

**THE EFFECTS OF DOWNSIZING ON SURVIVORS:
A META-ANALYSIS**

GLADYS B. WEST

**A Dissertation submitted to the Faculty of the Virginia Polytechnic Institute and State
University in partial fulfillment of the requirements for the degree of**

DOCTOR OF PHILOSOPHY

in

PUBLIC ADMINISTRATION AND POLICY AFFAIRS

James F. Wolf, Chair

Charles T. Goodsell

Larkin S. Dudley

Susan T. Gooden

James E. Colvard

MAY 12, 2000

BLACKSBURG, VIRGINIA

Keywords: Downsizing, Survivors, Organization, Management, Meta-Analysis

THE EFFECTS OF DOWNSIZING ON SURVIVORS: A META-ANALYSIS

Gladys B. West

(ABSTRACT)

Research on the effects of downsizing has focused on several levels including the global, organization, and the individual. However, this research, at the individual level, focused specifically on the effects of downsizing on the survivors of the organization. Downsizing refers to activities undertaken by management to improve the efficiency, productivity, and competitiveness of the organization by reducing the workforce size. Many researchers explain the types of response we can expect from survivors of a corporate downsizing. The possible attitudes and behaviors due to downsizing are of particular interest to managers, because managers will inevitably face a workforce at least partially staffed with survivors of downsizing activities.

The purpose of this research is to give a better understanding of the effects of downsizing on survivors. This is accomplished by systematically analyzing and combining the findings of independent studies through meta-analysis. This research investigates the variables and variable relationships which represent effects of downsizing on the survivors. The individual downsizing studies are the sources of the variables used to measure behaviors and attitudes prevalent among downsizing survivors.

The results of this research give a summary of the cumulated correlations for sixteen(16) variable relationships specifying the strength, direction, and the range of the correlations. These findings enable the manager to preview, in a combined sense, a certain set of downsizing survivor responses. These results support the findings reported in the independent studies and by other downsizing researchers. The studies that did not qualify for use in the meta-analysis cumulation procedures are analyzed, through the meta-analysis vote count method, and show that the majority of the survivors had experienced negative downsizing effects. Included also is an analysis of the small sample of studies done in the public versus those done in the non-public sectors that shows no real differences, due possibly to the small sample size.

This research, through the use of meta-analysis, confirms the findings of the independent studies and gives more statistical reliability and confidence to the findings.

ACKNOWLEDGMENTS

James F. Wolf, the Chairperson of the Committee, deserves very special thanks for his guidance, his insights and ideas, and his encouragement throughout the research. I also express sincere gratitude to the other members of my committee, Charles T. Goodsell, Larkin S. Dudley, Susan T. Gooden, and James E. Colvard for their invaluable suggestions and comments. My sincere thanks to Marjorie Armstrong-Stassen of the University of Windsor for providing some of her work to me. I am extremely grateful for the support and encouragement provided by my husband Ira, daughter Carolyn, grandson Andre', and two sons, David and Michael.

TABLE OF CONTENTS

ABSTRACT	2
ACKNOWLEDGMENTS	3
TABLES	9
CHAPTER 1	1
INTRODUCTION	1
Statement of the Problem	1
Purpose of the Research	2
Scope of the Research	3
Limitations	3
Organization of the Research	3
Chapter Summary	3
CHAPTER 2	5
DOWNSIZING LITERATURE REVIEW	5
Introduction to Chapter	5
Downsizing Defined	5
Levels of Analysis	6
Downsizing Measurement Criteria	6
Downsizing Strategies	7
Downsizing Effects	7
Downsizing in the Public versus Non-Public Sectors	8
Chapter Summary	9
CHAPTER 3	10
METHODOLOGY	10
Introduction to Chapter	10
Meta-Analysis	10
Cumulation Procedures	10
Study Artifacts and Their Impact on Study Outcomes	11
Cumulating Correlations Across Studies	12
Limitations of Meta-Analysis	12
Criteria for Study Selection	12
Collection of Studies	13
Study Analysis Technique	15
Chapter Summary	15
CHAPTER 4	16
DATA ANALYSIS	16
Introduction to Chapter	16
Selected Studies	16
Data Tabulation	17
Variables Defined	25
Vote Count Studies	29
Cumulation of Correlations Studies	40
Chapter Summary	50

CHAPTER 5	51
FINDINGS	51
Introduction to Chapter	51
Results of Meta-Analysis Across Study Correlations	51
Vote Count Studies	80
Public versus Non-Public Sector Studies	81
Chapter Summary	82
CHAPTER 6	83
SUMMARY AND IMPLICATIONS FOR APPLICATION, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH	83
INTRODUCTION TO CHAPTER	83
Summary and Implications for Applications	83
Conclusions	87
Recommendations for Future Research	88
Chapter Summary	88
References	89
Appendices	99
Appendix A	100
Meta-Analysis Methodology	101
Appendix B	105
t-Test Statistic	106
Vita	107

TABLES

1. Studies of Downsizing Effects on Survivors.....	18
2. Summary: Vote Count Studies.....	31
3. Summary: Cumulation of Correlations Studies.....	41
4. Variables and Cronbach’s Alpha Coefficients.....	47
5. Organizational Commitment and Co-Workers Support.....	53
6. Organizational Commitment and Supervisor Support.....	54
7. Organizational Commitment and Turnover Intention.....	55
8. Organizational Commitment and Job Insecurity.....	56
9. Organizational Commitment and Role Conflict.....	57
10. Organizational Commitment and Job Involvement.....	58
11. Organizational Commitment and Job Satisfaction.....	59
12. Job Performance and Optimism.....	60
13. Job Performance and Supervisor Support.....	61
14. Job Satisfaction and Turnover Intention.....	62
15. Job Insecurity and Role Conflict.....	63
16. Job Involvement and Turnover Intention.....	64
17. Supervisor Support and Co-Workers Support.....	65
18. Relationship with Victim and Procedural Fairness.....	66
19. Relationship with Victim and Distributive Fairness	67
20. Procedural Fairness and Distributive Fairness.....	68
21. Summary: Sample Sizes, Correlations, Standard Deviation, Credibility Interval.....	70
22. Correlated Relationships Individual Studies versus Meta-Analysis.....	75
23. Correlated Relationships and Weighted Average Correlations in Order of Absolute Values.....	79

CHAPTER 1

INTRODUCTION

Organizations of virtually every type face an environment of continuous and accelerating change. A pervasive response to this experience is some form of downsizing. Downsizing has affected hundreds of organizations and millions of workers since the 1980s. Downsizing refers to activities undertaken by management to improve the efficiency, productivity, and competitiveness of the organization by reducing the workforce size. Virtually every sector has engaged in the downsizing craze.

The number of organizations and jobs affected by downsizing has been staggering. More than 85 percent of the Fortune 500 firms had downsized by 1994(Cameron,1994). In regards to the Army, the reduction of the soviet military threat, the political mood swings from national defense and toward domestic economic issues, and a prolonged economic recession led, in particular, to U.S. Public Law 101-510. This law mandated a reduction of over 30 percent of military personnel in the U.S. by 1995. This law will eliminate the jobs of over a million people. It has resulted in the announcement of twenty-one(21) military base closings in the summer of 1993, the intended reduction of Army divisions from twenty-eight(28) to eighteen(18), and a predicted shrinkage of forty percent in the Defense Department budget by 1996. For example, between June 1992 and June 1993, a reduction of 70,000 Army personnel had occurred(Cameron and Freeman,1994).

In 1993, in an unending quest for lower costs, higher productivity, and fatter profits, American firms announced 615,000 jobs cut, an all-time record. Many of these actions reached into the ranks of white collar and middle management positions. Earlier, layoffs were generally limited to low-level, unskilled, or blue collar labor (Hitt et al.,1994). The New York based American Management Association(AMA), in a 1994 study, found two-thirds of firms cutting back in any given year do so again a year later. A quarter of the companies it studied had undergone three or more episodes of downsizing by 1994.

In theory, downsizing is presumed to have positive outcome for the organization. In many situations, downsizing did accomplish what management had intended, and in others, unintended and negative consequences resulted. Although organizations are continuing to use the downsizing tactic as a cost cutting strategy, they are beginning to weigh the relative costs and benefits against the negative impact downsizing has on employees. Most of the research literature on downsizing has addressed its significant negative impacts, especially for individuals.

Downsizing researchers state that survivor reactions aggregate to impact organizational effectiveness. From both a theoretical and practical view point, there exists a need for a more comprehensive understanding of downsizing effects on the individuals who remain, the survivors. This research addresses the prevalent behaviors and attitudes found among survivors of downsized organizations.

Statement of the Problem

Since the early 1980s, a variety of studies have described the psychological, attitudinal, and behavioral effects of downsizing on survivors. However, most studies have selected only a small subset of the various factors thought to be affected by downsizing and have limited their investigation

to the effects of downsizing on employees in a single firm (Jalajas & Bommer,1996). Many of the individual studies used qualitative and quantitative techniques, random sampling, and obtained results for a representative sample of the total population studied. It is possible that the findings from these specific situations may not apply to other organizations with different purposes, functions, and/or sectors. There exist few summarized results based upon combined research to validate or substantiate the findings of the individual studies of the effects of downsizing on those who remain. With the exception of the study by O'Hare and Vilaridi(1994), research literature in general has not addressed the commonality of the findings of the independent studies on downsizing effects. Some researchers indicate that companies often have surprisingly little information about those (survivors) ultimately responsible for revitalizing the company. Therefore, to get a better understanding of the downsizing phenomenon, it is necessary to examine the views of survivors on downsizing and determine the critical issues that need to be confronted.

Purpose of the Research

The purpose of this research is to integrate systematically the research variables from relevant individual studies of the effects of organizational downsizing on survivors and to present these findings in a coherent summary. The meta-analytic method is used for this research because of its usefulness in standardizing research findings, combining findings across studies, and evaluating results based on aggregated data. This research is to identify the prevalent behaviors and attitudes found among survivors of downsized organizations. In order to address this, specific questions become evident as stated below. (1) What are the variables that can be used to measure these prevalent behaviors and attitudes? (2) What are the relationships between these variables? (3) Are current studies on the effects of a downsizing action accurate indicators of the strength of these correlated relationships? (4) Are these relationships significant in terms of using these results to improve the outcomes of organization downsizing? (5) What do the studies, that do not meet all the selection criteria for the cumulation procedures, indicate about the prevalence of the effects of downsizing on survivors? Even though research studies have been implemented in both the public and non-public(private & non-profit) sectors, a majority of the research studies found have focused on the civilian corporate world. In this research, public sector studies refer to those studies implemented in organizations of or relating to a government, such as federal, state, municipal, and local agencies. Non-public sector studies refer to those studies implemented in organizations belonging to or that concern an individual person, company, or interest. Non-public sector studies also include studies done in non-profit organizations. More details are given on the public and non-public sectors in Chapter 2. Finally, (6) are there any differences found in variable relationships based on whether the studies were from the public or non-public sector?

Downsizing literature shows that organizations have experienced increased demand to improve downsizing processes in order to bring about desired results and to minimize negative effects on those who remain. The focus of this research is to examine the effects of organizational downsizing on one particular group of individuals, the survivors, those who remain in the organization after downsizing. This meta-analytic study synthesizes and analyzes findings from the selected relevant studies of downsizing effects on survivors to bring focus to the research results. This research helps to clarify possible attitudes and behaviors in tomorrow's work environment, by combining, through meta-analysis, results of individual studies on survivors of a downsized organization. In other words, a gap in the downsizing literature is filled and more insight for future researchers and practitioners is provided, in terms of the findings from the cumulated results across individual studies. A critical assessment is made of variables and their relationships as they relate to the understanding of downsizing effects on survivors. These studies give the employees' perceptions of how downsizing has affected them. The group of selected studies that did not meet all criteria for the meta-analytic cumulation of correlations procedures are referred to as vote count studies. They are analyzed and summarized in a table to give more specific information on the effects of

downsizing in terms of whether the results reflected positive effects, negative effects, no effects, and/or over time effects. A summary, implications, and recommendations for researchers and practitioners are given.

Scope of the Research

The selected studies, this research analyzes, were not screened or evaluated based upon design, methodologies, scope, limitations, or output. The basis for selecting an individual downsizing study was that it examined the perceptions of downsizing effects by those who remain in the organization, had a clear definition of the variables, and used the necessary statistics for the meta-analysis process. Other relevant work on the effects of downsizing on survivors was also selected and analyzed. The correlated pairs of the following variables are presented in this research: organization commitment, co-worker support, supervisor support, turnover intention, job insecurity, role conflict, job involvement, job performance, optimism, job satisfaction, relationship with victim, procedural fairness, and distributive fairness. Studies are also examined for any possible relationships between those implemented in public and non-public organizations.

Limitations

This research is limited by the availability of comparable research data across studies. Although forty-eight(48) studies were identified, many of the results were not reported in a form allowing data to be synthesized and analyzed across studies. Some studies were unobtainable; this was especially true of studies done for the masters' degree level. Master's theses are generally not maintained in a database or by the university. Further limitations of this research is due to the exclusion of some studies because variables were not clearly defined and the statistics required by this research were unavailable. Results of this research will be based only on the perceptions obtained from survivors of organizational downsizing.

Organization of the Research

This research is arranged in six(6) chapters. Chapter 1 is the introduction and includes: statement of the problem; purpose of the research; scope of the research; limitations; organization of the research; and a summary of the chapter. Chapter 2 introduces the downsizing literature review and covers the following topics: downsizing defined; levels of analysis; downsizing measurement criteria; downsizing strategies; downsizing effects; downsizing in the public versus non-public sectors; and a summary of the chapter. Chapter 3 introduces the meta-analytic methodology and describes it under the following topics: meta-analysis; cumulation procedures; study artifacts and their impact on study outcomes; cumulating correlations across studies; limitations of meta-analysis; criteria for study selection; collection of studies; study analysis technique; and a summary of the chapter.

Data analysis is introduced in Chapter 4 and elaborated on under the following headings: selected studies; data tabulation; variables defined; vote count studies; cumulation of correlations studies; and a chapter summary. Chapter 5 focuses on the findings of the research and discusses them under the following areas: cumulation of correlations across studies; vote count studies; public versus non-public sector studies; and a chapter summary. Chapter 6 gives an overall summary of this research. It includes: a summary and implications; conclusions; recommendations for further research; and a chapter summary.

Chapter Summary

This chapter gives a brief overview of the general status of organizational downsizing and develops a plan for implementing the research. The meta-analysis is the methodology chosen for use

in the research. The research is aimed at providing a better understanding of the effects of downsizing on survivors. Therefore, a method which consolidates existing data and increases the statistical reliability of the results from the independent studies is selected. The results are designed to aid managers and other implementers of downsizing activities to engage in more effective downsizing.

CHAPTER 2

DOWNSIZING LITERATURE REVIEW

Introduction to Chapter

A substantial body of downsizing literature has accumulated over the last decade; however, this literature has several limitations. Downsizing is often not distinguished from related phenomena, such as restructuring and declining. The literature mainly gives descriptions of the downsizing actions and prescriptions for solutions or steps that can be taken for improvements. Downsizing theory and research have tended to compartmentalize the phenomenon; it is fragmented by different levels of conceptualization, time-frames, and content areas. This chapter gives a review of the downsizing literature.

Downsizing Defined

Even though downsizing has been prevalent and has affected millions of workers, downsizing has not been precisely defined by many authors. Therefore, different concepts, different levels of analysis, and different measurement criteria have been applied to this single construct (Cameron et al., 1993). Cameron and others report that terms encountered as synonyms of downsizing include resizing, declining, restructuring, reorganizing, re-engineering, leaning-up, streamlining, reduction-in-force, rightsizing, retrenching, slimming, researching, nonadapting, consolidating, and many others. Each of these concepts may share some meaning with downsizing, but each may also produce different connotations and criteria for assessment. Downsizing should be clearly defined in order to be precisely measured.

What is organizational downsizing? Organizational downsizing constitutes a set of activities, undertaken on the part of the management of an organization, designed to improve organizational efficiency, productivity, and/or competitiveness. Downsizing represents a strategy implemented by managers that affects the size of the firm's workforce and its work processes (Cameron et al., 1993). This definition will be the one used in this research. It has become the one most adopted by succeeding authors, such as: Freeman and Cameron, 1993; Kozlowski et al., 1993; and Mishra and Mishra, 1994.

According to Cameron et al. (1993), downsizing has four(4) major attributes that help define and separate it from related, but non-synonymous concepts such as decline and layoffs. These four(4) attributes, intent, personnel, efficiency, and work processes are described as follows:

1) Downsizing may occur intentionally as a strategic, proactive response designed to improve organizational effectiveness. This response may involve mergers, acquisitions, sell-offs, or restructuring to better enable the organization to meet its mission or fill an environmental niche (Kozlowski, 1991).

2) The personnel attribute of downsizing usually involves reductions in personnel. However, downsizing is not limited entirely to personnel reductions. In some downsizing situations new products are added, new sources of revenue opened up, and/or additional work acquired. Even though some people may be added, the overall process results in fewer numbers of workers employed per unit of output as compared to some previous level of employment.

3) Downsizing occurs either reactively or proactively to contain costs, enhance revenue, enhance efficiency, and/or bolster competitiveness.

4) Downsizing activities may bring about changes in the work processes through restructuring and eliminating work or some redesign. After a reduction in the workforce, fewer employees remain to do the same amount of work, and this affects what work gets done and how it gets done (Cameron,1994).

Downsizing issues are reported regularly in such publications as Time, Business, The Washington Post, Business Week, Fortune, and the Wall Street Journal. However, few empirical investigations are found in the academic literature (Cameron,1994).

Levels of Analysis

Downsizing has been approached from different levels of analysis which have produce different definitions and approaches to downsizing. Three(3) of these levels of analysis include: a macro or global industry level; an organization or strategy level; and a micro or individual level (Cameron,1994). At the macro or global level of analysis, a large volume of literature exists on divestitures and organizational mergers. This literature includes market segmentation, reinforcing core competencies, acquisitions, and consolidating industry structures (Cameron and Freeman,1994). At the organizational or strategic level of analysis, downsizing issues are concerned mainly with: whether to downsize; how to implement downsizing; and what are the effects of downsizing on the organization's performance. At this level, much less research has investigated strategies for approaching downsizing (Cameron et al., 1993). At the micro or individual level of analysis, substantial literature exists on the psychological reactions to layoffs and job loss. Layoff refers to a work force reduction entailing the involuntary departure, not for cause, of one or more employees. It is the involuntary loss of one's employment or the removal of people from a work force. This research does not consider temporary or seasonal job loss as layoff. Research at this level also includes investigations of downsizing impacts on financial well-being, health, personal attitudes, family relationships, and other personal factors (Kozlowski et al.,1993). Earlier studies of layoffs have tended to focus on the antecedents of layoffs (Cornfield,1983) or the consequences of layoffs for the individuals who were laid off (Jahoda,1982). Those persons laid off are referred to as victims because they lost their jobs involuntarily due to an action, such as a layoff or reduction-in-force. The individuals who lose their jobs are explicitly affected by downsizing; therefore, most research on the impacts of downsizing deals with its effects on terminated personnel. In addition, the majority of research emphasizes the negative outcomes of downsizing for individuals who must leave the organization (Kozlowski et al.,1993). There is another equally important group of employees to be concerned about, that is, the survivors. Survivors are employees who remain with the organization after downsizing the work force; they are the counterparts to the victims of a layoff. Survivors can also be defined as anyone in an organization, that is involved in a layoff who does not lose their job because of the layoff. Survivors react to layoffs in a variety of ways. The survivors' reactions to a layoff can be referred to as the changes in the behavior of employees (survivors) from a pre-layoff environment to a post-layoff environment. The implications of survivors' reactions to layoffs are viewed as a potentially important topic for practitioners and theory of organizational behavior.

Downsizing Measurement Criteria

In addition to the different levels of downsizing analysis, different measurement criteria have been used in downsizing research; these factors have contributed to the slow progress of downsizing literature. The most common substitutes for downsizing have been evidence of decline, layoffs, or nonadaptation. Decline is viewed as a negative consequence of maladaptation to an adverse environmental condition. Decline happens to an organization, and it is usually unintentional on the part of the organization or its managers. The fundamental difference between downsizing literature and decline literature is that downsizing may occur without the presence of decline and is of an intentional nature. While laying off workers is the most common action taken in downsizing

organizations (McClune, Beatty, and Mantagno, 1988), downsizing entails a much broader set of actions and connotations. Layoffs refer to a single, tactical, reaction used to implement downsizing. Downsizing may be both proactive and strategic and may include an array of options for reducing the work force. It may be even exclusive of layoffs (Cameron et al., 1993). Nonadaptation, defined as a lack of coping with the environment, has often been substituted for downsizing in the literature. However, downsizing need not be associated with ineffectiveness or impending failure.

Downsizing Strategies

The literature on downsizing strategy selection is largely prescriptive and is oriented toward minimizing the effects of downsizing on terminated personnel (Kozlowski, 1993). Downsizing strategies refer to the methods used to accomplish the reduction. These strategies may range from those that offer less organizational control, slower reductions, and fewer negative effects on employees (i.e., attrition) to those that are under high control, are quick, and have more negative effects on personnel such as permanent layoffs without assistance (Greenhalgh et al., 1988). Poorly implemented strategies, or just poor strategies, have led more to decreases in productivity, quality, and employee well-being than to increases (Cameron, Freeman, and Mishra, 1993). Research, performed over a four(4) year period on downsizing manufacturing organizations, found that more organizations were harmed by their downsizing strategies than were helped by them. Downsizing strategies such as transfers, relocations, work redesign, demotions, and reduced work schedules directly affect the welfare of survivors. Research shows that strategies used to accomplish personnel reductions will also influence the behaviors and attitudes of those who survive (Kozlowski et al., 1993). Attitude is defined as the predisposition to behave toward people, situations, or objects in a certain way (Moorhead & Griffin, 1992).

Downsizing Effects

A major finding in the downsizing literature (Cameron and Freeman, 1994) is that most organizations do not accomplish the desired improvements, but instead experience an escalation in negative consequence. A survey of 1005 firms shows that downsized firms between 1986 and 1991 found that only forty-six(46) percent actually reduced expenses, only thirty-two(32) percent actually increased profits, only twenty-two(22) percent actually increased productivity, and only seventeen(17) percent actually reduced bureaucracy, although each of these goals was intended.

Downsizing is viewed as having a profound effect on the organization and the personnel including those who are terminated and those who survive. Kozlowski et al.(1993) state that employees who remain with the organization will also be affected by downsizing strategies intended to improve organizational flexibility, increase employee responsibility, and streamline operations. For example, employees may respond with reduced trust and organizational commitment when the organization breaks its 'psychological contract' with them. A survey found that 74 percent of senior managers in downsized companies said that morale, trust, and productivity suffered after downsizing (Henkoff, 1990). A 15 March 1993 article in Time magazine accused many U.S. organizations of "dumbsizing" instead of downsizing because of the deleterious actions taken in pursuit of getting smaller(Baumohl, 1993).

Downsizing may have unintended negative consequences for individuals and organizations (Cameron, 1994; Cascio, 1993; Kozlowski et al., 1993). Brockner et al. (1992) state that some managers report that layoffs have a decidedly negative effect on their subordinates' productivity, morale, and overall commitment to the organization. While other managers report that their subordinates respond very differently even within the same organization or work group.

Considerable attention has been given to the effects of downsizing on individual employees.

Researchers in management science and psychology explain the kinds of responses that can be expected from survivors of such corporate change. Researchers report such downsizing effects as: feelings of job insecurity, anger, job stress, decreased loyalty and organizational commitment, lowered motivation and productivity, and increased resistance to change (Brockner, Davy, & Carter, 1985; Cameron et al., 1987; Greenhalgh & Rosenblatt, 1984; Isabella, 1989). The current literature on downsizing presents a great variety of dependent variables, such as organizational trust, particularly at the individual and organizational levels. However, these dependent variables do not have any unifying theoretical theme which contributes to an overall view of the impact of downsizing situations on an organization and its members (Shaw and Power-Barrett, 1997).

Literature that examines the survivors of downsizing found that survivor's syndrome describes a common set of symptoms that emerges in layoff survivors. These symptoms include guilt, anxiety, fear, insecurity, anger, and in more severe cases, depression or other emotional and physical ailments. Survivor's syndrome also refers to the way some survivors react when many of their friends and colleagues are forced to terminate their relationship with the company (Noer, 1993; Cascio, 1993). Baumohl (1993) also states that some survivors feel relieved; others experience guilt; and still others feel anxious, wondering if they will be next to lose their jobs. Brockner and his colleagues conducted several studies to determine survivors' reactions to downsizing (Brockner et al., 1992). Their work was based on equity theory which posits that employees' work outcomes (e.g., salary, rank) are commensurate with their work inputs (e.g., performance) and on stress literature. The conceptual framework of this work suggests that layoffs have the potential to affect survivors' psychological states which, in turn, have the potential to influence a variety of work behaviors and attitudes. Stress literature suggests that post-layoff work environments can be quite stressful, leading to worry, anger and an array of other physical and emotional symptoms.

Survivors of downsizing perceive a variety of effects. In addition to the effects mentioned above, researchers have reported such effects as: unfairness in job layoff, unfair treatment of the layoffs, perceived (procedural) justice, job performance, job security, turnover intentions, coping strategies, supervisor support, co-worker support, optimism, job satisfaction, organizational morale, effectiveness of communication, and envy of those taking advantage of separation incentive programs. These downsizing effects are of particular interest to supervisors since they will be faced with a work force at least partly staffed with survivors of downsizing.

Downsizing in the Public versus Non-Public Sectors

Private industry is not the only sector of the economy impacted by downsizing; the public sector is reporting downsizing activities as well. Although downsizing activities in the government sector are not as widely documented or deep as those being weathered by private industry, employee reductions are possibly more devastating to government personnel than to workers in private industry. This is thought to be true because federal, state and municipal jobs are typically perceived as secure, "cradle-to-grave," employment opportunities by their incumbents. In times past, job security was an allure of government work, and employees were more willing to forego higher pay rates in return for the day-to-day certainty offered by being a civil service employee (Forst, 1996).

The public organization is often constrained by such factors as public sentiment, budget limitations, legislative mandates, and personnel laws; and therefore, has less of an option than a private sector corporation to determine its own fate. The idea of downsizing in the public was impacted by the Report of the National Performance Review (NPR), "From Red Tape to Results: Creating a Government that Works Better and Costs Less," released by Vice President Gore in 1993. The recommendations of this report are strongly linked to the proposal that the federal government within five years, reduce its workforce by 279,000 positions. As the federal organizations began to implement the recommendations of the NPR, it became necessary for the public to understand the

many complex issues of downsizing (NAPA, 1995).

In a private company, the board of directors could decide when to downsize their company or when to take alternative approaches to cost reduction. On the other hand, the heads of federal, state, and local government agencies have to respond to budget cuts and time frames established by elected officials. In some situations, certain parts of the government such as state correction systems grew rapidly, resulting in a need to reduce other parts of government to stay within budget limits. These types of situations often forced the heads of government agencies to cut employees now and figure out how to get the work done later. Federal heads in the United States find themselves in a comparable position, except that downsizing was not directly budget driven. Troop reductions and base closings drove the civilian personnel reductions in Department of Defense(DoD), while the heads of civilian agencies were ordered to meet specific reductions in employment levels.

There are other differences between the public and non-public (private and non-profit) sectors; however, the similarities between the sectors outweigh the differences. For an example, both sectors are mandated to comply with equal opportunity laws under which they must operate. These similarities between the public and the private sectors have made it possible for the federal government to get valuable lessons from organizations which have downsized. Now, there are a number of downsizing examples in both sectors and the experiences are remarkably similar and can provide guidance for each other (NAPA, 1997).

Chapter Summary

This chapter puts organizational downsizing into perspective stating the issues, such as approaches to downsizing, the effectiveness of downsizing efforts, areas where research had been done, areas where research is needed, levels at which research has been done, and some of the effects that occur at each level of the organizational downsizing activity. Effects that occur at the individual level are of special interest for this research, since it will investigate the effects of downsizing on the people who remain in the organization after downsizing, survivors.

CHAPTER 3

METHODOLOGY

Introduction to Chapter

This chapter gives the plan for accomplishing this research and a description of the meta-analytic methodology which is the chosen approach. This methodology is divided into three major steps: conducting an exhaustive search of the studies of the effects of downsizing; extracting and coding the findings and the characteristic of the studies; and cumulating and summarizing the findings using descriptive data analysis procedures (Davis and Steele, 1988). It is a very useful approach for this research, since it integrates the results of previously documented studies to find relations and causalities. This chapter subdivides the three major steps and addresses them as follows: the cumulation procedures, study artifacts and their impact on study outcomes, cumulation of correlations across studies, collection of studies, and study analysis techniques.

Meta-Analysis

Meta-analysis as described by Hunter et al.(1982) involves the quantitative cumulation and analysis of descriptive statistics across studies. It does not require access to original study data. It is the application of quantitative methods to the problem of combining evidence from different studies. The various relevant studies of downsizing effects on those who remain have been done at one time, for a particular firm, by different researchers, without a common theoretical basis, and for different aspects of downsizing effects. An analysis of these independent studies supports the selection of the meta-analytic method as the appropriate one for integrating and analyzing the findings across these studies.

The results of different individual research studies will be combined and analyzed to determine the commonality and possible relationships of the findings of these studies. The various statistics reported in the relevant studies will determine the meta-analytic procedures used in computing effect size, the statistical significance of the effect, and possible relations or biases due to other factors such as public versus non-public.

The combined results of numerous research studies make it possible to recognize a relationship that was not otherwise apparent. The advantage of using meta-analysis is "that by comparing results across studies one avoids problems inherent in individual studies, for example, inadequate sample size and problems with statistical power" (Davis and Steel, 1988).

Cumulation Procedures

Hunter and others refer to the cumulation of results across studies as a conceptually simple process consisting of five-steps:

- (1) calculate the desired descriptive statistics for each study available, and average that statistic across studies;
- (2) calculate the variance of the statistics across studies;
- (3) correct the variance by subtracting the amount due to sampling error;
- (4) correct the mean and variance for study artifacts other than sampling error; and

(5) compare the corrected standard deviation to the mean to assess the size of the potential variation in results across studies in qualitative terms. If the mean is more than two standard deviations larger than zero, then it is reasonable to conclude that the relationship considered is always positive (Hunter et al.,1982).

Study Artifacts and Their Impact on Study Outcomes

Hunter and Schmidt(1990) identify several artifacts that alter the size of a study correlation in comparison with the actual correlation. The artifacts are sampling error, error of measurement in the dependent variable, error of measurement in the independent variable, range variation in the dependent variable, deviation from perfect construct validity in the independent variable, deviation from perfect construct validity in the dependent variable, reporting or transcriptive error, and variance due to extraneous factors.

This research addresses the three major artifacts identified by Hunter and Schmidt(1990) as causing the largest variance: sampling error, error of measurement, and range restriction. Error of measurement can be corrected with respect to the variables in this study. O'Hare and Vilardi(1994) state that these three error sources contribute the largest variance in results. These three artifacts are described in more detail in the following paragraphs.

Sampling error is that part of the difference between a parameter and its estimate that is random and due to the probability of selecting one unit rather than another. It occurs because sampling has taken place. Because of sampling error, every possible sample is as likely to underestimate as it is to over estimate the value of the parameter (O'Sullivan and Rassel,1995). Emory and Cooper(1991) state that a "good sample" is one whose design "represents the characteristics of the population it purports to represent." How well the sample represents the population depends on both its accuracy and precision. The term accuracy represents the degree to which the sample is free from systematic error or bias. Precision refers to the degree to which random error is absent in the sampling process. The degree of sampling error is inversely related to the degree of precision in the sample. The sampling error randomly appears on both sides of the correlation coefficient. Therefore, it is reasonable that the net sample error should decrease as the sample size becomes larger(based on the Law of Large Numbers) (O'Hare and Vilardi, 1994). Hunter and Schmidt(1990) state that as the sample size increases, the sampling error decreases.

Error of measurement refers to an artifact that comes from the degree to which measures taken with the instrument contain random error or the unreliability of the measurement (the degree to which the measurement does not give consistent results, when all other factors remain the same) (Hunter and Schmidt,1990). For more details on the formula used for adjusting the data for artifacts see equation(1) in Appendix A. Corrected correlations will be calculated for each relationship reported in the meta-analysis (O'Hare and Vilardi,1994).

Range restriction, in this research, is limited to employees (the population) who have experienced one or more downsizing actions but remained employed in the same organization. The range restriction corrections were not calculated since samples were randomly chosen (as stated in each respective study) from among the population of survivors in a downsized organization. Hence, no range-reducing pre-selection of test subjects was apparent in any of the chosen studies. The necessary element for allowing the range restriction correction is that the standard deviation of the population of survivors at large be known. If the standard deviation of the population is not known, corrections for range restriction are not made.

Cumulating Correlations Across Studies

Meta-analysis permits us to correct for many of the sources of error that impact the correlation coefficient, such as, the error of measurement and the sampling error. The sampling error correction for meta-analysis is equal to the sum of the samples in each study. For an example, if there are three studies with a total sample size of 250, then the sampling error for the correlation is estimated as the calculated sampling error for a sample size of 250 (Hunter et al.,1982).

The variance (square of the standard deviation) of the correlations across the studies caused by the sampling error must also be known. The effect of sampling error on the variance is to add a known constant, which is called the sampling error variance. This constant can be subtracted from the observed variance. The error variance is calculated and is then subtracted from the observed variance to get an estimate for the variance of the population correlations. The objective of meta-analysis with regard to sampling error is to transform the distribution of observed correlations into a distribution of population, or corrected correlations. "We would like to replace the mean and standard deviation of the observed sample correlations by the mean and standards deviation of population correlations" (Hunter et al.,1982).

The population variance is apparent after the correction to the variance caused by sampling error is made. This correction allows researchers to estimate the level of population variance across the studies (Hunter et al.,1982). For an explanation and procedure for computing the error of measurement, the second largest source of variation across studies in most areas of study, see equation(1) in Appendix A.

Limitations of Meta-Analysis

In order to avoid the obvious problems that are difficult to interpret, referred to by meta-analysts as mixing 'apples and oranges,' studies are analyzed in groups. Hunter and Schmidt state that "...while it is true that meta-analyses that mix 'apples and oranges' are difficult to interpret, no harm is done as long as separate meta-analyses are presented later for each dependent variable construct. In general, meta-analyses that do not mix different independent variables are also more likely to be informative (Hunter and Schmidt,1990). Mixing apples and oranges is to be avoided, unless the goal is "summarizing a research literature in broad strokes." Answers to specific questions such as "What are the effects of downsizing on those who remain?" require pointed, narrow, and focused meta-analysis.

Criteria for Study Selection

The criteria given below are used for the selection of studies for the meta-analysis procedure. Failure of the study to satisfy any of these criteria means it would be excluded from the meta-analysis procedure. The study must:

1. give a conclusion that can be transformed into common statistics, such as, Pearson's r, and t-test;
2. give the sample size;
3. report a correlation, or other measure that can legitimately be transformed into a correlation coefficient;
4. state the reliabilities of the measures;
5. have been made on employees who remain in an organization after experiencing a downsizing action;
6. define the psychometric variables measured. An adequate substitute for a definition is an example of a known measure; and

7. give a correlation that is based on a sample that is unique. That is, the same data cannot be used in more than one study.

Collection of Studies

The initial step in the meta-analytic procedure was to identify the relevant studies of downsizing effects on survivors. An exhaustive literature search was performed using both computer and manual procedures on a variety of sources such as: articles published in professional journals; books; theses and dissertations; papers presented at regional and national conventions; other researchers who are leading experts on the effects downsizing studies; archives; and unpublished sources such as unpublished manuscripts and manuscripts under editorial review.

The collection of studies was acquired by computerized searches of over fifty(50) specialized databases, such as the Social Sciences, Public Affairs and Law, Journal Articles, Journal Contents, Sociofiles, Social Science Index, Psychology Abstracts, Social Science Abstracts, Psychlit, and Dissertation Abstracts Online covering the published literature. The key words used were downsizing effects, rightsizing effects, effects of downsizing, organization downsizing effects, organizational behavior management, and downsizing results. The literature search resulted in forty-eight(48) studies, mainly dissertations, theses, and published articles that have researched various facets of downsizing effects on survivors. Several publications were identified by title as possible data sources, but were unavailable in a database or at the university.

The search for studies of the effects of downsizing on survivors used both manual and computerized procedures. A list of journals and periodicals used during the search is given below.

Academy of Management Journal

Academy of Management Review

Academy of Management Executive

Administrative Science Quarterly

American Review of Public Admin.

California Management Review

Employment Relations Today

Government Executive

Human Resource Development Quarterly

Human Resource Focus

Human Resource Management

Human Resource Management Journal

Journal of Applied Psychology

Journal of Economic Behavior and
Organization

Journal of Organizational Behavior

Journal of Organizational Behavior
Management.

Journal of Personality and Social Psychology

Journal of Social Issues

Management Decision

Employment Relations Today

Organizations Dynamics

Organizational Studies

Performance Improvement Quarterly

Personnel Psychology & Psychological
Review

Psychological Bulletin

Public Administration Quarterly

Public Personnel Management

Public Manager

The Management Accounting Magazine

The Psychological Review

The Public Manager

Review of Public Personnel Administration.

Searches were conducted using the reference sections of reviews and books on organizational downsizing. Additional published journal articles were obtained from Dr. Marjorie Armstrong-Stassen of the University of Windsor, Windsor, Ontario, Canada. Dr. Armstrong-Stassen is one of the leading researchers on survivors of downsized organizations. The data search includes both qualitative and quantitative studies from all sectors.

Study Analysis Technique

The approach used to classify each variable's definition and its relationship with other variable definitions (O'Hare and Vilardi, 1994) is given below. All variables across studies must:

1. Agree with a stated definition or an example of the measurement scale as given in the study.
2. Use step 1 to determine common definitions (see Chapter 4, Variables Defined).
3. Compare all like meanings of variables as used in the respective study against the common definition to determine if the researchers were indeed measuring the same phenomenon. This step controls the possibility of misinterpretation, caused by variables disguised under another name or aggregated with secondary meanings. Disguising a variable means using an uncommon variable name to represent a common, definition. Finding a variable with an uncommon definition did not automatically result in its elimination, but it remained a potential candidate until the author's meaning surfaced. Disguising was usually found in job security and turnover intention. In several aggregations it was apparent when the definition or measurement scale included other elements. For example, procedural justice included elements interactive and/or distributive justice.
4. Use the result of step 3, to discard variables that could not be uncovered or those that contained secondary meanings. The remaining variables qualified as candidates for pairing.
5. Exist in a working table constructed with a format that resembled Table 5 to determine if a correlation existed among studies. In this step, any study containing only one variable was eliminated because no paired relationship was possible. This analysis revealed sixteen(16) paired relationships.
6. Have a reliability expressed in terms of the Cronbach's Coefficient Alpha.
7. Be classified into groups containing two, three, four, five, or six studies.

Chapter Summary

This chapter describes the meta-analytic methodology and outlines the steps for implementation. It discusses the appropriateness of this methodology for combining the analyses from independent studies to get results with more reliability and confidence. The importance of finding usable data is discussed, and the kinds of errors found in the data for which there are corrections. The method of computation is given for correcting the data for errors. This method is an ideal one for use in getting a better understanding of the independent studies of the effects of downsizing on survivors.

CHAPTER 4

DATA ANALYSIS

Introduction to Chapter

This chapter is a discussion of the selected studies of the effects of downsizing on survivors, the tabulation of data, variable definitions, vote count studies, cumulation of correlations studies, and a chapter summary. Data analysis begins with receipt of each individual study of downsizing effects on survivors, and ends with the final integration of all of the studies in a coherent and understandable form.

Selected Studies

The exhaustive literature search for studies of the effects of downsizing on survivors resulted in the selection of forty-eight(48) relevant studies. Relevant studies as defined by Hunter and Schmidt(1990) are those studies that focus on the relationship of interest. Two(2) of the forty-eight(48) studies exist as part of the research by O'Hare and Vilardi (1994). Ten(10) of the forty-eight(48) studies met all the selection criteria required by the meta-analytic cumulation of correlations across studies procedures. These ten(10) studies are the only published or unpublished studies found. The remaining thirty-six(36) had some data inadequacy that rendered them unusable for the cumulation of correlations procedures. They were anecdotal, descriptive, qualitative, quantitative, and did not give all the data required, such as sample size, reliabilities, and correlations which were stipulated by the selection criteria. The meta-analysis vote count procedures are used in the analysis of these studies, in order to capture the invaluable information on downsizing survivors contained in them.

A major factor in these studies is that they are done prior to, during and/or immediately after the actual downsizing. This means the results should reflect a more accurate accounting of the situation rather than a recollection of events, feelings, and thoughts. As mentioned earlier, many of these studies, implemented qualitative and quantitative techniques, used random sampling, and obtained results for a representative sample of the total population studied.

A major limitation of some of these studies is that they focus on the impact of downsizing of a single organization or a particular industry. There is the likelihood that the findings from these situations may not apply to other organizations with different purposes, functions, or sector (Kozlowski et al.,1993). The results of these individual studies are applicable to the meta-analytic procedures for finding combined results across studies.

Some of the empirical studies have focused on many of the negative responses, such as, psychological distress (anxiety, depression, anger, guilt), decreased job satisfaction, decreased organizational commitment, increased resistance to change, deterioration in organizational morale, increased conflict, and increases in voluntary resignations. Some studies have also evaluated responses of survivors that pertained to absenteeism, lateness, organizational attachment, intention to remain with the company, conflict and others.

The literature shows that the results of downsizing have been successful in terms of giving the desired results in some cases, but there are also unexpected negative effects. In a study of job survivors' responses to layoffs, Davy et al.(1991) states that "witnessing a layoff produces negative psychological and behavioral responses by layoff survivors." Some investigators are interested in finding out what causes the negative or unexpected results and are examining more variables and

other variables that possibly modify the results. They are concerned about the responses of the survivors of downsizing.

Data Tabulation

A series of tables that was defined and generated for simplifying the availability and handling of data collected from the studies is described below. The procedure for entering required data from each study into the various tables is also outlined below. The initial data set, a working table, referred to as the Order List gives the current status of the acquisition of the relevant studies and consists of information, such as author, source title, article title, date written, publisher, call number, and order status. Once a study was selected, it was assessed and its associated data were entered into another working table titled, "Effects of Downsizing on Survivors Studies." These associated data were used to determine if the study met all the criteria for use in the meta-analytic cumulation of correlations across studies. The entries in the "Effects of Downsizing on Survivors Studies" are: author, study name, type of study and date, purpose, variables analyzed, probability, reliability, statistical outputs, type of conversion required to transform data into desired statistic, sector and data collection method, sample size, number of male participants, number of female participants, and location of study, that is, the part of country where study was implemented.

The forty-eight(48) selected studies were summarized and entered into Table 1 in alphabetical order by the author's name with the following headings: author(s), type and date, and study title. Each entry in Table 1 also includes a statement indicating whether the study contains adequate data for use in the cumulation of correlations across studies. Thirteen(13) studies are identified as having the necessary data for use in the cumulation of correlations, but three(3) were omitted later because of an additional inadequacy, leaving a total of ten(10) studies.

The forty-eight(48) studies in Table 1 are representative of the type of research or investigation that has been done concerning the effects of downsizing on survivors. These studies are implemented in different parts of the country, for organizations with different purposes and functions, in the both the public and non-public sectors, and by a variety of authors. For more details on each of the forty-eight(48) selected studies see Table 1.

Table 4.1

Studies of Downsizing Effects on Survivors

Author(s)	Type Date	Study Title
Allen, Tammy D.	Article 1995	"Just another transition? examining survivors' attitudes over times." Coefficients of correlation were not given.
Armstrong-Stassen, Marjorie A.	Dissertation 1989	"The impact of work-force reduction on retained employees: how well do job survivors survive?" All necessary statistical data are given.
Armstrong-Stassen, Marjorie A.	Article 1994	"Coping with transition: a study of layoff survivors." Results of this study is used in the O&V study of 1994.
Armstrong-Stassen, Marjorie A., S.J Cameron, and M.E. Horsburgh	Article 1996	"The impact of organizational downsizing on the job satisfaction of nurses." Coefficients of correlation are not given.
Armstrong-Stassen, Marjorie A.	Article 1997	"The effect of repeated downsizing and surplus designation on remaining manager's: an exploratory study." Reliabilities and partial coefficients of correlation are given.
Armstrong-Stassen, Marjorie A.	Article 1998	"Downsizing the federal government: a longitudinal study of managers' reactions." All necessary statistical data are given.
Bailey, Garnell V.C.	Dissertation 1997	"Attitudes, perceptions, and behaviors of female managers who survived corporate downsizing." Coefficients of correlation were not given.

Author(s)	Type Date	Study Title
Barrett, Charles E.	Dissertation 1997	"The impact of downsizing and re-engineering on human resources as perceived by a selected population." Coefficients of correlation were not given.
Berry, D.L.	Thesis 1997	"Downsizing's effect on productivity." Coefficients of correlation were not given.
Blonder, Mauritz D.	Dissertation 1976	"Organizational repercussions of personnel cutbacks: impact of layoffs on retained employees." Reliabilities and coefficients of correlation are given.
Brennan, Francis P.	Thesis 1988	"The effect of downsizing and its implications on survivors in the corporation." Reliabilities and coefficients of correlation not given.
Brockner, Joel, B.M.Wiesenfeld, and M.L. Christopher	Article 1995	"Decision frame, procedural justice, and survivors' reaction to layoffs." All statistical data are given for one variable pair.
Burt, Denise M.	Dissertation 1997	"A field study of the impact of stress factors on organizational members in the aftermath of downsizing." All necessary statistical data are given.
Casey, M.K., V.D.Miller, and J.R.Johnson	Article 1997	"Survivors' information seeking following a reduction in workforce." All necessary statistical data are given.
Caulton, Donna J.	Thesis 1996	"Nurses at risk: the effects of downsizing on registered nurses." Reliabilities and coefficients of correlation not given.

Author(s)	Type Date	Study Title
Cooper-Schneider, Rochelle	Dissertation 1989	"An analysis of survivors' reactions to layoffs based on psychological theories of justice, organizational commitment, job insecurity, and corporate culture." Reliabilities and coefficients of correlation are given.
Corum, Richard E.	Dissertation 1996	"The impact of a layoff on survivors." Reliabilities and coefficients of correlation not given.
Davy, Jeanette A., A.J. Kinicki, and C.L.Scheck	Article 1991	"Developing and testing a model of survivor responses to layoffs." Results of this study are included in the O&V(1994) study.
Dunlap, Joanna C.	Article 1994	"Surviving layoffs: a qualitative study of factors affecting retained employees after downsizing." Reliabilities and coefficients of correlation not given.
Duron, Shari A.	Dissertation 1993	"The reality of downsizing: what are the productivity outcomes?" Reliabilities are not explicitly available.
Flores, Guadalupe L.	Thesis 1996	"Perceived downsizing effects on the remaining employees at the Central Bank of Ecuador." Reliabilities and coefficients of correlation not given.
Forst, Kelly F.	Dissertation 1996	"Job Insecurity: the consequences of organizational downsizing and the mediating effects of role ambiguity and role overload." Reliabilities and coefficients of correlation not given.

Author(s)	Type Date	Study Title
Good, Charles H.	Thesis 1995	"Employee downsizing: analysis and effects." Reliabilities and coefficients of correlation not given.
Hickok, Thomas A.	Dissertation 1995	"The impact of work force reductions on those who remain: a study of civilian workers at two department of defense bases." Reliabilities and coefficients of correlation not given.
Hutchinson, Joe C.	Dissertation 1994	"An examination of individual level effects of downsizing in a food service organization." All necessary statistical data are given.
Isabella, Lynn A.	Article 1989	"Downsizing: survivors' assessments." The article is a summary. No statistical data given.
Jalajas, David S., and M.Bommer	Article 1996	"The effect of downsizing on the behaviors and motivations of survivors." Reliabilities not given.
James, Teri-Ann W., and T. Li-Ping Tang	Article 1996	"Downsizing and the impact on survivors-a matter of justice." No reliabilities or coefficients of correlation given.
Johns, Mertine	Dissertation 1993	"Middle managers' perceived role changes and consequences in downsized organizations (middle managers from 5 organizations)." Reliabilities not given.
Johnson, John.R., M.J. Bernhagen, V.Miller, and M. Allen	Article 1996A	"The role of communication in managing reductions in workforce." All necessary statistical data are given for sample A.

Author(s)	Type Date	Study Title
Johnson, John.R., M.J. Bernhagen, V.Miller, and M. Allen	Article 1996B	"The role of communication in managing reductions in workforce." All necessary statistical data are given for sample B.
Luthans, B.C. and S.Sommer	Article 1999	"Impact of downsizing on workplace attitudes." All necessary statistical data are given.
Mansour-Cole, Dina M. and S.G.Scott	Article 1996A	"Hearing it through the grapevine: the influence of source, leader-relations, legitimacy on survivors' fairness perception." All necessary statistical data are given for sample A.
Mansour-Cole, Dina M. and S.G.Scott	Article 1996B	"Hearing it through the grapevine: the influence of source, leader-relations, legitimacy on survivors' fairness perception." All necessary statistical data are given for sample B.
McCormick, David	Dissertation 1996	"America's Army in transition: the politics, mechanics, and ramifications of downsizing." Necessary statistical data were not given.
Mietlicki, Shirley A.	Dissertation 1996	"Organizational downsizing and its impact upon extension home economists." Reliabilities and coefficients of correlation not given.
Morrall, A., Jr.	Dissertation 1996	"The effect of downsizing survivors perceived inequity: impact and perception." Reliabilities were not given.

Author(s)	Type Date	Study Title
Neal, Annmarie	Dissertation 1993	"Surviving downsizing: an organizational case study." Reliabilities and coefficients of correlation were not given.
Noer, David M.	Dissertation 1987	"The effects of involuntary people reductions on those who remain within organizational systems: an investigation of the pathology, prognosis, and value." Necessary statistical data not given.
O'Hare, Donald A. and C.F. Vilaridi	Thesis 1994	"A meta-analytic study of downsizing behaviors and attitudes prevalent among survivors." All necessary statistical data are given.
Olson, Ingrid C.	Thesis 1995	"Measuring the impact of organizational downsizing and restructuring on general duty nurses in a large acute care hospital." Reliabilities not specified, but coefficients correlation were given.
Owen, Sharon L.	Dissertation 1994	"Assessment of senior-civil-servant perceptions of an organizational reduction within the DoD." Reliabilities are given.
Owyar-Hosseini, Marion	Dissertation 1990	"An examination of individual level responses to decline and downsizing in the savings and loan industry." Reliabilities and coefficients of correlation were given, but sample size not given.

Author(s)	Type Date	Study Title
Pedersen, Larry B.	Dissertation 1991	"The effects of organization downsizing on the survivor workforce: an investigation of the effects of layoff process on work performance of those who remain within the organizational system (layoff survivors)." Reliabilities and coefficients correlation were not given in a usable form.
Redfield, D.M.	Dissertation 1994	"An evaluation of factors related to the management of personal reductions within the Department of the Navy." All necessary statistical data are given.
Tombaugh, Jay R. and L.P. White	Article 1991	"Downsizing: an empirical assessment of survivors' perceptions in a post layoff environment." Reliabilities and coefficients correlation not given.
Wilson, E.Q.	Thesis 1995	"Effects of corporate downsizing on survivors: an empirical assessment." Reliabilities and coefficients of correlation not given.
Young, S. and H.N. Brown	Article 1996	"Effects of hospital downsizing on surviving staff." Study is descriptive. No necessary statistical data are given.

The studies of the effects of downsizing on survivors were analyzed and put into groups for further discussion. One group of studies met all the criteria for use in the cumulation of correlations across studies. Another group, referred to as vote count studies, was analyzed and summarized to obtain their contribution towards understanding the complex phenomena of downsizing effects on survivors. These studies give varying types of data which make it difficult to do quantitative computation. Therefore, no weighting factors were used in the analysis of vote count studies. The vote count studies provide such information as the extent of downsizing, its positive effects, negative effects, strategies, and ideas for implementing more effective downsizing. Examples of the suggested strategies include, keeping the employees informed, communication, feedback, providing for the layoffs, and fairness. As mentioned earlier, the sources of studies were mainly published journal articles, Ph.D. dissertations, and master's theses.

The criteria for selecting each study were described in Chapter 3, Methodology and each study must contain the following parameters: the reliability of each variable, mean, standard deviation, coefficient of correlation for each variable pair, sample size, date of study, and author. In many studies, definitions of variables could not be adequately assessed or were not observed in other studies or the studies utilized identical samples for their analyses.

In collecting the effects of downsizing studies, it was noted that many researchers were aware of the lack of sufficient empirical studies of downsizing effects on survivors. However, an assessment of the selected studies showed that each one contributed to the understanding of the downsizing effects in general and specifically, effects on survivors. A review of the downsizing studies showed that the studies discussed such topics as the extent of downsizing, the positive and negative effects, and approaches that will produce more efficient downsizing results. The studies examined the perceptions, attitudes, and behaviors of survivors on the effects of downsizing, but some results were presented in terms of percentages, totals, and other statistical terms that were not compatible with the meta-analytic cumulation of correlations procedures. However, these studies do provide valuable information for gleaning the significance of downsizing effects on survivors.

Variables Defined

Many of the selected studies of downsizing effects on survivors in this research identified variables that were not addressed in other studies or had inconsistent operational definitions. This research looked for variable definitions that were consistent across studies and used only these data in order to avoid convoluting the analysis. This research uses meta-analysis to tie together the results of individual studies of the effects of organizational downsizing on survivors. Variables and their definitions are taken from the variable pairs found in the selected studies that qualify and are used in the cumulation of correlations across studies. These operationalized variables represent the effects of downsizing on survivors identified in the individual studies and the definitions are given in alphabetical order below.

Conflict(Role) - occurs when two or more patterns of behavior are expected for a single position in the organization (Katz and Kahn,1978). Five types of role conflict in organizations have been identified in previous research efforts: intersender conflict, intrasender conflict, interrole conflict, and role overload(Beehr,1985). The restructuring or reorganization that is commonly associated with a downsizing appears relevant to role conflict, since these organizational changes often result in different job features and revised reporting relationships.

Another connotation of role conflict given by Coser(1956) is the struggle over claims to

scarce resources. Relations between individuals as well as between work groups begin to deteriorate when individuals and work groups are forced to compete for diminishing resources (Greenhalgh, 1983b; Mohrman and Mohrman, 1983; Whetten, 1980). Some researchers state that in work force reduction situations jobs become scarce. The work group research literature appears to suggest that an external threat, such as a work force reduction, would result in greater cohesiveness within the work group. However, in the literature there is some support for the opposite view, that is, a work force reduction may actually decrease intragroup cohesiveness.

Co-Worker Support - Social support was measured with the supervisor and co-worker support subscales developed by Caplan, et al., 1975 (Armstrong-Stassen, 1994). The co-worker subscale consists of four items which assess how much other people in one's work group go out of their way to make the person's life easier for him or her, can be relied on when things get tough at work, and are willing to listen to the person's personal problems, and whether or not the person is at ease talking with his or her co-workers. Co-worker support and supervisor support are presented as positively correlated. Social support is defined as the set of resources provided by other persons (Armstrong-Stassen, 1994). According to O'Hare and Vilardi (1994), correlation exists between co-workers support and organizational commitment, as well as job security.

Distribution Fairness - The instrument scale contained five items developed by Price and Mueller (1981) measuring the extent to which a respondent judged current facets of their work context to be fair. The instruction read, in this section, we are interested in how fair you feel your current work situation is as compared to your coworkers. A list of items was given where a respondent could indicate a range of feelings.

Job insecurity - Is defined as the "perceived powerlessness to maintain desired continuity in a threatened job situation" by Greenhalgh and Rosenblatt (1984). They hypothesized that perceived job insecurity is a function of the perceived severity of the threat of future job loss and the perceived degree of control over the threat. This may include reduced promotional opportunities, decreased income stream, loss of status/self-esteem, or reduced autonomy. This definition reflects the fact that individuals fear losing valued features of the job (e.g. status, privileges, and resources) as well as the job itself. In this respect, it differs from earlier concepts of job security, which equated job security with assurance of work and through work with financial income (see, for example, Thompson and Davis, 1956). Job insecurity is the exact opposite of job security.

Job involvement - Represents an employee's psychological identification with his/her work (Lodal and Kejner, 1965); it has been reported as an insignificant correlate of job insecurity in two prior field studies. Hall and Mansfield (1971) reported that budget cutbacks did not reduce the level of job involvement among a group of researchers in several research and development organizations. In a study of a declining hospital system, Greenhalgh (1979) found a positive but insignificant correlation between job security and job involvement. Hall and Mansfield (1971) suggested that the job involvement construct may represent more a personality trait than an attitude, a possibility which has also been suggested by a number of other researchers (Rabinowitz and Hall, 1977; and Schwartz, 1980). If job involvement is considered a personal characteristic, it may change little during periods of organizational stress, such as work force reductions.

Job Performance - Applies to the employees' assessment of their own performance. Armstrong-Stassen (1994) presents a hypothesis on the possible correlation between commitment to the organization and performance on the job. This hypothesis is presented

primarily in the context of its association with control type coping strategies. This means that those individuals engaging in control coping will be more likely to be committed to the organization and have a higher assessment of job performance (O'Hare and Vilardi,1994).

Job Satisfaction - Is another concept that seems easy to understand, but difficult to explain. French(1992) states that "one of the key factors in job satisfaction is self-utilization - the opportunity to fully utilize your abilities on the job, to be challenged, to develop yourself..." He also argues that the debilitating effect of under utilization causes anxiety and job dissatisfaction. According to O'Hare and Vilardi(1994), job satisfaction has been positively correlated with organizational commitment and negatively correlated with turnover intention.

Optimism - Is defined as a positive outlook and a belief that good things will happen. Armstrong-Stassen (1994) reports that "optimism in the form of positive illusions about the self, one's control, and the future, may be especially adaptive in particularly threatening situations by promoting the ability to cope effectively with stress." Optimistic viewpoints help people engage their environment in a more active and congenial way, facilitating better chances for success. Optimism is explored through items such as positive thinking and a positive disposition or outlook. Scheier and Carver(1987) define optimistic predisposition as a generalized expectancy that good things will happen.

Organizational Commitment - Is composed of the individual's loyalty (concern about the fate of the company) and morale (affective or emotional responses towards the company) with respect to the organization (O'Hare & Vilardi,1994). A proposed definition of organizational commitment given by Mowday, Porter and Steers(1982) after a review of ten(10) studies on organization commitment is as follows: "...the relative strength of an individual's identification with and involvement in a particular organization. Conceptually, it can be characterized by at least three factors: (a) a strong belief in and acceptance of the organization's goals and values; (b) a willingness to exert considerable effort on behalf of the organization; and (c) a strong desire to maintain membership in the organization." Mowday, Porter, and Steers(1982) defined organizational commitment as a desire to remain in the organization, a willingness to expend significant energy in the duties of the job, and a sense of belongingness, including acceptance of the organizational culture (Owen,1994).

"Commitment is loyalty to the organization. A loyal employee identifies with an organization and is involved in being an employee of that organization"(Price & Mueller, 1986). Buchanan (1974) defined loyalty as "a feeling of affection for and attachment to the organization." Researchers of organizational commitment in relation to job survivors (Brockner et al.,1988) indicate in their findings that there is a significant decrease in organizational commitment following a work force reduction.

Procedure Fairness - This measure consisted of fourteen(14) items relating to the fairness of the procedures used in the organization and to the respect shown during the enactment of these procedures. Thirteen(13) items were modified from Moorman's(1991) procedural fairness measure and one additional item was written to specifically assess interpersonal aspects of procedural fairness in a layoff situation.

Relationship with Victim - Prior to the layoffs, survivors may have developed close professional or personal relationships with the layoff victims. For example, survivors may have worked interdependently with them for a long period of time. They may live in the same community, and therefore, spend time socializing either on or off the job. Survivors may have been laid off in the past themselves, further promoting feelings of identifications with the layoff victims. Brockner(1992) in several studies found that survivors who were close to those

laid off felt that the layoff was more unfair, worked less hard, and became less committed to the organization, relative to survivors who had more distant relationships with the layoff victims. Therefore, when survivors feel attached to the layoff victims (e.g., as in a tightly knit, cohesive group), it is especially important that the layoffs be handled fairly.

Furthermore, survivors' perceived fairness is especially likely to affect survivors' reactions under certain specific conditions when survivors are close to the layoff victims. The "relationship with victims" measurement used a 3-item scale based on the work of Brockner and Greenberg(1990). The items read: - many of the employees who lost their jobs at research were in similar positions to mine; -I knew many of the employees whose jobs were affected by the work force reduction and reassignments; and - some of the employees whose jobs were eliminated or reassigned elsewhere were friends of mine.

Supervisor Support - Supervisor support concerns the emotional and instrumental support offered employees by their supervisor. According to Brockner(1992), expected employee reactions include "a wide range of emotions, including anxiety, anger, relief, guilt, and envy." He further states that the need for supervisors to anticipate, and work to mitigate such emotions by working to "give [employees the] room they need to express their feelings, and thereby keep such emotions from having harmful effects" (Brockner,1992). Included in this topic are such items as how much immediate supervisors listen to problems, provide assistance, and go out their way for the employee. Supervisor support has been correlated with organizational commitment and job performance, as well as with co-workers' support.

Turnover Intention - Includes such variations as intent to quit, propensity to quit, and/or propensity to leave. It concerns the employees' plans for continued employment with the company (O'Hare and Vilardi,1994). Greenhalgh(1979) assumes a positive correlation between propensity to leave an organization (turnover intention) and insecurity, as well as decreased job performance. The interrelationships between job security, job satisfaction, and organizational commitment are not yet understood. However, Davy, Kinicki, and Scheck(1991) offer an alternative assessment that points to job security as having a direct effect on job satisfaction, which in turn mediates job security's effect on commitment and subsequently turnover intention.

"The exact nature of these relationships is unclear. That is, past research (primarily correlational) does not address whether job security directly affects all three constructs or if satisfaction and commitment somehow mediate the effect of job security on behavioral intent to withdraw" (Davy, Kinicki, and Scheck, 1991). Independent of the direction of these causal relationships, it is clear that there are strong correlations among the variables.

An investigation by Brockner et al.(1988) on the effects of layoff on job survivors' turnover intention showed that the greatest increase in turnover intention occurred when job survivors are highly identified, that is, had a close personal and working relationship with laid-off coworkers and when laid-off workers received little or no assistance from the organization.

A further discussion of another form of behavioral intention is the intention to remain. Meyer and Allen(1984) and Mowday, Steers, & Porter(1979) state that intention to remain with the organization is a form of organizational commitment (referred to as behavioral commitment of continuance commitment). Researchers suggest that behavioral intentions such as intention to remain or to leave is actually the effects of organizational commitment and should not be confounded with commitment itself. On the other hand, a person's desire to remain with the organization may be the outcome of his or her commitment (i.e., psychological attachment) to the organization. Becker(1960) proposed that over time, individuals accumulate certain

investments such as pensions, seniority, organization-specific skills, and/or co-worker relationships which make it costly (financially or emotionally or both) for the individual to leave the organization. Rusbult et al. (1988) suggest that level of overall satisfaction, magnitude of investment in a job, and quality of job alternatives affect a person's intention to remain or exit an organization. These authors found that high levels of investment encouraged loyalty and inhibited exit from the organization, whereas high quality job alternatives inhibited loyalty and encouraged exit from the organization.

Vote Count Studies

Most of the selected individual study findings did not meet all the criteria required for the meta-analytic cumulation of correlations procedures. These studies are categorized as vote count studies and contain inconsistencies, such as different definitions for the same variable name, inadequate data, data given in incompatible forms, that is, percentages, sums, and frequencies. According to Hunter and Schmidt(1990), these findings cannot be statistically combined in any meaningful way. As mentioned earlier in this research, however, they do have a method which is a combination of the "The Traditional Narrative Procedure" and "Traditional Voting Method" which has been chosen for the analysis of this group of vote count studies. Hunter and Schmidt (1990) state that "in its simplest form, the Traditional Voting Method consists merely of a tabulation of significant and non-significant findings". This approach gives the rationale for including the results from the vote count studies in the overall findings of this research.

Light and Smith(1971) described the approach as follows:

“All studies which have data on a dependent variable and a specific independent variable are examined. Three possible outcomes are defined. The relationship between the independent variable and the dependent variable is either significantly positive, significantly negative, or there is no significant relationship in either direction. The number of studies falling into each of these three categories is then simply tallied. If a plurality of studies falls into any of these three categories, with fewer falling into the other two, the model category is declared the winner. This model categorization is then assumed to give the best estimates of the direction of the true relationship between the independent and the dependent variable.”

The findings of some studies that will be categorized are not generally stated in the form of "significantly positive" and "significantly negative," but the principle embodied in the method described above can be applied to specific studies. Where downsizing is given as having strong positive effect on survivors, this will be treated as "significantly positive." Where no effect is given, it will be treated as "no significant effect." Where effect is given as having a strong negative impact, this will be treated as "significantly negative." Another category, over time effect, will be used to describe the change in attitudes of survivors with respect to time.

Pillemer and Light(1980) also state that qualitative information and case narratives can provide a richness of description difficult to capture in a more quantitative summary. The results of the examination of the vote count group of studies are shown in Table 2 with the following headings: author(s), study area of interest, positive effect, negative effect, no effect, and over time effect. The “study area of interest” in the table gives a synoptic description of each of the vote count studies; the inclusion of these studies adds perspective to the quantitative findings of this research.

These studies examined both the positive and negative effects of downsizing on survivors, strategies used for downsizing, and discussed a solution for more effective downsizing. Some of the negative effects given are decreased morale, decreased productivity,

lack of effective communication, and some studies gave results that agreed with Noer's(1987) findings of the survivor syndrome.

Table 4.2

Summary: Vote Count Studies

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Allen (1995)	Impact of downsizing and restructuring on survivors. Examined changes in attitudes over time, and career stage. Attitudinal variables examined are: organizational commitment, intent to turnover, role overload, satisfaction with top manager, and satisfaction with job security.		generally negative		attitudes may return to predown-sizing level
Armstrong-Stassen et al. (1996)	The impact organizational downsizing had on nurses' overall job satisfaction as well as their satisfaction with various aspects of their job and work environment.		mostly negative in some aspects	little effect in other aspects	
Armstrong-Stassen (1997)	Long-range effects of exposure to repeated organizational downsizing and being designated a surplus employee on survivors' coping strategies, job-related strain and burnout, perceived organizational support, and organizational commitment.		mostly negative on certain variables	little effect on some variables	

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Bailey (1997)	Looked at female survivors of downsizing.	somewhat positive	somewhat negative		
Barrett (1997)	Are retained employees' attitudes negative after downsizing and restructuring: toward management, their coworkers, and their organization in general?	somewhat positive	somewhat negative	little effect on some variables	
Berry (1997)	Children's psychiatric hospital, employee productivity after downsizing and possible closure.			no apparent decrease in productivity	
Blonder (1976)	The study sought to determine whether or not and to what extent the attitudinal and motivational consequences of severe layoffs were moderated by individual differences. Variables tested were: work ethic, self esteem, task uncertainty, organizational level, etc.		Mostly negative		
Brennan (1988)	Downsizing on survivors, what can be done to manage survivors and ways to be more effective.		mostly negative		

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Brockner et al. (1995)	Decision frame, procedural justice, and survivors' reaction to layoffs.	function of the two variables and their options		when procedural justice is high, no effects	
Burt (1997)	Impact of stress factors on survivors of downsizing.		mostly negative		
Casey et al. (1997)	The study examines employees' information seeking behaviors prior to and following a permanent reduction in force.		mostly negative		
Caulton (1989)	Effects of downsizing on registered nurses: losses of coworkers, job security, trust in management, value placed in nursing judgment, physical and emotional well being, job satisfaction and ability to function as patient advocates.		negative		on going moral distress and symptoms of layoff survival syndrome
Corum (1996)	Reviews relevant literature. Examined the impact of downsizing on organizational justice, stress, job security & morale.	somewhat positive	mostly negative		
Dunlap (1994)	It examines factors that affect retain employees' performance, need for security, desire for justice, and level of job enrichment.		negative		

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Duron (1993)	The study assessed the global organizational climate, coping behaviors, and the respondents' perceptions of morale and productivity outcomes.		generally negative		
Flores (1996)	Study variables: characteristics of remaining employees, employees & management perception of down-sizing strategy or policy, expected productivity, commitment, morale, motivation & satisfaction, communication, relations between fellow workers & how employees feel about their environment and their jobs, positive & negative opinions on the process.	somewhat positive	somewhat negative		
Forst (1996)	Job insecurity: the consequences of organizational downsizing and the mediating effects of role ambiguity and role overload.		mostly negative effects		
Good (1995)	Downsizing effects between employees, number of sales, and net income.		negative		more positive over time

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Hickok (1995)	Impact of work force reductions on those who remain in the DOD civilian work forces. The work force reductions had a remarkably negative impact on the way persons reviewed their work, their levels of job insecurity and organizational commitment, their views regarding their promotion potential within the organization and their assessment of the capabilities of their work groups in relation to the past.		remarkably negative impact		
Isabella (1989)	Assessment of downsizing survivors.		mostly negative		state of things can be improved
Jalajas (1996)	Analyzed the effects of downsizing - focused on commitment, morale, and satisfaction.		mostly negative		
James & Tang (1996)	Examines the effects of workforce reductions on survivors and the factors that play an important role in survivor perceptions about the downsizing.		negative		can have long-term, negative effects on survivors

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Johns (1993)	Study examines the effects of downsizing on middle managers, role conflict, role overload, role ambiguity, work performance experiences, etc.		mostly negative		
McCormick (1996)	Evaluates how downsizing has affected the morale, commitment, attitudes and behavior of the Army Officers Corps.		mostly negative		effects are negative over time
Mietlicki (1996)	Downsizing and its impact upon extension home economists....it determines the professional and personal effect of downsizing upon the respondents.		mostly negative		
Morrall (1996)	Study shows that down-sizing survivors who experience inequity are prone to perceive job insecurity, decreased productivity, decreased loyalty, unwillingness to recruit, and less retention.		mostly negative, if inequity is shown		

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Neal (1993)	Study explored both the emotional reactions of employees and management, and also coping strategies used by survivors during a workforce reduction. The core issues of loss, trust, guilt, and control heighten.		mostly negative		
Noer (1987)	This study focused on describing a toxic set of feelings and perceptions defined as layoff survivor sickness.		mostly negative		
Olson (1995)	Study measures the impact of organizational downsizing on nurses who remained during the restructuring process.		mostly negative		
Owen (1994)	Study examines the effects of personnel reductions on the attitudes of employees who survived a downsizing at a Washington Metropolitan Defense Department headquarters' system command.	partly positive	partly negative		

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Owyar-Hosseini (1990)	Study investigates perceptions of job security and its correlates, and how these perceptions of job security are related to downsizing of the work force.		somewhat negative		
Pedersen (1991)	Study examines the effects of layoffs on work performance of those who survived layoff.	somewhat positive	somewhat negative		
Redfield (1994)	This study evaluates the effects of the downsizing program being executed by the Department of the Navy upon active duty service members in the military and their spouses.	somewhat positive	somewhat negative		
Tombaugh (1991)	This study shows that survivors perceive significant increases in work stress and stress is related to dissatisfaction and intent to leave the organization.		negative		

Author (s)	Study Area of Interest	Positive Effect	Negative Effect	No Effect	Over time Effect
Wilson (1995)	This study develops surveys to assess participants feelings of job security, trust of management, organization loyalty, morale, productivity, stress and clarity of career path.		negative		
Young (1998)	Identifies effects of downsizing similar to Noer (1993). Uncertainty and insecurity also found.		mostly negative		

Cumulation of Correlations Studies

The selected studies that met all the necessary criteria for use in the cumulation of correlations process are summarized and placed in Table 3. This table gives the author(s), date, public/non-public, and the study name. These ten(10) studies are analyzed further for determining variables that are common across studies that represent the downsizing effects on survivors and the relationship between these variables. Studies with like variable pairs are grouped and the correlations are combined across this group of studies via meta-analytic procedures, described in Chapter 3. Table 3 “ Summary: Cumulation of Correlations Studies” is given next.

Table 4.3

Summary: Cumulation of Correlations Studies

Author(s)	Date	Public/Non-Public	Study Name
Armstrong-Stassen	1989	Non-Public	The impact of work force reduction on retained employees: how well do job survivors survive?
Armstrong-Stassen	1998	Public	Downsizing the federal government: a longitudinal study of managers reactions.
Cooper-Schneider	1989	Non-Public	Analysis of survivors' reactions to layoffs based on psychological theories of justice, organizational commitment, job insecurity, and corporate culture.
Hutchinson	1994	Non-Public	An examination of individual level effects of downsizing in a food-service organization.
Johnson, et al.	1996A	Non-Public	The role in communication in managing reductions in work force.
Johnson, et al.	1996B	Non-Public	The role in communication in managing reductions in work force.
Luthans and Sommer	1999	Non-Public	The impact of downsizing on work-place attitudes.

Mansour-Cole and Scott	1996A	Non-Public	Hearing it through the grapevine: the influence of source, leader-relations, and legitimacy on survivors fairness perceptions.
Mansour-Cole and Scott	1996B	Non-Public	Hearing it through the grapevine: the influence of source, leader-relations, and legitimacy on survivors fairness perceptions.
O'Hare & Vilardi	1994	Public	A meta-analytic study of downsizing Behaviors and attitudes prevalent among survivors.

Each study listed in Table 3 is described briefly below giving the title, purpose, and the correlated relationship(s). The selected study developed by O'Hare and Vilardi (1994) is a meta-analysis of eleven(11) individual studies designed so that its findings can be used in subsequent meta-analytic research. This research uses some data from the O'Hare and Vilardi(1994) study.

Armstrong-Stassen(1989). "The Impact Of Work-Force Reduction On Retained Employees: How Well Do Job Survivors Survive?"

The purpose of this study is to propose and test an integrative theoretical model which depicts the effects of work force reduction on job survivors. It is a field research design; the data were collected using a combination of survey questionnaires, interviews, and archival resources. The participating organization is a facility of a major corporation in the telecommunications industry. The survey questionnaire, the major method for data collection, was designed to access such issues as coping resources, job survivors' perceptions, stress appraisal, organizational attachment, organizational morale, and conflict.

Correlations obtained from this study are: organizational commitment and co-workers support, organizational commitment and supervisor support, organizational commitment and job insecurity, organizational commitment and role conflict, job insecurity and role conflict, and supervisor support and co-workers support.

Armstrong-Stassen(1998). "Downsizing the Federal Government: A Longitudinal Study of Managers' Reactions."

The purpose of this paper is to examine the impact of downsizing on eighty-two(82) managers in a federal government department over a 2-year period and to identify individual characteristics and support resources that facilitate adaption to downsizing. The data were collected via questionnaires at the three different time points over a three year period beginning in December 1995, nine(9) months later for Time 2 in August 1996, and Time 3 was fourteen(14) months later in October and November 1997. Correlations were generated between the variables from the two data collections since the first data collection occurred before downsizing. Detailed information is given on the approach used for collecting the data for each variable and references are made to other expert sources. The study addressed a series of effects of downsizing variables, but this research used only the following two correlated relationships: job performance and optimism, and job performance and supervisor support.

Cooper-Schneider(1989). "An Analysis of Survivors' Reactions to Layoffs Based on Psychological Theories of Justice, Organizational Commitment, Job Insecurity, and Corporate Culture."

This study examines the influences of layoffs on the work behaviors and attitudes of survivors, using a model based of social and organizational psychology theories of justice, organizational commitment, job insecurity, and corporate culture. A survey was administered to a sample of 150 employees from a financial services organization that had undergone layoffs. The model hypothesized four factors that were to influence survivors' reactions, namely, survivors' perceptions of the fairness of the layoff; prior attachment to their laid off coworkers; prior commitment to the organization; and feelings of job insecurity. It was also hypothesized that the first three of the previous factors would combine interactively to predict survivors' reactions. The analyses supported the proposed model. This research used the following correlated relationships from this study, namely, organizational commitment and turnover

intention, organizational commitment and job involvement, and job involvement and turnover intention.

Hutchinson(1994). "An Examination of Individual Level Effects of Downsizing in a Food Service Organization."

The major purpose of this study is to investigate individual level responses according to severity of the downsizing. The study also examined the relationships between employees' stress-related perceptions and their work-related attitudes and behaviors, and the moderating effect of demographic factors on these relationships. The data for the study were collected from 527 cafeteria employees from campuses of the focal organization.

The findings indicated no significant relationships between perceived job insecurity and employee attitudinal and behavioral reactions. Significant and positive relationships were reported between employee role stress, as measured through role conflict and role ambiguity, and their work-attitudes and behaviors. The following correlated relationships found in the Hutchinson (1994) study were used in the current meta-analysis: organizational commitment and turnover intention, organizational commitment and job insecurity, organizational commitment and role conflict, organizational commitment and job involvement, organizational commitment and job satisfaction, job satisfaction and turnover intention, job insecurity and role conflict, and job involvement and turnover intention.

Johnson et al. (1996A). "The Role of Communication in Managing Reductions in Work Force."

This study is aimed at increasing our understanding of the effects of multiple work force reductions on survivors. The study outlines the role of communication in the process so that researchers and practitioners can better predict and control the effects of work force reductions. The study concluded that managers can influence survivor information deprivation, career future uncertainty, work satisfaction, and propensity for turnover by paying attention to, and if possible controlling organizational identification, financial rewards, work team communication support, and manager communication support. Data are given for two work force reductions and are referred to here as Johnson et al.(1996A) and Johnson et al.(1996B). The discussion here represents the data from the first reduction in force effort (1996A). The variable pairs are the same in both of the work force reductions. The variable pair found of interest in this study is work satisfaction and propensity for turnover.

Johnson et al. (1996B). "The Role of Communication in Managing Reductions in Work Force."

This study is aimed at increasing our understanding of the effects of multiple work force reductions on survivors. The study contains a unique data set from a second work force reduction and has the same purpose as Johnson et al. (1996A). The data set is referred to as Johnson et al.(1996B). The study concluded that managers can influence uncertainty, work satisfaction, and propensity for turnover by paying attention to, and if possible, controlling organizational identification, financial rewards, work team communication support, and manager communication support. The variable pair found of interest in this study is work satisfaction and propensity for turnover.

Luthans and Sommer (1999). "The Impact of Downsizing on Workplace Attitudes."

This study is a longitudinal, quasi-experimental field study of a downsizing intervention in a health care organization. Measures of work attitudes were taken at annual intervals over three time periods. The results of this study partially supported the hypotheses that managers and front-line employees would report different reactions to downsizing programs. A survey

was used to examine manager's and employee's reactions to the downsizing intervention administered at three different times. The four attitudes measured were organization commitment, job satisfaction, work group trust, and supervisor support. The first three of these attitudes significantly declined over the downsizing intervention. The following variable pairs were found to be compatible with the meta-analysis requirements in this research: organizational commitment and supervisor support, and organizational commitment and job satisfaction.

Mansour-Cole and Scott (1996A). "Hearing it Through the Grapevine: The Influence of Source, Leader-relations, and Legitimacy on Survivors' Fairness Perceptions."

This study develops and tests a model of survivors' fairness perceptions. Three different waves of data were collected. The first wave of data was collected from 217 research and development professionals approximately 15 months prior to a major layoff. The second wave of data was collected 1 month later and the third wave was collected approximately 24 months after the layoff. The two waves of data collected after downsizing are of interest; the first wave is represented by Mansour-Cole and Scott(1998A) and second wave is represented by Mansour-Cole and Scott(1998B). Both waves of data are concerned with a majority of the same set of variables, namely, relationship to victim, control orientation, personal benefit, legitimacy of account, leader manager exchange, source of announcement, procedural fairness, and distributive fairness. The following variable pairs are of interest for the current research: relationship to victim and procedural fairness, relationship to victim and distributive fairness, and procedural fairness and distributive fairness.

Mansour-Cole and Scott(1996B). "Hearing it Through the Grapevine: The Influence of Source, Leader-relations, and Legitimacy on Survivors' Fairness Perceptions."

This study develops and tests a model of survivors' fairness perceptions. It represents a unique second wave of data in the Mansour-Cole and Scott(1996) research. The following correlated variable pairs are of interest for the current research: relationship to victim and procedural fairness, relationship to victim and distributive fairness, and procedural fairness and distributive fairness.

O'Hare and Vilardi (1994). " A Meta-Analytic Study of Downsizing: Behaviors and Attitudes Prevalent Among Survivors."

The purpose of this study is to tie together, through meta-analysis, results of studies of survivors of a downsized organization. The completed analysis enables managers to preview in an aggregate sense, a certain set of downsizing survivor responses. A questionnaire was used to get additional data on survivors' reactions to and feelings about their organization. The results were integrated into the meta-analysis statistic, and credibility intervals were established.

This research also uses the analyses from six(6) of the eleven(11) individual studies in the O'Hare and Vilardi(1994) work. The author(s) and date of these six(6) independent studies are as follows: Armstrong-Stassen (MAS-2,1993); Armstrong-Stassen (MAS-4,1994); Armstrong-Stassen, Cameron and Horsburgh(1993); Begley and Czajike(1993); Davy, Kinicki, and Scheck(1991); and Greenhalgh and Jick(1998). The public sector study by O'Hare & Vilardi(1994) is already included in the ten(10) studies shown in Table 3.

The six(6) individual studies mentioned above have the following information given for each: the reliability of measurement for each variable, mean, standard deviation, sample size, population variance(corrected), population standard deviation, confidence interval, credibility interval, and coefficients of correlation for each pair of variables.

Several variable pairs are used in the O'Hare and Vilardi (1994) study, but this research

was able to use only the following relationships: organizational commitment and co-workers support, organizational commitment and supervisor support, organizational commitment and turnover intention, job performance and optimism, job performance and supervisor support, and job satisfaction and turnover intention.

One important piece of information required by the meta-analytic method is the reliability of the measurement for each variable. The selected studies give the reliability of the measurements in terms of the Cronbach's Alpha coefficient for each variable. Johnson et al.(1996) state that a Cronbach's Alpha level below 0.60 suggests an unreliable instrument. For more information on Cronbach's Alpha see O'Hare and Vilardi (1994).

Table 4, "Variables and Cronbach's Alpha Coefficients," gives a summary of the thirteen(13) variables that have common definitions across studies and the corresponding reliability coefficients (Cronbach's Alpha) for the selected studies. The elements contained in this table are: variable name, author of study, Cronbach's reliability coefficient(Alpha), year of study, and the number of participants in the study. The reliability coefficient is an indication of how good the measurement instrument is at measuring a particular variable. The reliability coefficients range in magnitude from 0.52 to 1.0. The appearance of a reliability coefficient of 1.0 for the Cronbach's Alpha coefficient means a single item measure is used. Sixty-one(61) percent of the reliability coefficients in the table are greater than or equal to 0.80, but less than or equal to 1.0. Thirty-three(33) percent of the reliability coefficients are greater than or equal to 0.70, but less than 0.80. Six(6) percent of the reliability coefficients are greater than or equal to 0.50, but less than 0.70. Table 4 also shows that only two(2) of the reliability coefficients are less than 0.60 in magnitude, namely job involvement and turnover intention. The values in Table 4 are evidence that the measurement instruments represent each variable rather accurately.

Table 4.4

Variables and Cronbach's Alpha Coefficients

Variable/ Study	MAS-2	MAS-4	MAS-89	MAS-98	A,C,&H	D,K,&S	C-S	H,JC	B&C	L&S	O&V	G&J	J,B, M,&A	J,B, M,&A	M-C&S	M-C&S
Organizational commitment	0.81	0.78	0.78			0.88	0.94	0.75	0.88	0.85	0.80					
Coworkers Support		0.80	0.80								0.76					
Supervisor Support	1.0	0.86	0.86	0.94						0.95	0.86					
Turnover Intention		0.77				1.0	1.0	0.59	0.76		0.78	1.0	0.90	0.86		
Job Insecurity			0.82					0.83								
Role Conflict			0.82					0.70								
Job Involvement							0.83	0.52								
Job Performance	1.0	1.0	0.87	0.87	0.76											
Optimism		0.84	0.77	0.77	0.78											
Job Satisfaction								0.74	0.77	0.83		0.68	0.85	0.99		
Relationship to Victim															0.75	0.75
Procedural Fairness															0.88	0.88
Distributive Fairness															0.75	0.75
Year of Study	1993	1994	1989	1998	1993	1991	1989	1994	1993	1999	1994	1989	1996 A	1996 B	1998 A	1998 B

Variable/ Study	MAS-2	MAS-4	MAS-89	MAS-98	A,C,&H	D,K,&S	C-S	H,JC	B&C	L&S	O&V	G&J	J,B, M,&A	J,B, M,&A	M-C&S	M-C&S
Number of Participants in Study	74	200	282	82	345	88	150	527	82	848	76	114	44	37	133	78

Expansions of the abbreviations used in Table 4 for the author(s) name are as follows:

A,C,& H: Armstrong-Stassen, Cameron, and Horsburgh, 1993;
B&C: Begely and Czajka, 1993;
C-S: Cooper-Schneider, 1989;
D,K,& S: Davey, Kinicki, and Scheck, 1991;
G & J: Greenhalgh and Jick, 1989;
H,JC: Hutchinson, Joe Carruth, 1994
J,B,M,&A: Johnson, Bernhagen, Miller and Allen, 1996A;
J,B,M,&A: Johnson, Bernhagen, Miller and Allen, 1996B;
L&S: Luthans and Sommer, 1999;
MAS-2,4,89,& 98: Armstrong-Stassen,1993,1994,1989, and 1998 respectively;
M-C&S: Mansour-Cole and Scott, 1998A;
M-C&S: Mansour-Cole and Scott, 1998B; and
O&V: O'Hare and Vilardi, 1994

Another objective of this research was to identify any unique differences between downsizing studies implemented in the public sector and those implemented in the non-public sector, such as the potential differences in the strength of variable relationships. The ten(10) studies that met all the criteria for use in the cumulation of correlations across studies were identified as to whether they were public or non-public (private and non-profit). The public versus non-public data analysis will be discussed further in Chapter 5 on Findings.

Chapter Summary

This chapter summarizes the analysis of the selected studies of the effects of downsizing on survivors which can be referred to as the data. These studies were selected during the exhaustive data search and data were put into a series of tables for further analysis and ease of understanding. All forty- eight(48) studies selected are listed in Table 1; Thirty- six(36) of these studies are referred to as vote count studies and do not meet the criteria (as specified in Chapter 3, Methodology) for use in the meta-analytic cumulation of correlation procedures are summarized in Table 2. The ten(10) studies that meet the selection criteria for used in the meta-analysis procedures are listed in Table 3. Table 3 also identifies whether the study is from the public or non-public sector. Finally, the study names, variables, and measurement reliabilities are indicated in Table 4. The data from these studies are analyzed further in Chapter 5 on Findings.

CHAPTER 5

FINDINGS

Introduction to Chapter

This chapter presents an analysis of the findings obtained from (1) the cumulation of correlations studies, (2) the summary of the vote count studies, and (3) the analysis of public versus non-public studies. The major findings of the chapter are examined and summarized in several tables to provide clarity and ease of understanding.

Results of Meta-Analysis Across Study Correlations

The thirteen(13) variables which represent survivor behaviors and attitudes due to the effects of downsizing found common across the selected downsizing studies are: organizational commitment(OC), co-workers support(CWS), supervisor support(SS), turnover intention(TI), job insecurity(JIS), role conflict(RC), job involvement(JI), job performance(JP), optimism(OP), job satisfaction(JS), relationship with victim(RV), procedural fairness(PF), and distributive fairness(DF). These thirteen(13) variables resulted in sixteen(16) correlated relationships that were determined from the analysis of the original forty-eight(48) studies on the effects of downsizing on survivors. Ten(10) individual studies met all the selection criteria. Six(6) additional studies were taken from the O'Hare and Vilardi(1994) research giving a total of sixteen(16) studies used as input to the meta-analytic procedures. The results from the different studies are grouped according to each correlated relationship and cumulated through use of the meta-analytic procedures. The results from the application of the meta-analytic and artifacts procedures are shown in Tables 5 through 20. These tables are numbered consecutively and titled in accordance with the names of the variables that make up the correlated relationship. The elements contained in the tables are: author(s) of study, year published, reliability of the first variable, reliability of the second variable, sample size, uncorrected correlation, and the correlation corrected for artifacts. The second part of the table contains the total number of participants, the weighted average correlation, sample variance, population variance (corrected), standard deviation, ninety-five(95) percent confidence interval, ninety-five(95) percent credibility interval, and other descriptive information. Several elements in the tables require numeric computations and use standard mathematical and trigonometric functions that reside on the computer in MSOffice97: Microsoft Excel. The meta-analytic methodology described in Chapter 3 gives procedures and equations for generating the elements in Tables 5 through 20. Each of these sixteen(16) tables has the same format and reflect the results from the meta-analytic and artifacts compilations for a single variable pair. According to O'Hare and Vilardi (1994), statistics show that the best estimate of the paired variables is given by the weighted average corrected correlation which is an estimate of the true population. The associated credibility interval gives the range which contains the true population correlation.

As mentioned earlier, the focus of this research is the determination of the effects of downsizing on the survivors, the variables that represent these effects, and the relationship (correlation) between these variables. The combined findings of the individual studies give more strength and statistical reliability to the results of the independent studies which usually represent one organization, at one particular time, in one location, and one group of downsizing survivors. As a result of the meta-analytic procedures, the sample size(number of participants) is another parameter that is increased. This increased sample size is another factor that helps to give more significance and reliability to the statistical results. As indicated earlier, each

correlated variable pair is corrected for the artifacts of sampling error and the error of measurement. The results of the cumulation of the weighted average corrected correlations and other associated data for all variable pairs are given in Tables 5 through 20 listed below.

Table 5.1
Organizational Commitment and Co-Workers Support

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	CWS r(yy)			
MAS-4	1994	0.78	0.8	200	0.24	0.30382181
O&V	1994	0.8	0.76	76	0.24	0.307793506
MAS-89	1989	0.8	0.78	282	0.2	0.253184842
Total No. of Participants (N):				558		
Weighted Average Correlation:					0.219784946	0.278772032
Sample Variance:				0.000670494		
Population Variance (Corrected):				-0.003902688		
Standard Deviation:				0		
95% Confidence Interval:					0.278772032	0.278772032
95% Credibility Interval:					0.200618321	0.353399891

OC: Organizational Commitment

CWS: Co-workers Support

MAS-4 & 89 :Armstrong-Stassen, Marjorie

O&V: O'Hare, Donald A. and Carmine F. Vilardi

Table 5.2
Organizational Commitment and Supervisor Support

Author(s) of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	SS r(yy)			
MAS-2	1993	0.81	1	74	0.24	0.27
MAS-4	1994	0.78	0.86	200	0.36	0.44
O&V	1994	0.8	0.86	76	0.2	0.24
L&S	1999	0.85	0.95	848	0.49	0.545286586
MAS-89	1989	0.78	0.86	282	0.41	0.500595948
Total Number of Participants (N):				1480		
Weighted Average Correlations:					0.429797297	0.493102083
Sample Variance:				0.00773042		
Populated Variance(Corrected):				0.005795209		
Standard Deviation:				0.076126272		
95% Confidence Interval:				0.489223619	0.496980547	
95% Credibility Interval:				0.453583629	0.53068523	

A reliability of 1 indicates a single item measure.

OC: Organizational Commitment

SS: Supervisor Support

MAS-2,4 & 89: Armstrong-Stassen, Marjorie

O&V: O'Hare, Donald A and Carmine F. Vilaridi

L&S: Luthans, B.C. and S. Sommer

Table 5.3
Organizational Commitment and Turnover Intention

Author(s) of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	TI r(yy)			
MAS-4	1994	0.78	0.77	200	-0.58	-0.748402672
B&C	1993	0.88	0.76	82	-0.54	-0.660306584
D,K,&S	1991	0.88	1	88	-0.51	-0.543661827
O&V	1994	0.8	0.78	76	-0.32	-0.405095747
C-S	1989	0.94	1	150	-0.48	-0.495082198
H,J.C.	1994	0.75	0.59	527	-0.58	-0.871909392
Total No. of Participants (N):				1123		
Weighted Average Correlation:					-0.54064114	-0.726815469
Sample Variance:				0.027091503		
Population Variance (Corrected):				0.021748671		
Standard Deviation:				0.147474307		
95% Confidence Interval:					-0.735440935	-0.718190003
95% Credibility Interval:					-0.753252542	-0.698033721

A reliability of 1 indicates a single item measure.

OC: Organizational Commitment

TI: Turnover Intention

MAS-4 Armstrong-Stassen, Marjorie

B & C: Begely, Thomas M. and Joseph M. Czajka

D, K, & S: Davey, Jeanette A., Angelo J. Kinicki, and Christine L. Scheck

O & V: O'Hare, Donald A. and Carmine F. Vilaridi

C-S: Cooper-Schneider, Rochelle

H,J.C.: Hutchinson, Joe Carruth

Table 5.4
Organizational Commitment and Job-Insecurity

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	JIS r(yy)			
H,J.C.	1994	0.75	0.83	527	-0.08	-0.10139588
MAS-89	1989	0.78	0.82	282	-0.41	-0.512660231
Total Number of Participants (N):				809		
Weighted Average Correlations:					-0.1950309	-0.244753787
Sample Variance:				0.038406507		
Population Variance (Corrected):				0.036221638		
Standard Deviation:				0.19031983		
95% Confidence Interval:				-0.257868714	-0.231638861	
95% Credibility Interval:				-0.308362239	-0.178966398	

OC: Organizational Commitment.

JIS: Job Insecurity.

H,J.C.: Hutchinson, Joe Carruth

MAS-89: Armstrong-Stassen, Marjorie

Table 5.5
Organizational Commitment and Role Conflict

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected	Corrected
		OC r(xx)	RC r(yy)		Correlation r(xy)	Correlation r(c)
H,J.C.	1994	0.75	0.7	527	-0.45	-0.621059003
MAS-89	1989	0.78	0.82	282	-0.29	-0.362613334
Total Number of Participants (N):				809		
Weighted Average Correlations:					-0.39422744	-0.530970402
Sample Variance:				0.015167053		
Population Variance (Corrected):				0.013892331		
Standard Deviation:				0.117865731		
95% Confidence Interval:					-0.539092521	-0.522848283
95% Credibility Interval:					-0.578633224	-0.479693168

OC: Organizational Commitment

RC: Role Conflict

H,J.C.: Hutchinson, Joe Carruth

MAS-89: Armstrong-Stassen, Marjorie

Table 5.6
Organizational Commitment and Job Involvement

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	JI r(yy)			
C-S	1989	0.94	0.83	150	0.38	0.430210121
H,J.C.	1994	0.75	0.52	527	0.4	0.640512615
Total Number of Participants (N):				677		
Weighted Average Correlations:					0.395568685	0.593916789
Sample Variance:				0.007628047		
Population Variance (Corrected):				-0.001226396		
Standard Deviation:				0		
95% Confidence Interval:					0.593916789	0.593916789
95% Credibility Interval:					0.54297647	0.640502131

OC: Organizational Commitment

JI: Job-Involvement

C-S: Cooper-Schneider, Rochelle

H,J.C.: Hutchinson, J.C.

Table 5.7
Organizational Commitment and Job Satisfaction

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		OC r(xx)	JS r(yy)			
H,J.C.	1994	0.75	0.74	527	0.6	0.805387266
L&S	1999	0.85	0.83	848	0.73	0.869109208
Total Number of Participants (N):				1375		
Weighted Average Correlation:					0.680174545	0.844686325
Sample Variance:				0.000959796		
Population Variance (Corrected):				0.0008404		
Standard Deviation:				0.028989649		
95% Confidence Interval:			0.843154012	0.846218639		
95% Credibility Interval:			0.828850148	0.859170045		

OC: Organizational Commitment

JS: Job Satisfaction

H,J.C.: Hutchinson, J.C.

L&S: Luthans, B.C. and S. Sommer

Table 5.8

Job Performance and Optimism						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		JP r(xx)	OP r(yy)			
MAS-4	1994	1	0.84	200	0.23	0.25
A,C,&H	1993	0.76	0.78	345	0.24	0.31
MAS-98	1998	0.87	0.77	82	0.27	0.329882119
Total Number of Participants (N):				627		
Weight Average Correlations:					0.240733652	0.293461457
Sample Variance:				0.0009265		
Population Variance (Corrected):				-0.003069564		
Standard Deviation:				0		
95% Confidence Interval:					0.293461457	
95% Credibility Interval:					0.220398451	0.363249761

A reliability of 1 indicates a single item measure.

JP: Job Performance

OP: Optimism

MAS-4 & 98: Armstrong-Stassen, Marjorie

A, C,&H: Armstrong-Stassen, Marjorie, Sheila J. Cameron, and Martha E.

Horsburgh

Table 5.9
Job Performance and Supervisor Support

Authors (s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		JP r(xx)	SS r(yy)			
MAS-2	1993	1	1	74	0.14	0.14
MAS-4	1994	1	0.86	200	0.28	0.3
MAS-98	1998	0.87	0.94	82	0.07	0.077405975
Total No. of Participants(N):				356		
Weighted Average Correlation:					0.20252809	0.215469916
Sample Variance:				0.009588778		
Populated Variance (Corrected):				-0.007635713		
Standard Deviation:				0		
95% Confidence Interval:			0.215469916	0.215469916		
95% Credibility Interval:			0.114516206	0.312018764		

A reliability of 1 indicates a single item measure.

JP: Job Performance

SS: Supervisor Support(or Support from Superior)

MAS-2,4 & 98: Armstrong-Stassen, Marjorie

Table 5.10
Job Satisfaction and Turnover Intention

Author(s)	Year Published	Reliability y JS r(xx)	TI r(yy)	Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
B&C	1993	0.77	1	82	-0.64	-0.73
G&J	1989	0.68	1	114	-0.57	-0.69
H,J.C.	1994	0.74	0.59	527	-0.5	-0.756707675
J,B,M,&A	1996A	0.85	0.9	44	-0.48	-0.548795472
J,B,M,&A	1996B	0.99	0.86	37	-0.68	-0.736956901
Total no. of Participants (N):				804		
Weighted Average correlation:					-0.53139303	-0.732237998
Sample Variance:				0.002488578		
Population Variance (Corrected):				0.001150667		
Standard Deviation:				0.033921489		
95% Confidence Interval:					-0.734582783	-0.729893214
95% Credibility Interval:					-0.762708755	-0.69852367

A reliability of 1 indicates a single item measure.

JS: Job Satisfaction

TI: Turnover Intention

B&C: Begley, Thomas M. and Joseph M. Czajka

G&J: Greenhalgh, L. and Todd D. Jick

H,J.C.: Hutchinson, Joe Carruth

J,B,M&A: Johnson, J.R., Bernhagen, M.J., Miller, V., & Allen, M. (1996A)

J,B,M&A: Johnson, J.R., Bernhagen, M.J., Miller, V., & Allen, M. (1996B)

Table 5.11
Job Insecurity and Role Conflict

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected	Corrected
		JIS r(xx)	RC r(yy)		Correlation r(xy)	Correlation r(c)
MAS-89	1989	0.82	0.82	282	0.2	0.243902439
H,J.C.	1994	0.83	0.7	527	0.1	0.131193384
Total Number of Participants (N):				809		
Weighted Average Correlations:					0.134857849	0.170481336
Sample Variance:				0.002884565		
Populated Variance (Corrected):				0.000553991		
Standard Deviation:				0.023537022		
95% Confidence Interval:					0.168859402	0.17053836
95% Credibility Interval:					0.102887067	0.236508322

JIS: Job Insecurity

RC: Role Conflict

MAS-89: Armstrong-Stassen, Marjorie

H,J.C.: Hutchinson, Joe Carruth

Table 5.12
Job Involvement and Turnover Intention

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected	Corrected
		JI r(xx)	TI r(yy)		Correlation r(xy)	Correlation r(c)
H,J.C.	1994	0.52	0.59	527	-0.35	-0.631888377
C-S	1989	0.83	1	150	-0.52	-0.570774152
Total Number of Participants (N):				677		
Weighted Average Correlations:					-0.38766617	-0.618347559
Sample Variance:				0.000644183		
Population Variance (Corrected):				-0.00048281		
Standard Deviation:				0		
95% Confidence Interval:					-0.618347559	-0.618347559
95% Credibility Interval:					-0.662723286	-0.569644453

A reliability of 1 indicates a single item measure.

JI: Job Involvement

TI: Turnover Intention

H,J.C.: Hutchinson, Joe Carruth

C-S: Cooper-Schneider, Rochelle

Table 5.13
Supervisor Support and Co-Workers Support

Author(s) of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		SS r(xx)	CWS r(yy)			
MAS-4	1994	0.86	0.8	200	0.23	0.277289623
O&V	1994	0.86	0.76	76	0.34	0.420555092
MAS-89	1989	0.86	0.8	282	0.26	0.313457834
Total No. of Participants (N):				558		
Weighted average correlation:					0.260143369	0.315081041
Sample Variance:				0.00202843		
Population Variance (Corrected):				-0.002333417		
Standard Deviation:				0		
95% Confidence Interval:			0.315081041	0.315081041		
95% Credibility Interval:			0.238518927	0.387750665		

SS: Supervisor Support

CWS: Co-workers Support

MAS-4 & 89: Armstrong-Stassen, Marjorie

O&V: O'Hare, Donald A and Carmine F. Vilardi

Table 5.14
Relationship to Victim and Procedural Fairness

Author(s) Of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		RV r(xx)	PF r(yy)			
M-C & S	1998A	0.75	0.88	133	-0.25	-0.307728727
M-C & S	1998B	0.75	0.88	78	-0.28	-0.344656175
Total number of Participants (N):				211		
Weighted Average Correlations:					-0.26109005	-0.321379632
Sample Variance:				0.000317746		
Population Variance (Corrected):				-0.007304036		
Standard Deviation:				0		
95% Confidence Interval:					-0.321379632	-0.321379632
95% Credibility Interval:					-0.436676513	-0.195695729

RV: Relationship to Victim
PF: Procedural Fairness
M-C &S: Mansour-Cole, Dina M. and S.
G. Scott, 1998A and 1998B

Table 5.15
Relationship to Victim and Distributive Fairness

Author(s) of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		RV r(xx)	DF r(yy)			
M-C & S	1998A	0.75	0.75	133	0.13	0.173333333
M-C & S	1998B	0.75	0.75	78	0.16	0.213333333
Total Number of Participants (N):				211		
Weighted Average Correlations:					0.141090047	0.188120063
Sample Variance:				0.000453649		
Population Variance (corrected)				-0.008366011		
Standard Deviation				0		
95% Confidence Interval:				0.188120063	0.188120063	
95% Credibility Interval:				0.055398802	0.314308899	

RV: Relationship to Victim

DF: Distributive Fairness

M-C & S: Mansour-Cole, Dina M. and
S.G. Scott, 1998A and 1998B

Table 5.16
 Procedural Fairness and Distributive Fairness

Author(s) of Study	Year Published	Reliability		Sample Size N(i)	Uncorrected Correlation r(xy)	Corrected Correlation r(c)
		PF r(xx)	DF r(yy)			
M-C & S	1998A		0.880.75	133	0.33	0.40620192
M-C & S	1998B		0.880.75	78	0.35	0.430820218
Total Number of Participants (N):				211		
Weighted Average Correlations:					0.337393365	0.415302523
Sample Variance:				0.00014122		
Population Variance (Corrected):				-0.006349734		
Standard Deviation:				0		
95% Confidence Interval:					0.415302523	0.415302523
95% Credibility Interval:					0.29776926	0.520433403

PF: Procedural Fairness

DF: Distributive Fairness

M-C&S: Mansour-Cole, Dina M. and
 S. G. Scott, 1998A and 1998 B

Tables 5 through 20 provide detail information on the independent studies and show how they contribute to the meta-analytic cumulation process across studies. The weighted average corrected correlations and associated data for each correlated relationship are summarized and listed in Table 21. The elements in Table 21 consist of the correlated relationship, sample size, weighted averaged corrected correlation(r), standard deviation, credibility interval, and credibility interval width for each of the sixteen(16) correlated relationships. The weighted averaged corrected correlations vary in magnitude for the correlated relationships and some also vary in direction. A discussion as to the findings in Table 21 continues following the presentation of the table.

Table 5.17

Summary: Sample Sizes, Correlations, Standard Deviation, Credibility Interval and Interval Width

Correlated Relationship	Sample Size (N)	Weighted Averaged Corrected Correlation(r)	Standard Deviation	95 Percent Credibility Interval	Interval Width
Organizational Commitment and Co-Workers Support	558	0.28	0.0000	0.20<r<0.35	0.15
Organizational Commitment and Supervisor Support	1480	0.49	0.0761	0.45<r<0.53	0.08
Organizational Commitment and Turnover Intention	1123	-0.73	0.1475	-0.75<r<-0.70	0.06
Organizational Commitment and Job Insecurity	809	-0.24	0.1903	-0.31<r<-0.18	0.13
Organizational Commitment and Role Conflict	809	-0.53	0.1179	-0.58<r<-0.48	0.10
Organizational Commitment and Job Involvement	677	0.59	0.0000	0.54<r<0.64	0.10
Organizational Commitment and Job Satisfaction	1375	0.84	0.0290	0.83<r<0.86	0.03

Correlated Relationship	Sample Size (N)	Weighted Averaged Corrected Correlation(r)	Standard Deviation	95 Percent Credibility Interval	Interval Width
Job Performance and Optimism	627	0.29	0.0000	0.22<r<0.36	0.14
Job Performance and Supervisor Support	356	0.22	0.0000	0.11<r<0.31	0.20
Job Satisfaction and Turnover Intention	804	-0.73	0.0339	-0.76<r<-0.70	0.06
Job Insecurity and Role Conflict	809	0.17	0.0235	0.10<r<0.24	0.13
Job Involvement and Turnover Intention	677	-0.62	0.0000	-0.66<r<-0.57	0.09
Supervisor Support and Co-Workers Support	558	0.32	0.0000	0.24<r<0.39	0.15
Relationship With Victim and Procedural Fairness	211	-0.32	0.0000	-0.44<r<-0.20	0.24
Relationship With Victim and Distributive Fairness	211	0.19	0.0000	0.06<r<0.31	0.26
Procedural Fairness and Distributive Fairness	211	0.42	0.0000	0.30<r<0.52	0.22

< is understood to be less than or equal to.

Five correlated relationships are discussed as illustrations of the sixteen(16) relationships shown in Table 21. The illustrations represent each of the following: a strong negative, a strong positive, a moderate strength, and two(2) weak relationships in order to show the range of the results. In a strong relationship the absolute value of the weighted average corrected correlation is greater than 0.50, but less than or equal to 1.0; in a moderate relationship the absolute value is greater than 0.30, but less than or equal to 0.50; and in a weak relationship the absolute value is greater than 0.0, but less than or equal to 0.30. A value of 0.0 indicates no relationship; a value of 1.0 indicates perfect correlation.

The relationship between organizational commitment and turnover intention(OC&TI), as shown in Table 21, has a strong negative correlation with a weighted average corrected correlation of -0.73, a sample size of 1123, and a ninety-five(95) percent credibility interval that ranges between -0.75 and -0.70. This weighted average corrected correlation represents the combined results of six(6) independent studies with sample sizes that range from 76 to 527 and associated uncorrected correlations that range from -0.32 to -0.58. The results from the independent studies are seen as good indicators of the weighted average corrected correlation which give more reliability and confidence to the strong negative relationship that exists between these the two variables.

These data support the Cooper-Schneider(1989) statement that turnover intention is negatively correlated with organizational commitment and job involvement. That is, the more an employee intends to turnover, the less committed and involved that individual tends to be with his/her job. For this relationship, Cooper-Schneider(1989) gives a value of -0.48 for the correlation and a corresponding sample size of 150 for the organizational commitment and turnover intention relationship. As indicated earlier, the increase in the sample size due do the combination of the six(6) independent studies gives more reliability and confidence to this relationship.

In Table 21, the weighted average corrected correlation for organizational commitment and job satisfaction(OC&JS) is 0.84 and this relationship has a 95 percent credibility interval that ranges from 0.83 to 0.86. The cumulated result represents the data from two independent studies with sample size and the uncorrected correlations that range from 527 to 848 and 0.60 to 0.73, respectively. These values also show that the independent studies are good indicators of the relationship between the two variables. A weighted average corrected correlation of 0.84 indicates a strong positive relationship between these two variables. This relationship has a sample size of 1375 and is the strongest positive relationship found in this research as shown in Table 21.

The weighted average corrected correlation for procedural fairness and distributed fairness(PF&DF) is 0.42 and has a 95 percent credibility interval that ranges from 0.30 to 0.52. This relationship is moderate in strength, but is also capable of influencing downsizing decisions. This relationship is formed from the cumulation of two(2) independent studies with sample sizes and uncorrected correlations of 133 and 78 and 0.33 and 0.35, respectively. This is another example which supports the idea that the independent studies are good indicators of the combined results.

The uncorrected correlations between job insecurity and role conflict(JIS&RC) varied in the two independent studies and has a weighted average corrected correlation of 0.17, sample size of 809 and a 95 percent credibility interval that ranges from 0.10 to 0.24. The weighted average corrected correlation is positive and indicates a rather weak association between job insecurity and role conflict. Even though results show the strength of the relationship as rather weak, this can be important too, since it gives a clearer understanding that time and effort may be

spent more wisely on variables with stronger relationships. This result supports Armstrong-Stassen's (1989) comment that conflict is positively associated with survivors' perceptions of job insecurity.

The relationship between organizational commitment and job insecurity (OC&JIS) was determined from 2 individual studies with uncorrected correlations of -0.08 and -0.41 which indicate a large variation in absolute magnitude. The weighted average corrected correlation is -0.24 with a 95 percent credibility interval that ranges from -0.31 to -0.18. This information is also valuable for developing a more informed understanding of the relationship between these two variables.

According to Hutchinson (1994), perceived job insecurity led to reduced organizational commitment, reduced trust in the organization, and decreased job satisfaction. Cooper-Schneider (1989) states that most previous job insecurity research has shown that job insecurity is correlated with survivors' reactions, i.e. organizational commitment, job involvement and turnover intention.

For more specific information relating to the correlated relationships see Tables 5 through 20 and the summarized results in Table 21. In general, the combined sample size of a correlated relationship shows a significant increase in magnitude when compared with the sample size of the original individual studies that make up the relationship. According to Pillemer and Light (1980), the relationship between sample size and the power of a statistical test is well known: the larger the sample size, the more likely that a certain effect will be detected as statistically significant. Similarly, the larger the number of studies integrated, the more likely that the combined findings will be meaningful. The weighted averaged corrected correlation gives an indication of the strength of the relationship between variables.

The sixteen (16) identified relationships of the effects of downsizing on survivors give additional insight into understanding the reactions and behaviors of survivors. The statistic, weighted average correlation, for these sixteen (16) relationships ranged in magnitude from -0.73 to 0.84 which indicate a wide variation of strength among the relationships. The combined sample size varied from 211 to 1480. The results support the findings of other researchers, such as O'Hare and Vilaridi (1994).

The following variable pairs have weighted average corrected correlations with absolute values less than 1.0 but greater than 0.50 (a strong relationship): organizational commitment and job satisfaction (OC&JS), organizational commitment and job involvement (OC&JI), organizational commitment and turnover intention (OC&TI), organizational commitment and role conflict (OC&RC), job satisfaction and turnover intention (JS&TI), and job involvement and turnover intention (JI&TI). The use of the cumulation procedures of meta-analysis in this research, gives a more statistical confidence in the ability to generalize the results to other organizations over generalizing results from research done using only one organization.

In order to better understand the findings, reference is made to a "Change Reaction" model by Alevras and Frigeri (1987). This model is defined in terms of quadrants where the horizontal axis represents a continuum of potential employee reactions. The employee reaction range from internalizing the downsizing action to externalizing it as a manageable environmental phenomenon. The vertical axis represents the issue of power that ranges from low to high. After the occurrence of a layoff action, some employees may believe that they do not possess any control over their jobs, but on the other hand some employees may feel differently, that is, some may see new opportunities, or generate negative feelings towards the organization. This model can be used along with the results from the meta-analytic procedures to provide insight into

possible outcomes.

Table 22 is created to show the connection between the independent studies and the cumulation of correlations across the independent studies. This table compares the uncorrected correlations of the independent studies with the combined results from the meta-analysis. The correlated relationships are categorized as to their strength and the range of each category as follows: strong positive includes values that are greater than 0.50, but less than 1.0; strong negative includes values that are greater than -0.50, but less than -1.0; moderate/weak positive includes all values that are less than or equal to 0.50 but greater than 0.0; and moderate/weak negative includes all values that are less than 0.0, but greater than or equal to -0.50. The combined sample size is also shown, since it helps to give results more statistical reliability. The “not applicable” column in Table 22 gives the number of individual studies from the selected sixteen(16) that were not used in the meta-analysis for a particular correlated relationship. In Table 22, the correlated relationship, organizational commitment and job insecurity, represents the uncorrected correlations from two individual studies, -0.08 and -0.41 (See Table 8, Chapter 5) combined to give a corrected correlation of -0.24, a weak negative indication of strength. In a similar example, the correlated relationship, organizational commitment and role conflict, indicates the uncorrected correlations from two individual studies, -0.45 and -0.29 (See Table 9, Chapter 5) that are combined to give a corrected correlation of -0.53, a slightly strong negative strength. In the first example, the combined result is a weak negative indication of the strength of the correlated relationship and in the second example, the combined result is a slightly strong negative indication of the strength of the correlated relationship. The reasons for the difference in the correlated relationships of these two(2) examples could be numerous, but two possible ones are: the magnitude of the two numbers originally involved and the reliability of the measurements.

Table 5.18
Categorized Correlated Relationship

Correlated Relationship	Individual Studies					Meta-Analysis				
	Strong Pos	Strong Neg	Mod/Weak Pos	Mod/Weak Neg	Not Applic	Strong Pos	Strong Neg	Mod/Weak Pos	Mod/Weak Neg	Sample Size
Organizational Commitment and Co-Workers Support			3		13			✓		558
Organizational Commitment and Supervisor Support			5		11			✓		1480
Organizational Commitment and Turnover Intention		4		2	10		✓			1123
Organizational Commitment and Job Insecurity				2	14				✓	809
Organizational Commitment and Role Conflict				2	14		✓			809
Organizational Commitment and Job Involvement			2		14	✓				677
Organizational Commitment and Job Satisfaction	2				14	✓				1375

Correlated	Strong	Strong	Mod/ Weak	Mod/ Weak	Not	Strong	Strong	Mod/ Weak	Mod/ Weak	Sample
Relationship	Pos	Neg	Pos	Neg	Applic	Pos	Neg	Pos	Neg	Size
Job Performance and Optimism			3		13			✓		627
Job Performance and Supervisor Support			3		13			✓		356
Job Satisfaction and Turnover Intention		3		2	11		✓			804
Job Insecurity and Role Conflict			2		14			✓		809
Job Involvement and Turnover Intention		1		1	14		✓			677
Supervisor Support and Co-Workers Support			3		13			✓		558
Relationship with Victim and Procedural Fairness				2	14				✓	211
Relationship with Victim and Distributive Fairness			2		14			✓		211

Correlated	Strong	Strong	Mod/ Weak	Mod/ Weak	Not	Strong	Strong	Mod/ Weak	Mod/ Weak	Sample
Relationship	Pos	Neg	Pos	Neg	Applic	Pos	Neg	Pos	Neg	Size
Procedural Fairness and Distributive Fairness			2		14			✓		211

To further examine the results from the cumulation of correlations across studies, the weighted average corrected correlations are ordered according to their absolute values as shown in Table 23. In this table the results are categorized by the strength of the correlated relationships into three(3) groups separated by a blank line and each group is elaborated on as follows. The strong group contains absolute values that are less than 1.0, but are greater than 0.50; moderate group contains absolute values that are less than or equal to 0.50, but are greater than 0.30; and the weak group contains absolute values that are less than 0.30, but greater than 0.0. The first six(6) correlated relationships in Table 23 can be readily seen in terms of their strong relationship even though, some are negatively correlated and others are positively correlated. These results are definitive enough to indicate that sufficient research has been done to show that the relationships are strongly correlated. The second group indicates moderate correlation among the relationships, but are real enough to have a definite impact on the reactions of employees to downsizing activities. The last six(6) correlated relationships indicate relationships that are not as strong as the relationships in the previous group; in this group additional research may provide more confidence. However, the results of this research give ample information to aid in the making of more effective downsizing decisions.

Table 5.19
Correlated Relationships and Weighted Average Correlations In
Order of Absolute Values

Organizational Commitment and Job Satisfaction	0.84
Organizational Commitment and Turnover Intention	-0.73
Job Satisfaction and Turnover Intention	-0.73
Job Involvement and Turnover Intention	-0.62
Organizational Commitment and Job Involvement	0.59
Organizational Commitment and Role Conflict	-0.53
Organizational Commitment and Supervisor Support	0.49
Procedural Fairness and Distributive Fairness	0.42
Supervisor Support and Co-Workers Support	0.32
Relationship with Victims and Procedural Fairness	-0.32
Job Performance and Optimism	0.29
Organizational Commitment and Co-workers Support	0.28
Organizational Commitment and Job Insecurity	-0.24
Job Performance and Supervisor Support	0.22
Relationship to Victim and Distributive Fairness	0.19
Job Insecurity and Role Conflict	0.17

Vote Count Studies

The group of thirty-six(36) vote count studies consists of all selected studies that did not meet the criteria for the meta-analytic cumulation of the correlations procedures. These studies were examined to determine, in general, what their findings were. The studies collected data from a wide spectrum of organizations engaged in a variety of functions, such as children's hospital, Department of Defense, research and development, telecommunication, manufacturing, county hospital, insurance, bank, food service, health care, and high-tech industry. The survey questionnaire is the most frequently used method for data collection; other methods used include interviews, reviews of the literature, descriptive exploratory, and case study. The vote count studies were implemented in both the public and non-public sectors, however the majority were implemented in the non-public sector. The major portion of the studies was carried out in different parts of the continental U.S., namely, west south central area, southern, west coast, mid-western, south west, western, north western, and south eastern. A limited number of studies were implemented outside the continental U.S. in south western Ontario, throughout Canada, and Ecuador, Quito.

The purpose, variables, and other factors of interest varied among the studies, therefore the results were not easy to compare. They examined a variety of effects of downsizing on survivors, such as organizational commitment, role overload, work ethic, self esteem, task uncertainty, trust in management, desire for justice, productivity, and job security. The commonality between the studies is summarized in terms of the type of effects of downsizing experienced by survivors. As indicated in the section on Vote Count Studies, Chapter 4, a combination of "The Traditional Narrative Procedure" and "The Traditional voting Method" is used for consolidating information from the vote count studies. Each study in this group addressed in general some facet of the effects of downsizing on survivors, such as positive effects, negative effects, no effects, and over time effects.

A summary of the thirty-six(36) vote count studies show that: eight(8) or twenty-two(22) percent indicate some positive or mostly positive effects; thirty-four(34) or ninety-four(94) percent indicate some negative or mostly negative effects of downsizing; and five(5) or fourteen(14) percent indicate very little or no effects of downsizing. Finally, six(6) or seventeen(17) percent of the studies indicate that some effects are seen over time that could be positive, and/or negative. In this summary any given study is allowed to have entries in one or more of the above categories. These findings show that most survivors of organization downsizing experience a greater number of negative effects than any other category of effects. These studies confirm the idea that most organizations do not realize the desired or expected results from organizational downsizing efforts, but in addition get unexpected negative results. Some survivors report some positive effects, such as promotional advantages, more responsibility, and different types of work.

The vote count studies give suggestions for implementing more effective downsizing, such as communication, the establishment of internal programs, and the training of managers to handle downsizing activities. Managers need to provide the survivors with information about what is happening as well as what is likely to take place in the future. It is also important to supply the survivors with information about how those employees who lost their jobs were treated. This would improve the image of the organization, present the organization as caring about those who lost their jobs, and send a message to survivors in case they should become a layoff victim in the future, that the organization will care for them also. In reference to communication, researchers state that well-planned and executed communications are as

important in a downsizing situation as a musical score is to an orchestra.

Another suggestion from the vote count studies is the possible establishment of internal programs designed to assist the survivors in coping with the organizational changes taking place. Armstrong-Stassen(1994) found that supervisor support played a crucial role in survivors' reactions to a downsizing. Survivors who felt that their supervisor was willing to listen to them, would go out of his or her way to make the supervisor's work life easier for them. These survivors were the ones who could be relied upon when things got tough. Survivors with these feelings reported higher levels of commitment to the organization, higher job performance, and were less likely to be thinking of leaving the organization. Organizations should train supervisors on what reactions to expect from the survivors of downsizing and how to provide informational and emotional support to them.

Many of the issues come from the fact that a different relationship between the employee and the organization is emerging. Organizations need to renegotiate the psychological contract and establish new terms that reflect the new organizational conditions rather than ignore and violate the terms of existing agreements.

Analysis of the vote count studies also shows the need for an elaboration of existing explanations for downsizing processes and procedures that mainly cause positive effects on those who remain.

Public versus Non-Public Sector Studies

Another area of concern for this research is to identify any differences between the variable relationships due to studies taken from the public sector versus those taken from the non-public sector. Table 3, in Chapter 4, contains a list of the ten(10) studies that met the selection criteria for the cumulation of correlations procedures and also whether they were implemented in the public or non-public sector (refers to private and non-profit). There are only two(2) public studies and eight(8) non-public studies indicated in Table 3 plus six(6) other non-public studies taken from the O'Hare and Vilardi(1994) work used in the cumulation of correlations procedures.

The O'Hare and Vilardi(1994) public study appears in Tables 5, 6, 7, and 17 and the Armstrong-Stassen(1998) public study appears in Tables 12 and 13. The sample sizes of the two public studies are compared with the sample sizes of the non-public studies and they both are found to have relatively small samples sizes of 76 and 82, respectively. The small sample size may have an effect on the relationship between the variables. For example, in Table 6 the relationship between organizational commitment and supervisor support(OC&SS) shows that the public study by O'Hare and Vilardi(1994) has a possible weaker relationship for the uncorrected correlation than the ones shown for the non-public studies. A weaker relationship between organizational commitment and turnover intention for this public study is also illustrated in Table 7. In Table 5, no real difference between this public study and non-public sector studies regarding the uncorrected correlations for organizational commitment and co-workers support(OC&CWS) seems to exist. Table 17 seems to indicate a stronger relationship between supervisor support and co-workers support(SS&CWS) in the O'Hare and Vilardi(1994) public sector study than the non-public sector studies.

The Armstrong-Stassen(1998) public study in Table 12 appears to indicate a slightly stronger relationship between the variables of job performance and optimism(JP&OP) than the non- public studies. In Table 13, job performance and supervisor support(JP&SS), the corrected correlations appears to indicate a much weaker relationship in the public study than in the non-

public studies. Considering that the number of public studies available for this analysis is very small and the results of the comparisons seem to vary, then one can state that, based upon these results more public studies are needed before definite conclusion can be made. Results from the analysis of public versus non-public sectors studies are not conclusive and need to be supported by further research.

Chapter Summary

This chapter presents the findings obtained from the meta-analytic procedures for the cumulation of the corrected correlations. As seen in Table 21, these findings include sixteen(16) weighted average corrected correlation variable relationships that range in magnitude from -0.73 to 0.84 and associated combined sample sizes that range from 211 to 1480. In general, these findings support the downsizing results reported by other researchers in both magnitude and direction. As suggested by O'Hare and Vilardi(1994), the credibility interval was used to show the upper and lower limits of the interval in which the true population correlation will be contained. The cumulation of the corrected correlations through the use of meta-analytic procedures gives more statistical confidence and reliability to the findings of this research.

The findings from the thirty-six(36) vote count studies show that most organizational downsizing actions have affected survivors negatively, even though some positive results are experienced. Some suggestions are obtained from the vote count studies for implementing more effective downsizing, such as effective communication, internal training programs to assist the survivors in coping with the changes, and the training of managers to handle the downsizing activities.

The correlated relationships from the limited number of public versus non-public sectors studies are analyzed, but no definitive difference is made due possibly to too few studies used in the comparisons. The purpose of this comparison was to determine if the source of the downsizing study influences the relationships of the variables, but no definitive conclusion is made.

This research confirms and gives more confidence to the findings of independent studies concerning the effects of organizational downsizing on survivors since it combines, through meta-analysis, the results of ten(10) independent downsizing studies with six(6) additional studies taken from research by O'Hare and Vilardi(1994).

CHAPTER 6

SUMMARY AND IMPLICATIONS FOR APPLICATION, CONCLUSIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction to Chapter

This chapter is divided into the following sections: a summary and implications for applications which consists of a response to the research questions in terms of the results of the meta-analytic procedures, i.e., results of cumulation of correlations, the vote count studies and the public versus non-public studies; a conclusion section that highlights the main points of the research; recommendations for further research to broaden the understanding of the effects of downsizing on survivors; and a chapter summary. This is the concluding chapter and it brings the research to a close by including the issues that have made this research a worthwhile endeavor.

Summary and Implications for Applications

The purpose of this research is to primarily provide a better understanding of the effects of downsizing on those who remain in the organization, the survivors. This research uses the meta-analytic method that systematically combines and analyzes the correlations from independent studies of the effects of downsizing on survivors to obtain a measure of significance across the broader population. It also uses the vote count method to analyze the thirty-six(36) studies that did not meet the selection criteria for the cumulation of correlations procedures. This section gives responses to the research questions (see Chapter 1, Introduction, Purpose of Research) that are concerned with the effects of downsizing on survivors. The responses are obtained from an analysis of the findings obtained from the cumulation of correlations, a group of vote count studies, and studies done in the public versus the non-public sector.

The responses to the research questions are numbered in accordance with the numbers of the six(6) research questions(See, Chapter 1, Purpose of Research) as follows.

(1) Thirteen(13) variables were identified and selected from ten(10) studies that met the selection criteria required by the meta-analytic cumulation procedures. These variables are measures of the behaviors and attitudes of survivors and are listed as follows: organizational commitment, co-workers support, supervisor support, turnover intention, job insecurity, role conflict, job involvement, job satisfaction, job performance, optimism, relationship with victim, procedure fairness, and distributive fairness. More details are given on these variables in Chapter 4, in the section on Variables Defined. These variables are determined after an examination of forty-eight(48) independent studies of downsizing effects on survivors. These forty-eight(48) studies are obtained through an exhaustive search of the literature using both computerized and manual sources. The small number of studies found is due partly to a lack of consistent operational definitions of variables across the individual studies. The sources included computerized databases, current journals and periodicals, and individual contacts. Contacts were made with Dr. Marjorie Armstrong-Stassen and Dr. Joel Brockner, leading researchers on survivors of downsized organizations; they are currently professors at the University of Windsor in Canada and Columbia University in New York, respectively. Dr. Armstrong-Stassen was able to share some additional studies that are used in this research. The majority of the downsizing studies were found in published journal articles, dissertations, and theses.

(2) Sixteen(16) correlated relationships were selected from the ten(10) downsizing studies

that met a predetermined set of selection criteria based on the requirements of the meta-analytic procedures for the cumulation of correlations across studies. The original thirteen(13) variables are reflected in the sixteen(16) correlated relationships given as follows: organizational commitment and co-workers support, organizational commitment and supervisor support, organizational commitment and turnover intention, organizational commitment and job insecurity, organizational commitment and role conflict, organizational commitment and job involvement, organizational commitment and job satisfaction, job performance and optimism, job performance and supervisor support, job satisfaction and turnover intention, job insecurity and role conflict, job involvement and turnover intention, supervisor support and co-workers support, relationship with victim and procedural fairness, relationship with victim and distributive fairness, and procedural fairness and distributive fairness.

The correlated relationships and associated data are summarized in Table 21(Chapter 5, Findings). These correlated relationships vary in both strength and direction from -0.73 to 0.84; the associated combined sample sizes(number of participants) also vary in magnitude from 211 to 1480. Organization commitment and job satisfaction stand out as the relationship that has the strongest positive association (0.84) with organization commitment and job involvement having the next largest positive association (0.59). There are four(4) correlated relationships with strong negative associations: organizational commitment and turnover intention(-0.73), job satisfaction and turnover intention(-0.73), job involvement and turnover intention(-0.62), organizational commitment and role conflict(-0.53). The remainder of the correlated relationships have associations but not as strong and also vary in strength. Table 23 (Chapter 5, Findings) shows the correlated relationships listed in order according to the absolute values of their correlations and separated into three(3) groups, strong, moderate, and weak. This table shows how the relationships vary in both strength and direction and makes it easier to determine where in the downsizing action to put more time and effort to get improvements or to minimize the negative results. The magnitude indicates the strength of the relationship and the sign indicates the direction. A correlation value of 1.0 indicates a perfect relationship between the variables, whereas a value of 0.0 indicates no correlation between the variables.

In summary, this research identifies and discusses thirteen(13) variables and the sixteen(16) correlated relationships made up of these variables. A comparison of the data from the independent studies and the combined correlational data in Tables 5 through 20 show that the results of this research confirm the findings from the independent studies. However, in addition these findings, through meta-analytic procedures, give more statistical significance and confidence to the results than that of each independent studies, due largely to the combined sample size.

(3) The individual studies are accurate indicators of the strength of the relationships between variables. Table 22 shows a summary of the connection between the uncorrected correlations of the individual studies and the weighted average corrected correlations after the meta-analytic cumulation procedures. The comparison shows that the uncorrected correlations of the individual studies are good indicators of the weighted average corrected correlations.

The following examples support this claim. Organizational commitment(OC) and co-workers support(CWS) has a combined weighted average corrected correlation of 0.28 (See Table 21) with the uncorrected correlations given for the three(3) individual studies as 0.24, 0.24, and 0.20 (See Table 5, Chapter 5). Organizational commitment(OC) and turnover intention(TI) have a combined weighted average corrected correlation of -0.73(See Table 21) with the uncorrected correlations given for the six(6) individual studies as -0.58, -0.54, -0.51, -0.32, -0.48, and -0.58 (See Table 7, Chapter 5). Job performance(JP) and optimism(OP) has a combined corrected correlation of 0.29 with the uncorrected correlations given for the three(3) individual studies as

0.23, 0.24, and 0.27 (See Table 12, Chapter 5).

(4) The sixteen(16) correlated variable relationships are significant in terms of using the results to improve the outcomes of organization downsizing.

This research gives a summary of the sixteen(16) correlated variable relationships (See Table 21) that provides information that can be used by the manager to develop an improved understanding of the many factors that interact to affect the attitudes and behaviors of survivors and the outcomes of downsizing activities.

These findings can be further understood in terms of their practical application by looking at an example of likely survivor behaviors and attitudes. In preparation for a downsizing, the manager must consider what action to take that will minimize the expected negative effects and shift the attitudes and behaviors accordingly. The Alevras and Frigeri(1987) model, discussed in Chapter 5, gives an illustration of how potential employee reactions can be previewed by managers. The correlated relationships measured in this research provide insight into the behavioral and attitudinal reactions of the survivors. They inform the manager of the kind of association that exists between the variables. The application of the “Change Reaction” model and results of the correlated relationships can give the manager the capability to forecast the effects of these variables in a downsizing action and/or the reactions of employees. The use of this model and the results from the meta-analytic procedures can surface the most pertinent relationships. This insight and prior actions by the managers may enable them to minimize the negative effects of the downsizing action and shorten the length of time the effects may last.

The variability in the strength of the association between variables and the direction of the relationships (See Table 21, Chapter 5) may be helpful for the manager of a downsizing action because it gives an idea where attention must be focused in order to minimize negative effects. For example, Table 21 (Chapter 5) shows that organizational commitment and job satisfaction have a strong positive association(0.84) and a sample size of 1375, therefore managers should assure that everything possible be done to maintain favorable organizational commitment and job satisfaction before and during and after a downsizing action.

Managers of organizational downsizing may use the results of the correlated variable relationships as guidance in planning, implementing, and maintaining downsizing. For example, organizational commitment and job involvement have a strong positive relationship(0.59), see Table 21(Chapter 5). This alerts managers and others to the fact that everything possible should be done to help survivors maintain favorable organizational commitment and job involvement. The interaction between variables suggests that a manager, for example, needs to ensure as much as possible, the perceived fairness of the layoff and that the employees are kept informed.

This research provides the manager with valuable information for gaining a better understanding of the effects of downsizing on survivors obtained from the analysis of the vote count studies (See the discussion of response to question (5) below).

(5) The group of thirty-six(36) vote count studies does contribute to the understanding of the effects of downsizing. These studies did not meet the selection criteria for the cumulation of correlations across studies, but were relevant in terms of presenting informative data on the downsizing effects on survivors. These independent studies were implemented using a variety of methods, such as descriptive, qualitative, anecdotal, and quantitative. The studies were done in several different types of organizations, in different parts of the country, and in the public and the non-public sector. The vote count studies are analyzed and summarized according to the following four categories: mostly positive, mostly negative, no effects, and effects seen over

time(See Table 2, Chapter 4). The results from the analysis of the thirty-six(36) vote count studies show that a majority of the studies, thirty-four(34) or ninety-four(94) percent report that survivors of downsizing perceived negative effects. The other three(3) categories indicate a much smaller number of responses and percentages. The vote count studies suggest some downsizing strategies that would help to promote more effective outcomes, such as communication, the establishment of internal program, and the training of managers to handle downsizing activities.

(6) The final research question concerns the determination of any similarities or differences in correlated variable relationships found between the public and the non-public sector studies.

The final ten(10) studies along with the six(6) studies taken from the O'Hare and Vilardi(1994) work were used in the cumulation of correlations in the meta-analytic procedures. These sixteen(16) studies consist of two(2) studies done in public sector organizations, namely, Armstrong-Stassen(1998) and O'Hare and Vilardi(1994). An analysis of the results of these two(2) studies shows that some of the public sector variable relationships were found to have a small increase in the weighted average corrected correlations, others have a small decrease, and some show no real differences between those in the non-public sector. For example, Table 5(Chapter 5) shows that for organization commitment and co-workers support(OC&CWS), there are two(2) non-public studies with weighted average corrected correlations of 0.30 and 0.25, and one(1) public study (O'Hare and Vilardi,1994) with a weighted average corrected correlation of 0.31. In this example, there appear to be no significant differences found in the correlated variable relationships between public and non-public sector studies. Table 13(Chapter 5) shows that for job performance and supervisor support(JP&SS) there are two(2) non-public studies with weighted average corrected correlations of 0.14 and 0.30 and one(1) public study (Armstrong-Stassen,1998) with a weighted average corrected correlation of 0.08. The results show that the public study has a much smaller value for the weighted average corrected correlation; however, the rationale for the smaller value is not clear. The conclusion is that more research that includes a larger number of public studies is needed before any definitive statements can be made.

Listed below are ways in which this research contributes to a better overall understanding of the effects of organizational downsizing on survivors and simultaneously extends the downsizing research literature.

(1) This research cumulates field studies that are done in the context of downsizing environments, cross-sectional in nature, and for one particular organization. Therefore, the results of this research give strong external validity when compared with a study done in laboratory environment.

(2) The scarce existing body of literature on the effects of downsizing on survivors is expanded. A literature search shows that a limited number of meta-analytic studies have been implemented on the effects of downsizing on survivors. This research extends the meta-analytic studies done on the effects of downsizing on survivors.

(3) The use of the meta-analytic method confirms the findings of the independent studies and increases the statistical reliability and confidence of the results derived for the sixteen(16) correlated relationships. This cumulation combines the perceptions from a variety of participants, organizations, tasks, responsibilities, and reporting relationships and hence broadens applicability of the correlated results.

(4) Findings from the analysis of the thirty-six(36) studies using the vote count method

confirm the idea that downsizing creates negative reactions from a majority of the survivors(See response to question(5) above).

(5) The results from this research provide managers of downsizing activities additional information that can be used to plan and implement downsizing programs to elicit the most positive (or the least negative) behavioral and attitudinal responses from employees. For an example, see the strength, direction, and range of the correlated relationships in Table 21, Chapter 5.

(6) A compilation of forty-eight(48) studies of the effects of organization downsizing on survivors in Table 1 is available for used in further research and/or to glean an improved understanding of downsizing activities.

(7) The findings from this research make available an analysis of the correlated relationships between a small sample of studies from the public and non-public sectors. This analysis is not conclusive in terms of showing whether there are any factors which may cause differences in the results between the two sectors.

Conclusions

This research identified and evaluated attitudes and behaviors that are prevalent among downsizing survivors. The variables used to measure these behaviors and attitudes as well as their relationships were also identified. Using all available studies on the effects of a downsizing action, measures were compiled that identified the strength of the relationships among the variables. The meta-analysis process cumulated the results of the number of diverse studies and significantly increased the power of the estimated population parameter(the coefficient of correlation). This is due mainly to an increase in sample size.

The sixteen(16) variable relationships compiled and summarized in Table 21, Chapter 5 provide information that enables the manager to forecast, in many instances, the kinds of work attitudes and behaviors survivors are likely to experience in a post-downsizing work environment. The correlations for the variable relationships ranged from strong positive to strong negative with the others indicating moderate or a lower level of association. Especially notable are: the strong positive correlation for organizational commitment and job satisfaction; and strong negative correlations for organizational commitment and turnover intention, job satisfaction and turnover intention, and job involvement and turnover intention. The manager can be more confident when making decisions based upon these relationships. However, the correlations for the remainder of the relationships indicate a more moderate or a lower level of association. The correlations for relationships found in this research confirm the findings of the independent studies and results reported in the literature by other downsizing investigators.

The meta-analysis vote count method is used to analyze the thirty-six(36) studies that did not meet requirements for cumulation of correlation procedures. The results from this analysis show that a majority of the downsizing survivors experienced negative downsizing effects. These results also support the findings reported by other experts and researchers of downsizing activities.

Two of the independent studies of the effects of downsizing on survivors used in the meta-analysis cumulation procedures were implemented in the public sector. The correlations of the public sector studies were compared with those implemented in the non-public sector studies, however, results from this comparison were not conclusive possibly due to the small sample.

This research makes available additional information that can be used by managers to minimize the negative effects of the downsizing action.

Recommendations for Future Research

Further research on the effects of downsizing on survivors will serve to further refine the relationships as presented, or add data sufficient to assess those variables not usable in this meta-analysis. In addition, further studies may identify new variables not currently identified as potentially relevant to downsizing. This research found minimal data that address survivor reactions to downsizing over time; additional longitudinal research studies would help to enlighten this area of interest. Research that standardizes downsizing definitions and terminology will help to make more studies adaptable for use in the meta-analysis method. Further research that includes the implementation of independent studies of the effects of downsizing on survivors in the public sector would aid in a more definitive comparison between public and non-public sector studies.

Chapter Summary

This chapter highlights the major points in this research. It begins by discussing the responses to the six(6) research questions which pull together the different parts and give a clearer understanding of the research and the findings. The research methodology, meta-analysis, is very appropriate for combining the diverse group of independent studies of the effects of downsizing on survivors. The increased sample size gained through the use of meta-analysis provides more confidence and reliability to the coefficient of correlation which is an estimate of the true population correlation.

This research provides the manager, especially those who will be faced with an organization that is at least partially staffed by downsizing survivors, a better understanding of the effects of downsizing activities on the survivors. Various tables of valuable information at different points of the research are made available to manager. For example, Table 21 is a summary of the correlations for the variable relationships; it includes the strength, direction, and range of each variable relationship. The chapter included suggestions as to how the manager could use the results of this research to help minimize the negative effects of downsizing on survivors. Recommendations were mainly concerned with the provision of additional information to make more usable data available for further research.

References

- Alevras, Joan, and Frigeri, Arnold (September 1987). "Picking up the pieces after downsizing," Training and Development Journal, 41:29-31.
- Allen, B.(1995). "Diversity and organizational communication." Journal of Applied Speech Communication, 23, 143-155.
- American Management Association(AMA) (1994). "A study on downsizing." AMA: New York, NY.
- Armstrong-Stassen, Marjorie (1998). "Downsizing the Federal government: A longitudinal study of managers' reactions." Canadian Journal of Administrative Sciences. 15(4), 310-321.
- Armstrong-Stassen, M. (1997). "The effect of repeated management downsizing and surplus designation on remaining managers: An exploratory study." Anxiety, Stress, and Coping: An International Journal, 10, 377-384.
- Armstrong-Stassen, M., Cameron, S.J., and Horsburgh, M.E.(1996). "The impact of organizational downsizing on the job satisfaction of nurses." Canadian Journal of Nursing Administration, 9(4),8-32.
- Armstrong-Stassen, Marjorie(1994). "Coping with Transition: A Study of layoff survivors." Journal of Organizational Behavior, 15(7), 597-621.
- Armstrong-Stassen, Marjorie.(January 1994). "Production Workers' Reactions to a Plant Closing: The Role of Transfer, Stress, and Support." Anxiety, Stress, and Coping 6:201-214.
- Armstrong-Stassen, Marjorie (January 1994). "Why managers should pay greater attention to the reasons they give for a workforce reduction." Research and Practice in Human Resource Management, 1:41-51.
- Armstrong-Stassen, Marjorie (1994). "Coping with transition: A study of layoff survivors." Journal of Organizational Behavior, 15, 597-621.
- Armstrong-Stassen, Marjorie, Cameron, Sheila J., and Horsburgh, Martha E.(August 1993). "Pre-layoff determinants of survivors' coping strategies following organizational downsizing." Conference Presentation, Academy of Management Annual Meeting, Dallas TX.
- Armstrong-Stassen, Marjorie. "The effect if multiple co-worker layoffs on survivors' reactions," Unpublished.
- Armstrong-Stassen, Marjorie (October 1993). "Survivors' reactions to a workforce reduction: A comparison of blue-collar workers and their supervisors." Canadian Journal of Administrative Sciences 10: 334-343.
- Armstrong-Stassen, Marjorie (1989). The impact of work-force reduction on retained employees: How well do job survivors survive? Ph.D. Dissertation. The Ohio State University, Columbus, Ohio, (90-14493).
- Armstrong-Stassen, Marjorie (1998). "Downsizing the federal government: A longitudinal study of managers' reactions." Canadian Journal of Administrative Sciences 15(4),310-321.

- Barrett, Charles E.(1997). The impact of downsizing and reengineering on human resources as perceived by a selected population. Unpublished Ph.D. Dissertation, Walden University, UMI Dissertation Services, Ann Arbor, Michigan.
- Bailey, Garnell V.C.(1997). Attitudes, perceptions, and behaviors of female managers who survived corporate downsizing. Unpublished Ph.D. Dissertation, Walden University, UMI Dissertation Services, Ann Arbor, Michigan.
- Baumohl, B. (1993). "When downsizing becomes dumbsizing." Time, 15 March, p. 55.
- Becker, H.S. (1960). "Notes on the concept of commitment." American Journal of Sociology, 66, 32-42.
- Beehr, T.A.(1985). "Organizational stress and employee effectiveness: a job characteristics approach." In T.A. Beehr and R.S Bhagat(eds.), Human stress and cognition in organizations, pp.57-82. New York: John Wiley and Sons.
- Begley, Thomas M. and Czajka, Joseph M.(April 1993). "Panel analysis of the moderating effects of commitment on job satisfaction, intent to quit, and health following organizational change," Journal of Applied Psychology, 78:552-556.
- Berry, Deloris L.(1997). "Downsizing's effect on productivity," Unpublished Masters' Thesis, Baker College, Flint, Michigan. UMI Number:1384325, UMI Dissertation Services, Ann Arbor, Michigan.
- Bies, R. J. and Shapiro, D.L.(1987). "Interactional fairness judgements: the influence of causal accounts." Social Justice Research, 1, 199-218.
- Blonder, M.D.(1976). "Organization repercussion of personnel cutbacks: Effects of layoffs on retained employees." Unpublished PhD dissertation. University of New York, New York, New York .
- Brennan, Francis P.(April 1988). "The effects of downsizing and its implications on survivors in the corporation." Unpublished Master's Thesis, Widener University.
- Brockner, Joel (1988). Self-esteem at work: research, theory, and practice.
- Brockner, J.(1988). "Self-esteem, behavioral plasticity, and employee behavior. Self-esteem at work: research theory, and practice, 49-83. Lexington, MA. Lexington Books.
- Brockner, Joel (1992). Managing the effects of layoffs on survivors. California Management Review. 34(2),9-28.
- Brockner, Joel (1986). The Impact of Layoffs on the Survivors. Supervision Management. 2-7.
- Brockner, Joel, Davy, Jeanette, and Carter, Carolyn(1985). "Layoffs, self-esteem, and survivor guilt: motivational, affective, and attitudinal consequences." Organizational Behavior and Human Decision Processes, 36, 229-244.
- Brockner, J., Grover, S.L., and Blonder, M.D.(1988). "Predictors of survivors' job involvement following layoffs: A field study." Journal of Applied Psychology, 73: 436-442.

- Brockner, Joel, DeWitt, Rocki L., Grover, Steven, and Reed, Thomas (1990). "When it is especially important to explain why: Factors affecting the relationship between manager's explanations of a layoff and survivors' reactions to the layoff." Journal of Experimental Social Psychology, 26(5),389-407.
- Brockner, J. and Greenberg, J. (1990). "The impact of layoffs on survivors: an organizational justice perspective." In J.S. Carroll (Eds.), Applied social psychology and settings. 45-75. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Brockner, Joel, Grover, Steven, and Blonder, M.D.(1987). Factors predicting survivors' reactions to work layoffs: A field study.
- Brockner, J., Grover, S., Reed, T., Dewitt, R., and O'Malley, M.(1987). "Survivors reactions to layoffs: We get by with a little help for our friends." Administrative Science Quarterly, 32,526-541.
- Brockner, J., Grover, S.L., Reed, T., and Dewitt, R.(1992). "Layoffs, job insecurity, and survivors' work effort; evidence of an inverted-U relationship." Academy of Management Journal, 35(2),413-425, (1992).
- Brockner, Joel, Weisenfeld, Batia M., and Martin, Christopher L.(1995). "Decision Frame, procedural justice, and survivors' reactions to job layoffs." Organizational Behavior and Human Decision Processes, 63(1), 59-68.
- Buchanan, B.(1974). "Building organizational commitment: The socialization of managers in work organizations." Administrative Science Quarterly, 19, 533-546.
- Burt, Denise M.(1997). "A field study of the impact of stress factors on organizational members in the aftermath of downsizing." Unpublished Ph.D. Dissertation, California School of Professional Psychology, Los Angeles, UMI Number:9817870, UMI Dissertation Services Ann Arbor, Michigan.
- Cameron, Kim S.(1994).Strategies for Successful Organizational Downsizing. Human Resource Management,33,(2),189(23).
- Cameron, Kim, Freeman, Sarah, and Mishra, Aneil(1991). Best practices in white collar downsizing: managing contradictions. Academy of Management Executive, 5(3),57-73.
- Cameron, Kim S. and Freeman, Sarah J.(1994). The downsizing of an army organization: An investigation of downsizing strategies, processes, and outcomes. Technical report. United States Army Research Institute for the Behavioral and Social Sciences. Defense Technical Information Center (DTIC),1003 ,(94-29493)(AD-A284 238).
- Cameron, K.S., Kim, M.U., & Whetten, D.A.(1987a). Organizational effects of decline and turbulence. Administrative Science Quarterly, 32, 222-240.
- Cameron, Kim S.; Freeman, Sarah J.; and Mishra, Aneil K.(1993). "Downsizing and redesigning organizations." In G.P.Huber & W.H. Glick (Eds.), Organizational Change and Redesign: Ideas and insights for improving performance, (pp.19-65) New York, NY: Oxford University Press.

- Caplan, R. D., Cobb, S., French, J.R.P, Harrison, R.V., and Pinneau, S.R.(1975). Job demands and worker health, HEW Publication No. NIOSH 75-160, Washington, D.C..
- Cascio, Wayne(1993). Downsizing: what do we know? What have we learned? Academy of Management Executive,7, 95-104.
- Casey, Mary K., Miller, Vernon D., and Johnson, John R.(1997). "Survivors information seeking following a reduction in work force." Communication Research, Vol.24 No.6, December: 755-781, Sage Publications, Inc.
- Caulton, Donna J.(1996). "Nurses at risk: the effects of downsizing on registered nurses." Master's Thesis, Gonzaga University, UMI Number: 1382008, UMI Dissertation Services, Ann Arbor, Michigan.
- Cohen, J.(1977). Statistical Power Analysis for the behavioral Sciences (revised edition). New York NY: Academic Press.
- Cooper-Schneider, Rochelle (1989). "An analysis of survivors' reactions to layoffs based on psychological theories of justice, organizational commitment, job insecurity, and corporate culture." Unpublished Dissertation, UMI Dissertation Information Services, Ann Arbor, Michigan.
- Cornfield, D.B.(1983). "Chances of layoff in a corporation: A case study." Administrative Science Quarterly, 28, 503-20.
- Corum, Richard E.(1996). "The impact of a layoff on survivors." Unpublished Dissertation, Nova Southeastern University, UMI Number:9608642, UMI Dissertation Services, Ann Arbor, Michigan.
- Coser, L. A.(1956). The functions of social conflict. Glencoe, Ill.: The Free Press.
- Cronbach, L.J.(1951). "Coefficient alpha and the internal structure of tests." Psychometrika, 16, 297-334.
- Davis, Carl, and Steel, Robert.(1988). Meta-Analysis: A technique for performing conclusive literature reviews. Proceedings of the 35th Annual Convention of Society for Technical Communication, 174-177.
- Davy, Jeanette A., Kinicki, Angelo J., and Scheck, Christine L.(June 1991). "Developing and testing a model of survivor responses to layoffs." Journal of Vocational Behavior, 38: 302-317 .
- Dunlap, Joanna C.(1994). "Surviving layoffs: a qualitative study of factors affecting retained employees after downsizing." Performance Improvement Quarterly, 7(4):pp.89-113.
- Duron, Shari A.(1994). "The reality of downsizing: what are the productivity outcomes?" Unpublished Ph.D. Dissertation, Golden Gate University, UMI Dissertation Services, Ann Arbor, Michigan.
- Emory, C. William and Cooper, Donald R.(1991). Business Research Methods. Boston MA: Irwin.

- Flores, Guadalupe L.(1996). "Perceived downsizing effects on the remaining employees at the Central Bank of Ecuador." Unpublished Masters' Thesis, Pittsburg State University, Pittsburg, Kansas.
- Forst, Jamie K.(1996). "Job insecurity: the consequences of organizational downsizing and the mediating effects of role ambiguity and role overload." Unpublished Ph.D. Dissertation. Texas Christian University, DAI,57-11B, 7258,87.
- Freeman, S. J. and Cameron, K. S. (1993). Organization downsizing: A convergence and reorientation framework. *Organization Science*, 4, 10-29.
- Good, Charles H.(1995). "Employee downsizing: analysis and effects." Unpublished Masters' Thesis, Southwest Missouri State University.
- Glass, G. V.(1976). "Primary, secondary and meta-analysis of research." Educational Researcher, 5, 3-8.
- Glass, Gene V., McGaw, Barry, and Smith, Mary Lee.(1982). Meta-Analysis in Social Research. Beverly Hills CA: Sage Publications.
- Gore, Al, Vice President.(1993). "From red tape to results: creating a Government that works better and costs less." Report of the National Performance Review Washington, D.C., September 7.
- Greenhalgh, L.(1979). Job security and the disinvolvement syndrome: An exploration of patters of worker behavior under conditions of anticipatory grieving over job loss. Unpublished doctoral dissertation, Cornell University.
- Greenhalgh, Leonard, Lawrence, Anne T., and Sutton, Robert I.(1988). "Determinants of workforce reduction strategies in declining organizations." Academy of Management Review,13(2), 241-254.
- Greenhalgh, Leonard and Rosenblatt, Zev(1984). "Job Insecurity: Toward conceptual clarity." Academy of Management Review, 9,438-448.
- Greenhalgh, L.(1983a). "Managing the job insecurity crisis." Human Resource Management, 22, 431-444.
- Greenhalgh, L.(1983b). "Organizational decline." In S.B. Bacharach (Ed.), Research in the Sociology of Organizations, Vol.2, Greenwich, Conn.: JAI Press.
- Greenhalgh, L.,and Jick, T.D.(1989). "Survivor sense making and reactions to organizational decline: Effects of individual differences." Management Communication Quarterly, 2, 305-327.
- Hall, D.T. and Mansfield, R.(1971). "Organizational and individual response to external stress." Administrative Science Quarterly, 16, 533-547.
- Henkoff, Ronald (April 6,1990). "Cost cutting: How to do it right." Fortune, 119:40-49.

- Hickok, Thomas A.(1995). "The impact of work force reductions on those who remain: A study of civilian workers at two department of defense bases." Unpublished Dissertation, University of Southern California, Los Angeles, California.
- Hitt, Michael A., Keats, Barbara W., Harback, Herbert F., and Nixon, Robert D.(1994). "Rightsizing: Building and maintaining strategic leadership and long-term competitiveness." Organizational Dynamics.
- Hunter, J. and Schmidt, Frank L.(1990). Methods of Meta- Analysis: Correcting Error and Bias in Research Findings. Newbury Park, California: Sage Publications.
- Hunter, J., Schmidt, F. and Jackson, G.(1982). Meta-Analysis. Beverly Hills, CA: Sage Publications.
- Hutchinson, Joe Carruth (1994). An examination of individual level effects of downsizing in a food service organization. UMI.
- Isabella, Lynn A.(1989). Downsizing: Survivors' Assessments. Business Horizons, 32(3), 35-41.
- Jahoda, M.(1982.). Employment and unemployment: A social psychological analysis. New York: Academic Press.
- Jalajas, D. & Bommer,M.(1996). "The effects of downsizing on the behaviors and motivations of survivors." Organization Development Journal, 14(2), 45-54.
- James, Teri-Ann W. and Tang, Thomas Li-Ping(Summer 1996). "Downsizing and the impact on survivors-A matter of justice." Employment Relations Today.
- Jick, T.D.(1979). Process and Impacts of a Merger: Individual and organizational perspectives. Dissertation Abstract International, Cornell University, Ithica NY, (79-26915).
- Johns, Mertine(1993). "Middle managers' perceived role changes and consequences in downsized organizations." Unpublished Ph.D. Dissertation, Temple University. UMI Number: 9332809, UMI Dissertation Services, Ann Arbor, Michigan.
- Johnson, J.R., Bernhagen, M.J., Miller, V., and Allen, M.(1996A). "The role of communication in managing reductions in workforce: A field test." Journal of Applied Communication Research, 24: 139-164.
- Johnson, J.R., Bernhagen, M.J., Miller, V. and Allen, M. (1996B). "The role of communication in managing reductions in workforce: a field test." Journal of Applied Communication Research, 24:139-164.
- Kozlowski, S.W.J., Chao,G.T., Smith, E.M. and Hedlund, J.(1993). "Organizational downsizing: strategies, interventions, and research implications." In C.L. Cooper and I.T. Robertson (Eds.), International Review of Industrial and Organizational Psychology, 8:263-332. New York: Wiley.

- Kozlowski, S.W.J., Chao, G.T., Smith, E., Hedlund, J., and Walz, P. (1991). Organizational downsizing: individual and organizational implications and recommendations for action. Technical Report 929. US Army Research Institute for the Behavioral and Social Sciences, Arlington, VA.
- Lawler, E.E., and Hall, D. T.(1970). "Relationship of job characteristic to job involvement, satisfaction, and intrinsic motivation." Journal of Applied Psychology,54, 305-312.
- Light, R.J., and Smith, P.V.(1971). "Accumulating evidence: Procedures for resolving contradictions among different research studies." Harvard Educational Review, 41,429-471.
- Lodahl, T.M., and Kejner, M. (1965). "The definition and measurement of job involvement." Journal of Applied Psychology, 49(February), 24-33.
- Luthans, B.C. and Sommer, S.M. (March 1999). "The impact of downsizing on work place attitudes. Group and Organization Management, Thousand Oaks.
- Mansour-Cole, Dina M. and Scott, Susanne G.(1998A). "Hearing it through the grapevine: the influence of source, leader-relations and legitimacy on survivors' fairness perceptions." Personnel Psychology,51.
- Mansour-Cole, Dina M. and Scott, Susanne G.(1998B). "Hearing it through the grapevine: the influence of source, leader-relations and legitimacy on survivors fairness perceptions." Personnel Psychology, 51.
- McClave, James T. and Benson, P. George(1991). Statistics for Business and Economics. San Francisco CA: Dellen Publishing.
- McClune, J. T.; Beatty, R.W.; and Montago, R.V. (1988). "Downsizing strategies practice in manufacturing firms." Human Resource Management Journals, 27:145-161.
- McCormick, David H.(1996). "America's Army in transition: the politics, mechanics, and ramifications of downsizing." Unpublished Ph.D. Dissertation. Prince University. UMI Number:9707291, UMI Dissertation Services, Ann Arbor, Michigan.
- Meyer, J.P., and Allen, N.J.(1984). "Testing the 'side-bet theory' of organizational commitment: Some methodological considerations." Journal of Applied Psychology, 69,372-378.
- Mietlicki, Shirley A.(1996). "Organizational downsizing and its impact upon extension home economists." Unpublished Ph.D. Dissertation, University of Massachusetts Amherst, UMI Number:9639003, UMI Dissertation Services, Ann Arbor, Michigan.
- Mishra, Aneil K. and Mishra, Karen E.(1994). "The role of mutual trust in effective downsizing strategies." Human Resource Management, 33(2):261-279.
- Mohrman, S.A., and Mohrman, A.M.,Jr.(1983). "Employee involvement in declining organizations." Human Resource Management, 22,445-465.
- Moorhead, G. and Griffin, R.G.(1992). Organization Behavior(3rd ed.). Princeton: Houghton, Mifflin.

- Moorman, R.(1991). "Relationship between organizational justice and organizational citizenship behaviors: Do fairness perceptions influence employee citizenship?" Journal of Applied Psychology, 76,845-855.
- Morrall, Abraham, Jr.(1996). "The effect of downsizing survivors perceived inequity: impact and perception." Unpublished Dissertation, Nova Southeastern University. UMI Number:9729053, UMI Dissertation Services, Ann Arbor, Michigan.
- Mowday, R.T. (1979). Equity theory predictions of behavior in organizations. In R. M. Steers & L.W. Porter (Eds.), *Motivation and work behavior*, (124-146). New York, NY: McGraw-Hill.
- Mowday,R.T., Steers, R.M.,& Porter,L.W.(1979). "The measurement of organizational commitment." Journal of Vocational Behavior,14,224-247.
- Mowday, R.T., Porter,L.W., and Steers, R.M.(1982). Employee-organization linkages: The psychology of commitment, absenteeism, and turnover. New York: Academic Press.
- National Academy of Public Administration,(August 1995). "Effective downsizing: A compendium of lessons learned for government organizations."
- National Academy of Public Administration,(March 1997). "Downsizing the federal workforce: effects and alternatives."
- Neal, Annmarie (1993). "Surviving downsizing: an organizational case study." Unpublished Dissertation, Berkeley/Alameda.
- Noer, D.M.(1987). "The effects of involuntary people reductions on those who remain within organizational systems: an investigation of the pathology, prognosis, and value orientation of layoff survivor sickness." Ph.D. Dissertation. George Washington University, Washington, D.C.,(4903A).
- Noer, D.M. (1993). Healing the Wounds: Overcoming the Trauma of Layoffs and Revitalizing Downsized Organizations, San Francisco: Jossey-bass Publishers, Inc.
- O'Hare, Donald A. and Vilardi, Carmine F. (1994). A meta-analytic study of downsizing: behaviors and attitudes prevalent among survivors. Thesis. Air University: Air Force Institute of Technology - U.S. Department of Technology, Wright-Patterson Air Force Base, OH. Commerce, National Technical Information Service.
- Olson, Ingrid C.(1995). "Measuring the impact of organizational downsizing and restructuring on general duty nurses in a large acute care hospital," Thesis for Master's Degree, University of Manitoba, Winnipeg, Manitoba.
- O'Sullivan, Elizabethann and Rossel, Gary R.(1995). *Research methods for Public Administrators*. White Plains, NY: Longman Publishers.
- Owen, Sharon L.(1994). "An assessment of senior-grade civil-servant perceptions of an organizational reduction within the Defense Department." Ph.D. Dissertation, Walden University, UMI Order Number:9520581, UMI Dissertation Services, Ann Arbor, Michigan.

- Owyar-Hosseini, Marion (1990). "An examination of individual level responses to decline and downsizing in the savings and loan industry." Unpublished Ph.D. Dissertation, University of Houston, University Park.
- Pedersen, Larry B.(1991). "The effects of organization downsizing on the survivor work force: An investigation of the of the effects of layoff process on work performance of those who remain within the organizational system (layoff survivors)." Ph.D. Dissertation, NOVA University, 0166, (52-08A) AAG9201081.
- Pillemer, D.B. and Light, R.J. (1980). "Synthesizing outcomes: how to use research evidence from many studies." Harvard Educational Review,50,176-195.
- Price, J.L., and Mueller,C. (1981). "A casual model of turnover for nurses." Academy of Management Journal, 24:543-565.
- Rabinowitz, S., and Hall, D.T. (1977). "Organizational research in job involvement." Psychological Bulletin,84,265-288.
- Redfield, David M.(1994). "An evaluation of factors related to the management of personnel reductions within the Department of the Navy." D.B.A. Dissertation, United States International University, UMI Order Number:9502365, UMI Dissertation Services, Ann Arbor Michigan.
- Rusbult, C.E., Farrell, D., Rogers, G., and Mainous, A.G. (1988). "Impact of exchange variables on exit, voice, loyalty, and neglect: An integrative model of responses to declining job satisfaction." Academy of Management Journal,31:599-627.
- Thompson, A.S. and Davis, J.A.. "What workers mean by security." Personnel Psychology, 1956, 9, 229-241.
- Tombaugh, Jay R. and White, Louis P.(Summer 1990) . "Downsizing: an empirical assessment of survivors' perceptions in a postlayoff environment," Organization Development Journal.
- Scheier, M.F. and Carver, C.S.(1985). "Optimism, coping, and health: Assessment and implications of generalized outcome expectancies." Health Psychology, 4,219-247.
- Schwartz, H.A.(1980). Job involvement, job enrichment and obsession-compulsion. Paper presented at the annual meeting of the Eastern Academy of Management, Buffalo.
- Shaw, James B. and Power-Barrett, Elain (1997). "A Conceptual Framework for Assessing Organization, Work Group, and Individual Effectiveness During and After Downsizing." Human Relations,50(2),109-127.
- Wilson, Elizabeth Q.(1995). "Effects of corporate downsizing on survivors: an empirical assessment." Thesis Master of Arts, University of North at Charlotte.
- Whetten, D.A.(1980). Sources, responses, and effects of organization decline. In J.R. Kimberly and R.H. Miles (Eds.), The organizational life cycle: Issues in the creation, transformation and decline of organizations., 342-374. San Francisco: Jossey-Bass.

Young, Susan and Hazel N. Brown (September-October 1998). "Effects of hospital downsizing on surviving staff." *Nursing Economics*, Vol.16(5).

Zander, A.(1979). The psychology of group. In M. Rosensweig and L. Porter (Eds.), Annual Review of Psychology, 30, 417-452.

Appendices

APPENDIX A

META-ANALYSIS EQUATIONS AND COMPUTATION METHODS

1. Corrected Correlation.....
2. Weighted Average Corrected Correlation.....
3. Weighted Average Squared Error (Variance).....
4. Estimated Population Variance.....
5. t-Test Statistic.....
6. Confidence Interval.....
7. Fisher Transformation.....
8. Fisher Transformation (Population Adjustment)...
9. Fisher Interval.....
10. Credibility Interval.....
(Inverse of Fisher Transformation)

Meta-Analysis

Equations and Computation Methods

The result of each selected study included the reliability of the measurement used in the formula below for determining the actual correlation (the true correlation measured by a perfect study) between the psychometric variables. The corrected correlation is equal to the observed correlation (with associated variance) divided by the square root of the reliability of the measurement as given below:

$$(1) \quad r_c = \frac{r_{xy}}{\sqrt{r_{xx}r_{yy}}}$$

(Hunter and others, 1982:57)

where r_{xy} is the correlation between the selected psychometric variables; r_{xx} is the reliability of the first measurement; and r_{yy} is the reliability of the second measurement. For an example, if we assume that the reported correlation between variables X and Y was 0.30 and their reliabilities (Cronbach's Alpha for example) for variables X and Y are 0.80 and 0.70 respectively, then the corrected correlation (r_c) is 0.40. The correlation has been reduced by 0.10 from its true value through artifactual attenuation (Hunter and Schmidt, 1990:46). These reliability values were normally reported in each downsizing study and required in those studies selected for inclusion in this meta-analysis. If the researchers used the same instruments, they would have the same reliability; but, not all studies reported the instrument used. Most authors reported Cronbach's Alpha as the measure's reliability, while some reported both the Cronbach's Alpha coefficient and a Split-Half Correlation. According to Hunter and Schmidt (1990), Cronbach's Alpha coefficient provides the most utility of the internal consistency estimates common with self-reported measures for multi-item scales at the interval level of measurement. It was found to be the most universal and readily available measure of reliability, and is therefore used by most survey researchers.

Error of Measurement and Sampling Error.

The variation in the error of measurement across studies is the second largest source of variation across studies in most areas of study. The error of measurement for each paired variable was the first statistic established and is defined as the unreliability of the correlated variables from a given study.

The amount of error of measurement in a variable is measured by a number called the "reliability" of the variable. The reliability is a number between 0 and 1 that measures the percentage of the observed variance that is due to the true score. That is, if the reliability of the independent variable is .80, then 80 percent of the variance is due to the true score, and by subtraction, 20 percent of the variance is due to error of measurement (Hunter and others, 1982:37).

The calculation process, as indicated above, began with the computation of the corrected correlation, r_c , given by Equation (1).

Hunter, Schmidt, and Jackson stated that: "If the population correlation is assumed to be constant over studies, then the best estimate of that correlation is not the simple mean across studies, but a weighted average"(Hunter and others, 1992:40).

The weighted average was calculated using the following equation:

$$(2) \quad \bar{r}_c = \frac{\sum N_i r_i}{\sum N_i} \quad (\text{Hunter and others, 1982:41})$$

where $r_i = r_c$ and is the corrected correlation, and N is the total number of participants in that study.

The weighted average squared error (variance) is given as follows:

$$(3) \quad S_r^2 = \frac{\sum (N_i (r_i - \bar{r}_c)^2)}{\sum N_i}$$

(Hunter and others, 1982:41)

Hunter and others present the following formulas to estimate the population variance, corrected for the sampling errors:

$$(4) \quad s_p^2 = s_r^2 - s_e^2 = S_r^2 - \frac{(1 - \bar{r}_c^2)^2 K}{N}$$

(Hunter and others, 1982:44)

where K is the number of studies, N is the total sample size of K studies, and r_c is the weighted averaged corrected correlation for a given pair of variables, combined across studies. In terms of error of measurement and sampling error, the result of the error of measurement is given by the corrected correlation(r_c), and the sampling error is given by the corrected population variance. The population variance and the corrected correlation represent the true parameters of downsized populations for the respective paired variables. This result was determined by comparing the test statistic to the critical t-value given for the stated significance level. The significance of the true correlation is established by the test statistic and is calculated by the equation below.

$$(5) \quad t - \text{Test Statistic} = \frac{r}{\sqrt{(1 - r^2) / (N - 2)}}$$

(McClave and Benson, 1991:484)

where r is the variables' weighted average corrected correlation (\bar{r}), $N-2$ are the degrees of freedom, and N is the total sample size of K studies for each variable pair.

The confidence interval gives the probability that the interval contains the true population correlation. Calculation of this interval is given by equation (6) below:

$$(6) \quad \text{Confidence Interval} = r \pm z_{\alpha/2} \frac{S}{\sqrt{N}}$$

(McClave and Benson, 1991:312)

where $r = \bar{r}$ the weighted average corrected correlation, S is the standard deviation of the corrected correlation or the square root of the population variance (corrected), N is the total sample size of K studies, and z is 1.96. The confidence interval indicates a 95 percent chance that the interval presented contains the correlation. This probability statement makes a claim with respect to the interval, and not the population's correlation. Confidence intervals were constructed to show the difference between it and credibility intervals.

The credibility interval indicates a probability that the true population correlation is included in the interval presented. This statistic was generated by substituting the weighted average corrected correlation (\bar{r}) into equation (7) below, and solving for m'' .

$$(7) \quad m'' = 1/2 \ln \frac{1+r}{1-r}$$

(Microsoft, 1993: FISHER Function Help Key)

where m'' is the Fisher transformation and $r = r_c$. A population adjustment S is the square root of the inverse of the total sample size of K studies, given below by equation (8):

$$(8) \quad S = \sqrt{1/N}$$

(Phillips, 1983:282).

The S value and the z value for a 95 percent probability (1.96) were substituted into equation(9) below, to arrive at a high and low zeta(--).

$$(9) \quad m'' - zS \leq \text{zet a} \leq m'' + zS$$

(Phillips, 1983:282)

The high and low values for r may then be re-derived by substituting the high and low values for zeta, into equation (10) below. The Fisher transformations produce a function that is normally distributed. They may be created using Microsoft Excel™ version 5.0a.(Microsoft,1993: Function Help Key).

$$(10) \quad \text{Credibility Interval for } r_{\text{Low}} \text{ and } r_{\text{High}} = \frac{e^{2\text{zet a}} - 1}{e^{2\text{zet a}} + 1}$$

(Microsoft,1993:FISHERINV Function Help Key)

The high and low values given by this formula, represent the 95 percent credibility interval, indicating a 95 percent chance that the true correlation is contained in the interval calculated. The probability statement focuses on the population's correlation rather than the interval.

Appendix B
Computation of t-Test Statistic

Computation of t-Test Statistic

r	r ²	N	t-test statistic	t-critical (left)	t-critical (right)	Remark	Hypothesis
0.28	0.0784	558	6.877398571	-1.96	1.96	REJECT H0	H0 = There is no correlation
0.49	0.2401	1480	21.61001532	-1.96	1.96	REJECT H0	H1 = There is correlation
-0.73	0.5329	1123	-35.76191221	-1.96	1.96	REJECT H0	
-0.24	0.0576	809	-7.02312455	-1.96	1.96	REJECT H0	
-0.53	0.2809	809	-17.75489027	-1.96	1.96	REJECT H0	
0.59	0.3481	677	18.98512267	-1.96	1.96	REJECT H0	
0.84	0.7056	1375	57.3648222	-1.96	1.96	REJECT H0	
0.29	0.0841	627	7.575546653	-1.96	1.96	REJECT H0	
0.22	0.0484	356	4.243235103	-1.96	1.96	REJECT H0	
-0.73	0.5329	804	-30.24858828	-1.96	1.96	REJECT H0	
0.17	0.0289	809	4.900650282	-1.96	1.96	REJECT H0	
-0.61	0.3721	677	-20.00029861	-1.96	1.96	REJECT H0	
0.32	0.1024	558	7.964269585	-1.96	1.96	REJECT H0	
-0.32	0.1024	211	-4.882943503	-1.96	1.96	REJECT H0	
0.19	0.0361	211	2.797761914	-1.96	1.96	REJECT H0	
0.42	0.1764	211	6.690587649	-1.96	1.96	REJECT H0	

Vita

Gladys B. West

Gladys B. West was born in Dinwiddie County, Sutherland, Virginia and educated in the public schools of Dinwiddie County, Dinwiddie, Virginia. She received a Bachelor of Science degree and a Master of Science degree in mathematics from Virginia State University in Petersburg, Virginia, a Master of Arts degree in Public Administration from the University of Oklahoma in Norman, Oklahoma and a Certificate of Advanced Graduate Study in Public Administration from Virginia Polytechnic Institute and State University in Blacksburg, Virginia. Her research focus has been in the area of management, organizations, and downsizing.

Mrs. West was employed as a mathematician at the Naval Surface Warfare Center, Dahlgren Laboratory, Dahlgren, Va. before her retirement in 1998. Her employment there consisted of the management and programming and coding of scientific and research problems for large scale computers. The scientific problems pertained to computation of satellite orbits, geoid heights, and satellite tracking. Before coming to the Naval Surface Warfare Center in Dahlgren, Virginia she taught high school for two years.