to their environment through their use of management practices. Smaller organizations may face greater external uncertainty relative to larger organizations (Westhead & Storey, 1996). This uncertainty may be caused by weaker power relationships SMEs are able to exert with customers,
suppliers, and competitors relative to larger organizations. Therefore, organizational flexibility may be a necessary feature for smaller organizations to adapt and respond quickly. Teece, Pisano, and Shuen (1997) described this as an organization’s dynamic capability. Work practices that promote devolved decision-making, flexible job assignments, employee involvement, and self-direction may be one way SMEs create a flexible organization in the face of external uncertainty. As the literature suggests, SMEs tend to be responsive and short-term oriented with their human resource practices possibly in part due to their environment (Westhead & Storey, 1996; Hill & Stewart, 1999).

An alternative interpretation may be that these results reflect a notion that greater size produces greater rules and procedures, therefore less flexibility. The greater use of flexible practices in SMEs may be due to less formality in rules, procedures, and structure. This view is contradictory to the notion that SMEs make strategic choices in response to external uncertainty. However, the nature of the items that were selected and measured the use of self-managed teams and employee involvement groups, the use of pay for learning approaches, maintained regular staff meetings, used problem solving meetings, and allowed front-line employees to decide new leaders suggest conscious decision-making in the responding organizations. Regardless, given the design of this study, the view that greater formality decreases flexibility cannot be discounted.

A third interpretation of the findings may relate to a relationship between the diffusion rates of innovations and the complexity of changing organizational social patterns (Blasi & Kruse, 2006). Flexible work practices may be more easily implemented in SMEs because the social patterns in smaller organizations can be more readily altered.
In other words, less complex social patterns in SMEs may make the diffusion of FWPs more achievable. Increasing levels of hierarchy and number of departments may serve as barriers to diffusing innovations like flexible work practices. Smaller organizations may be inherently more flexible due to their less bureaucratic nature. This, in turn, allows for a more rapid and thorough diffusion of these innovations (Gittleman et al., 1998).

Another interpretation may be related to the notion of organization design and design of work. The nature of work is an important determinant of required employee skills (Torraco, 2005). Therefore, organization design shapes the contribution of knowledge to organization outcomes. How organizations differ in the design of work may explain differences in the use of FWPs across organizational size.

Span of control within an organization is one example of organization design that differs by organizational size (Meier & Bohte, 2003). Span of control has implications for understanding behavior within organizations. Specifically, the use of FWPs may relate to span of responsibilities and job requirements for front-line employees. We can hypothesize that employees of SMEs may have a broader range of responsibility in their roles thus necessitating greater flexibility in the accomplishment of work.

**Training and Organizational Size**

The result showed that as size increases, training increases as well. Therefore, the results suggest that larger organizations are more likely than SMEs to perceive a greater use of employee skills, have staff with a responsibility for training, use formal training, and cross-train employees. This result can be interpreted in at least three ways.
First, larger organizations may train more than SMEs. This concurs with one set of studies that described how larger organizations are more active providers of training than smaller organizations (Betcherman, 1993; Knoke & Kalleberg, 1994; Frazis, Herz, & Horrigan, 1995; Lynch & Black, 1998; National Association of Manufacturers, 2003). Other studies have identified that SMEs implement training in informal and reactive ways (Westhead & Story, 1996; Hill & Stewart, 1999). This may suggest SMEs are unsystematic in their training, which may result in a lack of comprehensive cross-training efforts, a minimal use of formal training, and minimal allocation of a staff member to the responsibility of employee training.

Second, SME leaders may view training differently than respondents from larger organizations. Specifically, training may not be viewed as a distinctly separate function. Rather, it is viewed as an interrelated part of other job activities (Heneman et al., 2000). Survey respondents from SMEs may not have identified the selected instrument items as distinctly separate activities.

Finally, the selected measures may not have effectively detected a broad range of training approaches representative of the wide range of organizations. This study outlined literature that describes the tendency of SMEs to use informal and on-the-job training approaches (Rowden, 2000; Johnson, 2002; Fernald & Solomon, 2000; Hill & Stewart, 1999). While attention was given to use various measures of training attributes, the instrument items selected may not have accurately detected the types of training approaches found in SMEs.
Training and Flexible Work Practices

This study shows a strong covariation among the latent variables flexible work practices and training. This adds to the growing research evidence that identifies a positive relationship between FWPs and training (Lopez, et al., 2005; Whitfield, 2000, Gittleman et al., 1998; Osterman, 1999). This interactive relationship may support a notion that a cycle of knowledge creation and application may be facilitated through an on-going use of FWPs and training (Lynch & Black, 1998; LaPlagne and Bensted, 1999). This result may be interpreted in a couple of ways.

Regardless of organizational size and structure, the joint introduction of FWPs and training may serve a vital role in the development and application of knowledge. As organizations face greater competition and respond in various ways, these management approaches seek to develop, share, and use knowledge as a renewable resource. Lynch and Black (1998) wrote this type of relationship suggests complementary investments in training and other work practices. This, in turn, may create a continuous cycle of skills development and application. Figure 5.1 shows one interpretation of this cycle. Donovan, Hannigan, and Crowe (2001) describe continuous upskilling as a necessary organizational response to the pressures of competition. The interactive relationship between FWPs and training may be one way management decisions create an environment for continuous upskilling.
Fig 5.1 – Cycle of flexible work practices and training

A virtuous cycle may create a continuously changing work environment that necessitates updating and applying skills in new units of work. Feedback in each iteration reinforces the cycle and promotes ongoing commitment to the management practices. This creates momentum until an external influence intervenes to change or stop the cycle. Management decisions that provide an ongoing commitment to practices such as training and flexible work practices may be one set of approaches organizations used to improve outcomes.

A second interpretation of the strong interactive relationship may be related to the causation of both types of practices due to other management decisions. For example, the implementation of six sigma, total quality management, ISO standards, lean
manufacturing, and other continuous improvement methodologies may cause both flexible work practices and training to increase simultaneously.

Flexible Work Practices and Organizational Performance

The result showed no significant relationship between FWPs and organizational performance. Bowen and Ostroff’s (2004) contention that the strength of these relationships is not clear has been suggested by this study. There are several potential reasons that no relationship was detected. One interpretation of the result may be there is no relationship between FWPs and organizational performance. However, as outlined in the literature review, a growing body of evidence suggests a positive relationship between FWPs and organizational performance measured in various ways including productivity, quality, and financial outcomes.

Second, this result may imply that the measurement properties of the instrument were not sufficient for the study. The instrument items selected from NOS may not have had the statistical adequacy to account for the proposed set of relationships with organizational performance. No comparative studies were identified that use the 2002 NOS dataset in a structural equation model design similar to this study.

This finding may also suggest the theoretical assumptions made in this study were inappropriate. One potentially flawed assumption is related to the use of organizational performance. Organizational performance is affected by numerous aspects of organizations and their environment. Therefore, isolating a direct relationship between FWPs and organizational performance is tremendously complex.
Finally, no relationship may have been identified due to a mismatched level of analysis. Rummler and Brache (1995) support the notion that individual competence and organizational competence must be aligned for the organization to adapt to its environment. Their model, based on the systems view, explicitly links organizational performance to the alignment of three levels of an organization: the organization, process, and job/performer level. Flexible work practices and training occur at an individual level. The accumulation of these individual efforts impact process-level activities. However, this study attempted to connect individual level efforts with organization level impacts without accounting for process-level impacts. Similarly, Lopez et al. (2005) found a positive relationship between FWPs and learning but failed to find a direct effect between FWPs and organizational performance.

Finally, no relationship may have been detected due to the wide heterogeneity of organizational size and type used in this study (Patton et al. 2000). The organizational size ranges from micro businesses to large establishments. Furthermore, the organizations are from all industry sectors and include non-profits, governmental agencies, and for-profit organizations.

Training and Organizational Performance

The result showed no significant relationship between training and organizational performance. There are several potential reasons that no relationship was detected in this study. Similar to the issues raised in the relationship between FWPs and organizational performance, measurement properties of the instrument, a wide heterogeneity of
organizations, and flawed theoretical assumptions may have contributed to no relationship being identified.

Another interpretation may be there is no relationship between training and organizational performance. While the scholarly debate continues on the extent training impacts organization level performance, general agreement on a positive association between training and organizational performance is emerging (Bartel, 2000; Jones, 2004; Cosh et al., 2000).

However, the body of evidence remains unclear and not fully explained with regard to the strength of the relationship between training and organizational performance particularly in the study of SMEs (Cosh et. al, 2000; Patton et al., 2000). Cosh et al. note a “limited methodological and/or inferential analysis of the relationship between training and performance” (2000, p. ii). They suggest training effects are cumulative and therefore training is imperfectly measured when duration or intensity are not accounted for. This study did not measure for intensity or duration of training and thus may provide one reason why no relationship between training and organizational performance was detected.
Implications

This section consists of two parts. The first part presents implications for future research related to the conceptual framework. The second part provides several implications for human resource development theory, practice, and policy.

Implications for Future Research

This study provides the basis for future research in many directions. This research can be examined in three broad emphasis areas related to the conceptual framework. First, future studies can unpack the relationships between organizational size and structure with the use of FWPs and training. The second research thrust can expand the notions of complementary and reinforcing roles between training and FWPs and the related potential impact in frequently changing competence. Finally, future research can examine the relationships among FWPs, training, and organizational performance.

Unpacking the relationships between size, flexible work practices, and training can address numerous research questions that arise from the findings of differences in the use of FWPs and training across organizational size. For example, studies can explore differences between different organization types like profits and nonprofits, as well as service and manufacturing sectors. Another focus can examine the relationships between employee literacy and the use of FWPs and training. The use of flexible work practices and training implies a literate workforce capable of continuously learning and implementing new skills.
The relationship between organizational size and FWPs can expand further by investigating the types of individual practices used by different sized organizations. For example, studies can investigate how organizations differ in their use of practices that occur at the location of work and practices that occur away from the area of work.

The relationship between organizational size and training can be further examined from various perspectives. For example, future studies can explore organizational differences among types of training such as technical, managerial, and awareness training, training approaches, such as formal and informal training, as well as the duration and intensity of training activities.

One consideration for future studies focused on organizational size is to examine these relationships using a less heterogeneous sampling of organizations. Studies employing a structural equation model strategy may consider creating a latent variable for organizational size that better accounts for the heterogeneity of organizations beyond simplistic measures of number of employees. A latent variable can include size attributes such as number of total employees, revenues, number of departments, levels of hierarchy, and number of front-line employees.

As noted in the discussion section, Torraco’s (2005) critique of organization design theories establishes an inadequate conceptual basis for work design in today’s organizations. If organization design shapes the contribution of employee knowledge and management approaches such as FWPs facilitate the use of knowledge, then further exploration of the relationships between design and management approaches can enhance our understanding how organizations use knowledge and skills. Research studies can
explore the differing relationships between work design and management decisions in various organizational size and structures.

A second research emphasis can expand our understanding of the complementary relationship between training and flexible work practices. First, studies can examine the role of continuous improvement methodologies, such as lean principles and six sigma, in producing the complementary relationship between FWPs and training. Second, the use of FWPs and training can impact the nature of work. A possible outcome of their use is an increased frequency of changing requirements in employee knowledge and skill. The empirical result provides a basis to further explore the notion of an increasing frequency of changing competence resulting from the use of these management practices.

Jacobs and Boulay (2006) defined a volatility of competence as an on-going process by which areas of knowledge and skills to perform work fluctuate based on changes in organizational requirements. This study provides a basis to further examine if the reinforcing and interactive relationship between FWPs and training creates fluctuations in areas of knowledge and skills. Researching how this interactive relationship may produce an increased frequency of change in competence can provide insight into how management approaches that facilitate the development and use of knowledge change the nature of work.

A final research emphasis can further examine the gaps that remain in understanding how FWPs and training impact organizational performance. Future research can examine these relationships in finer detail. One alternative is to examine the relationship of FWPs and training with process-level performance. This may entail
examining how flexible work practices and training are used in organization processes and the outcomes that are achieved.

Structural equation modeling is a strong statistical tool that can comprehensively test relationships among various attributes of organizations. The use of latent variables is a strength of this methodological approach. As noted earlier in this section, new latent variables can be created to account for the complexity of the variables in this conceptual framework. Models with different relationships can be proposed and tested with NOS data or new data can be examined with the model in this study. Additionally, other methodological approaches can enhance our understanding of the relationships examined in this study. Methodologies such as repeated cross-sectional, longitudinal, and qualitative methods can be useful in the examination of the relationships and can serve as complements to SEM procedures.

However, when considering SEM procedures, researchers should proceed with caution when using secondary data. Utilizing data that is collected for one intended purpose and used for additional studies creates the potential risk of measurement issues. For example, as noted in the previous section, the NOS instrument item properties may have been insufficient to detect the relationships with organizational performance. Future studies can collect data for the explicit purpose of testing the relationships of this study. This will offer researchers greater freedom in developing measurement models that fully encompass the latent variables they seek to develop.

The conceptual framework of this study can serve to guide future research. Based on the findings from the data analysis, discussion, and literature review, the proposed conceptual framework provides insight into the relationships among FWPs and training
across organizational size. However, the results of the structural equation model do not provide insight into the portion of the conceptual framework that examines the relationships between FWPs and training with organizational performance. Figure 5.2 presents the conceptual framework that was tested in this study.

**Implications for Practitioners and Workforce Policymakers**

One contribution of this study for practitioners is to call attention to the relationship between training and flexible work practices. As organizations face a context of frequent change and knowledge is a critical feature of organizational performance, the use of FWPs and training are important decisions for human resource development practitioners and managers.

Flexible work practices represent approaches to promote organizational change. These practices are designed to increase flexibility in the use of employee skills and abilities. The success of FWPs may be dependent on training. Flexible work practices that are supported well with training may have positive implications for performance (Jacobs & Washington, 2003). The use of FWPs may motivate employees due to greater autonomy in decision-making but this motivation may have limited effect if employees are not skilled through training. Therefore, human resource development practitioners should consider the use of FWPs and training as complementary approaches.
Figure 5.2: Conceptual Framework for the Study of Flexible Work Practices, Training, and Organizational performance across Organizational size
Additionally, human resource development practitioners should maintain a broadened perspective on the relationship FWPs and training have with each other. A broadened perspective can lead to utilizing systematic approaches to implement both FWPs and training. The results of this study suggest that organizations differ in the use of flexible work practices and training by size. Practitioners in SMEs may examine how additional training can support the effective use of flexible work practices. Practitioners in larger organizations can explore ways to further integrate FWPs in order to utilize the skills and abilities developed through training.

The awareness of the relationships among organizational size, FWPs, and training can assist HRD practitioners and managers in anticipating necessary responses in their specific organizational context. For example, practitioners can understand how the use of FWPs and training may create conditions where a volatility of competence may occur (Jacobs & Boulay, 2006). Frequently changing requirements of knowledge and skill to perform work may result in additional human resource development approaches through employee development, organizational development, and career development.

One contribution of this study to workforce development policymakers is the consideration of policy choices that encourage organizations to invest systematically in both training and FWPs. The notion of such policy decisions requires broader application than traditional policy choices. For example, policy decisions frequently encourage organizations to invest in formal training through funding incentives. However, training may represent a partial solution because training alone may not lead to the application of new knowledge and skills engendered by the use of flexible work practices. Yet, there are
no known policy provisions that support the use of both flexible work practices and training.

Workforce policy can serve a role to encourage complementary human resource development approaches, like FWPs and training, across all organizations. Workforce policy can serve a role to encourage smaller organizations to increase their training as a complement their use of FWPs. Policies can further encourage larger organizations to use FWPs as a means to apply knowledge and skills learned through their training. In other words, policy decisions can serve a role to encourage comprehensive solutions through the use of both flexible work practices and training.
REFERENCES


APPENDIX A

NATIONAL ORGANIZATIONS SURVEY
INSTRUMENT ITEMS THAT
MEASURE STUDY CONSTRUCTS
<table>
<thead>
<tr>
<th>NOS Instrument item</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational size</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In total, how many full time employees worked at (ESTABLISHMENT NAME) as of March 1, 2002? By full time we mean 35 or more hours per week. (5a)</td>
<td>542</td>
<td>0</td>
<td>1401</td>
<td>644</td>
<td>2042</td>
</tr>
<tr>
<td>Overall, about how many separate departments report directly to the person in charge at (ESTABLISHMENT NAME)? (127)</td>
<td>319</td>
<td>0</td>
<td>80</td>
<td>7.1</td>
<td>9.95</td>
</tr>
<tr>
<td>About how many vertical levels are there between the highest and lowest positions at (ESTABLISHMENT NAME), including both the highest and lowest levels? (130)</td>
<td>317</td>
<td>0</td>
<td>200</td>
<td>7.1</td>
<td>12.8</td>
</tr>
<tr>
<td>Is (ESTABLISHMENT NAME) in any way part of a larger organization or is it completely independent? (4a)</td>
<td>305</td>
<td>1</td>
<td>2</td>
<td>1.55</td>
<td>.499</td>
</tr>
<tr>
<td><strong>Flexible Work Practices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In selecting (COREs) for formal training, do employees mostly volunteer, or does (ESTABLISHMENT NAME) decide who participates? (24)</td>
<td>264</td>
<td>1</td>
<td>3</td>
<td>2.23</td>
<td>.64</td>
</tr>
<tr>
<td>Do these teams make decisions about task assignments or work methods? (35)</td>
<td>264</td>
<td>1</td>
<td>2</td>
<td>1.17</td>
<td>.37</td>
</tr>
<tr>
<td>Do these teams choose their own leaders? (37)</td>
<td>257</td>
<td>1</td>
<td>2</td>
<td>1.66</td>
<td>.48</td>
</tr>
<tr>
<td>Self-managed teams are ongoing work teams that have some degree of responsibility and discretion over such decisions as methods of work, task schedules, assignment of members to different tasks, and feedback about group performance. What percent of your nonmanagerial and nonsupervisory employees are currently involved in self-</td>
<td>307</td>
<td>0</td>
<td>100</td>
<td>20.4</td>
<td>32.9</td>
</tr>
</tbody>
</table>
managed teams? (62)
How much choice do your (COREs) have concerning the best way to accomplish their assignments . . . no choice, a small amount, a moderate amount, a large amount, or complete choice? (41)

How often do (COREs) transfer to another job family, that is, a group of jobs with different skills and duties . . . never, rarely, often, or very often? (40)

Are (COREs) involved in job rotation? (39)

Quality circles and employee involvement committees are temporary or ongoing groups that occasionally meet to solve key production or service problems. What percent of your nonmanagerial and nonsupervisory employees are currently involved in quality circles or employee involvement groups or committees? (63)

Do these teams meet at least once a month to solve work-related problems? (36)

(ESTABLISHMENT NAME) holds regular staff meetings in which employees can voice their opinions (154a)

Do any (COREs) participate in a profit-sharing or bonus program? (45)

Do any (COREs) receive pay for learning new skills? (44)

**Training**
Your organization offers employees training and skills that will help them wherever they may work. Do you strongly agree, agree, disagree, or
strongly disagree? (60a)

Are (COREs) cross-trained, that is, trained in skills for more than one job? (38)

To what extent does (ESTABLISHMENT NAME) train its (COREs) to keep their skills current . . . not at all, to some extent, or to a great extent? (25)

To what extent was the formal training of (COREs) used to teach or provide teamwork skills . . . not at all, to some extent, or to a great extent? (26a)

Does (ESTABLISHMENT NAME) currently have any staff whose primary responsibility is to train other employees? (56)

Organizational Performance

I now want to ask you how your establishment is currently performing compared with other establishments doing the same kind of work that you do. First, how would you assess your establishment’s labor productivity? Is it a lot better than average, better than average, about average for establishments doing this kind of work, below average, or a lot below average? (158A) “ESTABLISHMENTS DOING THE SAME KIND OF WORK THAT YOU DO” means those close to yours in size and in what they do and about which you have the most knowledge. In the for-profit sector, these may be competitors or other outlets in your chain]

Finally, how would you assess your establishment’s financial performance? (IF NEEDED: Is it a lot better than average, better than average, about average for establishments doing this kind of work, below average, or a lot below average?) (158E)
APPENDIX B

MISSING DATA FOR
INSTRUMENT ITEMS
OF PROPOSED CONSTRUCTS
<table>
<thead>
<tr>
<th>NOS Instrument item</th>
<th>N</th>
<th>Missing variables</th>
<th>% Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flexible Work Practices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What percent of your nonmanagerial and nonsupervisory employees are currently involved in self-managed teams? (# 62)</td>
<td>307</td>
<td>34</td>
<td>10.0</td>
</tr>
<tr>
<td>What percent of your nonmanagerial and nonsupervisory employees are currently involved in quality circles or employee involvement groups or committees? (# 63)</td>
<td>307</td>
<td>34</td>
<td>10.0</td>
</tr>
<tr>
<td>Do any (COREs) receive pay for learning new skills? (# 44)</td>
<td>334</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>Are any (COREs) paid using group incentives, such as gain sharing? (# 43)</td>
<td>334</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>Teams meet once a month to solve work-related problems (# 36)</td>
<td>258</td>
<td>83</td>
<td>24.3</td>
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<tr>
<td>Does (ESTABLISHMENT NAME) holds regular staff meetings in which employees can voice their opinions ?(#154a)</td>
<td>334</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>Do these teams make decisions about task assignments or work methods? (# 35)</td>
<td>263</td>
<td>78</td>
<td>22.9</td>
</tr>
<tr>
<td>Do these teams choose their own leaders? (# 37)</td>
<td>256</td>
<td>85</td>
<td>24.9</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are (COREs) cross-trained, that is, trained in skills for more than one job? (#38)</td>
<td>334</td>
<td>8</td>
<td>2.3</td>
</tr>
<tr>
<td>Does (ESTABLISHMENT NAME) currently have any staff whose primary responsibility is to train other employees? (#56)</td>
<td>341</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Your organization offers employees training and skills that will help them wherever they may work. Do you strongly agree, agree, disagree, or strongly disagree? (60a)</td>
<td>340</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Question</td>
<td>Count</td>
<td>Value</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>In the past two years, did (ESTABLISHMENT NAME) provide any (COREs) with formal job training? (# 23)</td>
<td>339</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>To what extent does (ESTABLISHMENT NAME) train its (COREs) to keep their skills current . . . not at all, to some extent, or to a great extent? (25)</td>
<td>263</td>
<td>78</td>
<td>22.9</td>
</tr>
<tr>
<td>To what extent was the formal training of (COREs) used to teach or provide teamwork skills. . .not at all, to some extent, or to a great extent? (# 26a)</td>
<td>261</td>
<td>80</td>
<td>23.5</td>
</tr>
</tbody>
</table>
### Flexible Work Practices – Phi Coefficient

<table>
<thead>
<tr>
<th></th>
<th>Q43</th>
<th>Q44</th>
<th>Q154a</th>
<th>Q36</th>
<th>Q35</th>
<th>Q37</th>
</tr>
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<tbody>
<tr>
<td>Q43 – Group incentive</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q44 – Pay for learning</td>
<td>0.099</td>
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<td></td>
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<td>Q154a – employee meeting</td>
<td>0.012</td>
<td>0.069</td>
<td></td>
<td></td>
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<tr>
<td>Q36- Meet once/ month</td>
<td>0.056</td>
<td>0.036</td>
<td>0.112</td>
<td></td>
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<tr>
<td>Q35- Methods of work</td>
<td>-0.001</td>
<td>0.046</td>
<td>0.088</td>
<td>0.441**</td>
<td></td>
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<tr>
<td>Q37 – Choose leader</td>
<td>0.028</td>
<td>0.065</td>
<td>0.080</td>
<td>0.149 *</td>
<td>0.253 **</td>
<td></td>
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</table>

** p < .01   *p < .05

### Flexible Work Practices – Spearman’s rho

<table>
<thead>
<tr>
<th></th>
<th>Q62</th>
<th>Q63</th>
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<tbody>
<tr>
<td>Q62 – Self managed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q63 – Employee involve</td>
<td>.581 **</td>
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</table>

** p < .01

### Training – Phi Coefficient

<table>
<thead>
<tr>
<th></th>
<th>Q38</th>
<th>Q56</th>
<th>Q60a</th>
<th>Q23</th>
<th>Q25</th>
<th>Q26</th>
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<tbody>
<tr>
<td>Q38 – Cross-train</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q56 – Staff to train</td>
<td>0.010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q60a – Skills transfer</td>
<td>0.101</td>
<td>.244**</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q23 – Formal training</td>
<td>0.010</td>
<td>.165**</td>
<td>.184**</td>
<td></td>
<td></td>
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<tr>
<td>Q25 – Skills current</td>
<td>0.053</td>
<td>-.115</td>
<td>-.173**</td>
<td>.975**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q26 – Teamwork skills</td>
<td>-.075</td>
<td>.229**</td>
<td>-.173**</td>
<td>.959 *</td>
<td>.186 **</td>
<td></td>
</tr>
</tbody>
</table>

** p < .01   *p < .05