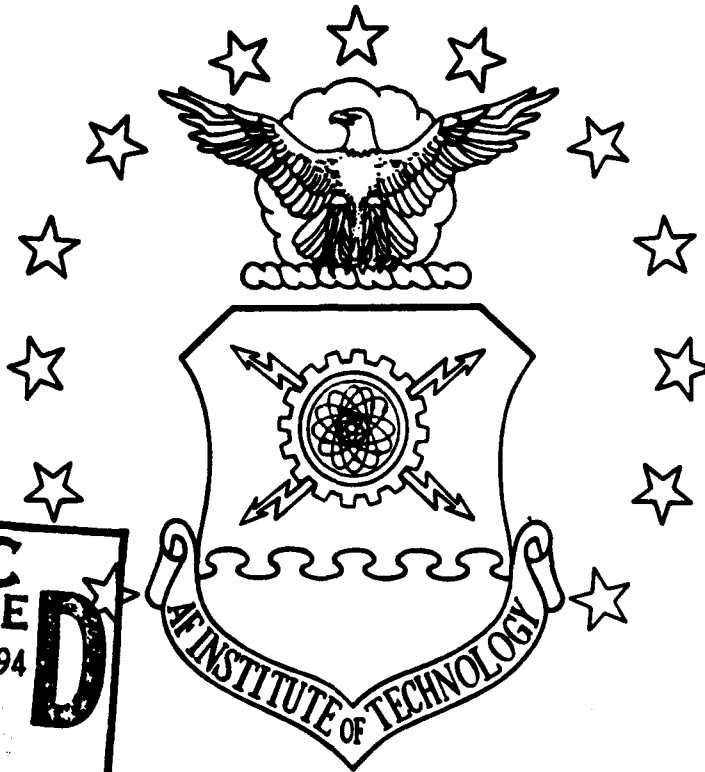
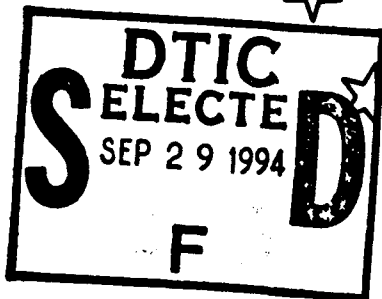


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**A META-ANALYTIC STUDY OF DOWNSIZING: BEHAVIORS  
AND ATTITUDES PREVALENT AMONG SURVIVORS**

**THESIS**

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**AFIT/GLM/LAR/94S-29**

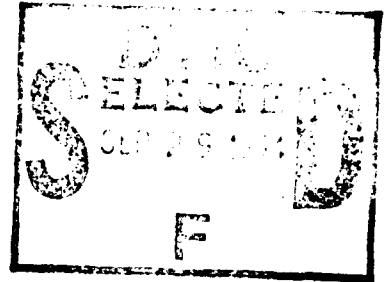
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**Wright-Patterson Air Force Base, Ohio**

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**A META-ANALYTIC STUDY OF DOWNSIZING: BEHAVIORS AND  
ATTITUDES PREVALENT AMONG SURVIVORS**

**THESIS**

Presented to the Faculty of the School of Logistics and Acquisition Management  
of the Air Force Institute of Technology  
Wright State University  
in Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Logistics Management

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September 1994

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## **Preface**

This thesis explores, through Meta-Analysis, the behaviors and attitudes prevalent among survivors of a downsized organization. The insight developed through our research should assist managers and supervisors of tomorrow's workforce and help prepare them for the environment they will undoubtedly face. This environment consists of managing and supervising survivors of downsized organizations. The credibility intervals calculated contain the true population correlations for the variable relationships studied.

Our application of Meta-Analytic techniques coupled with an exhaustive pursuit of data in terms of published and unpublished studies on the subject would not have been possible without the guidance and assistance of our advisors. We recognize and thank Professors Freda F. Stohrer (Ph.D.) and Guy S. Shane (Ph.D.) for their patience, support, motivation, supervision, and tutelage. We sincerely acknowledge their personal sacrifices as they guided us through the process.

Further, we extend a special note of appreciation to Professor Marjorie Armstrong-Stassen (Ph.D.), University of Windsor, Ontario, Canada for her assistance in disclosing much of the data employed in this thesis.

We also wish to thank our wives and children for their love and belief in us. We understood and also experienced the forfeiture of personal and family time in completing this thesis. Finally, we acknowledge and extend a special thanks to our parents and God, without whose nurturance and blessing none of this would have been possible.

Carmine F. Vilardi

Donald A. O'Hare

## Table of Contents

	Page
Preface . . . . .	ii
List of Equations . . . . .	vii
List of Figures . . . . .	viii
List of Tables . . . . .	ix
Abstract . . . . .	x
I. Introduction and Literature Review . . . . .	1
Research Questions . . . . .	1
Approach . . . . .	2
Definition of Key Terms . . . . .	3
Literature Review: Downsizing . . . . .	4
Variables Defined . . . . .	7
Perceived (Procedural) Justice . . . . .	8
Organizational Commitment . . . . .	10
Job Performance . . . . .	12
Job Security . . . . .	12
Turnover Intention . . . . .	13
Coping Strategies . . . . .	14
Supervisor Support . . . . .	14
Co-Worker Support . . . . .	15
Personal Efficacy . . . . .	15
Optimism . . . . .	16
Job Satisfaction . . . . .	16
Organizational Morale . . . . .	17

	Page
Expected Results . . . . .	18
Chapter Summary . . . . .	18
II. Methodology . . . . .	20
Introduction to Chapter . . . . .	20
Meta-Analysis . . . . .	20
Cumulation Procedures . . . . .	21
Study Artifacts and Their Impact on Study Outcomes . . . . .	21
Cumulating Correlations Across Studies . . . . .	24
Error of Measurement and Sampling Error . . . . .	25
Criteria for Study Selection . . . . .	29
Results of Literature Search . . . . .	30
Study Analysis Technique . . . . .	32
Method for Our Questionnaire . . . . .	33
Chapter Summary . . . . .	38
III. Findings . . . . .	39
Introduction to Chapter . . . . .	39
Discussion . . . . .	39
Chapter Summary . . . . .	43
IV. Conclusions and Recommendations . . . . .	44
Introduction to Chapter . . . . .	44
Conclusions . . . . .	44

	Page
Recommendations . . . . .	46
Summary . . . . .	49
Appendix A: Statistics for Our Questionnaire . . . . .	50
Appendix B: Meta-Analysis and Artifacts:	
Table 1: Organizational Commitment and Job Security . . . . .	51
Table 2: Organizational Commitment and Procedural Justice . . . . .	52
Table 3: Organizational Commitment and Turnover Intention . . . . .	53
Table 4: Organizational Commitment and Job Performance . . . . .	54
Table 5: Organizational Commitment and Supervisor Support . . . . .	55
Table 6: Organizational Commitment and Coping Strategies . . . . .	56
Table 7: Organizational Commitment and Co-Worker Support . . . . .	57
Table 8: Job Security and Coping Strategies . . . . .	58
Table 9: Job Security and Turnover Intention . . . . .	59
Table 10: Job Security and Organizational Morale . . . . .	60
Table 11: Job Security and Optimism . . . . .	61
Table 12: Job Security and Co-Worker Support . . . . .	62
Table 13: Job Performance and Optimism . . . . .	63
Table 14: Job Performance and Supervisor Support . . . . .	64
Table 15: Procedural Justice and Job Security . . . . .	65
Table 16: Procedural Justice and Organizational Morale . . . . .	66
Table 17: Supervisor Support and Co-Worker Support . . . . .	67
Table 18: Job Satisfaction and Turnover Intention . . . . .	68
Table 19: Personal Efficacy and Optimism . . . . .	69



	Page
Appendix C: Questionnaire Instructions . . . . .	70
Appendix D: Questionnaire Instrument . . . . .	71
Appendix E: Questionnaire Key, Reverse Scored Items, and Deleted Items . . . . .	89
Appendix F: SAS Program for Split-Half and Cronbach's Alpha . . . . .	91
Appendix G: SAS Program for All Variable Correlations . . . . .	99
Bibliography . . . . .	105
Vitae . . . . .	110

**List of Equations**

Equation	Page
1. Corrected Correlation . . . . .	23
2. Weighted Average Corrected Correlation . . . . .	26
3. Weighted Average Squared Error (Variance) . . . . .	26
4. Estimated Population Variance . . . . .	26
5. t - Test Statistic . . . . .	27
6. Confidence Interval . . . . .	27
7. Fisher Transformation . . . . .	28
8. Fisher Transformation (Population Adjustment) . . . . .	28
9. Fisher Interval . . . . .	28
10. Credibility Interval (Inverse of Fisher Transformation) . . . . .	28
11. Spearman-Brown's Formula for Split-Half Correlations . . . . .	36

**List of Figures**

Figure	Page
1. Justice Relationship Model . . . . .	10
2. Change Reaction Model . . . . .	47

## **List of Tables**

Table	Page
1. Identified Variables and Respective Reliability Coefficients (Cronbach's Alpha) for Selected Studies . . . . .	31
2. Reliability Analyses on Our Study . . . . .	37
3. Means, Standard Deviations, Reliability Coefficients, and Correlated Variables of Our Study . . . . .	38
4. Summary: Sample Sizes, Correlations, Standard Deviations, and Credibility Intervals . . . . .	40

**Abstract**

Current research into the effect of downsizing, restructuring, and force reduction on employees has approached the issue from many possible vantage points; it has focused on the victims, the survivors, and sometimes both. Researchers in management science and psychology explain responses we can expect from survivors of such a corporate upheaval. These effects are of particular interest to supervisors, because they will inevitably face a workforce, at least partially staffed with such survivors. To clarify possible attitudes and behaviors in tomorrow's work environment, our study tied together, through meta-analysis, results of studies on survivors of a downsized organization. The completed analysis enables managers to preview (in the aggregate sense) a certain set of downsizing survivor responses. A questionnaire was used to gather added data on survivors' reactions to and feelings about their organization. The results were incorporated into the meta-analysis statistics, and credibility intervals established. This interval serves to identify the true population correlations for the variable relationships presented in the current research literature.

**A META-ANALYTIC STUDY OF DOWNSIZING:  
BEHAVIORS AND ATTITUDES PREVALENT AMONG SURVIVORS**

**I. Introduction and Literature Review**

**Introduction**

Though called by various names in different circles in the 1990s, downsizing has become a corporate way of life. In this dynamic environment, considerable attention has been granted the victims (that is, those joining the ranks of the unemployed) and their plight emphasized. Though this reaction is commendable, since it has provided necessary aid to those faced with the instability of transition, the corporate world must recognize yet another issue raised by downsizing. Tomorrow's supervisors will be faced with management challenges in an environment populated predominantly with the survivors of today's organizational tempests. This study employs meta-analysis to evaluate those variables that are discussed in current management research literature and applied consistently across the available studies.

**Research Questions**

This research identifies the behaviors and attitudes prevalent among survivors of downsized organizations. In addressing this specific question, some secondary questions naturally surface, such as:

(1) What are the variables that can be used to measure these behaviors and attitudes?

(2) How are these variables interrelated?

(3) Are current studies on the effects of a downsizing action accurate indicators of the strength of these interrelationships?

(4) Are there identifiable interrelationships among the characteristics measured by the current research studies?

Expanding further on the last point, we asked if one can find a measurable difference in mean correlations between these results. Finally, an inherent objective of this thesis is to develop a meta-analytic framework for the incorporation of future studies of survivors in downsized organizations.

Most studies in this area are focused on the civilian corporate world. To date, no quantitative data on the implications of surviving in the Department Of Defense (DoD) has surfaced. Therefore, to expand the data base, the results of a questionnaire presented to some DoD personnel has been added. We developed the questionnaire, determined its reliability, and analyzed the results. The meta-analysis of all qualifying studies and our questionnaire is presented, and the results are discussed and interpreted.

### Approach

Meta-analysis is a statistical procedure in which two or more previously documented statistical analyses on a given variable are combined. This may be accomplished by averaging study results and yields a measure of significance across the broader population. Simply stated, meta-analysis can be viewed as a means of improving

inferential power across statistical samples. Using meta-analysis to integrate the results of other studies, and to reveal the underlying relations and causalities, one can expand the scope and perspective of the original analyses. The analyses were accomplished by identifying, focusing on, and isolating the forces associated with different reactions exhibited by survivors. The results may then be used to identify the most prevalent survivor's attitudes (and possibly, behaviors) after an involuntary downsizing.

### Definition of Key Terms

**Artifacts:** Those flaws in the research design or inherent limitations in analysis procedures that cause the data to produce less-than-accurate results. Examples include sampling error, restriction of range, error of measurement, (that is, unreliability) and so on (Hunter and Schmidt, 1990:43).

**Average Effect Size:** The "degree to which the phenomenon is present in the population" (Cohen, 1977:9).

**Downsizing:** A management initiative to reduce the employee population in an organization. For the purposes of this study, downsizing represents an involuntary action from the perspective of the employee and is synonymous with "layoff" and "Reduction in Force" (RIF) in the DoD.

**Error of Measurement:** An artifact that comes from the degree to which the instrument contains random error, constant error, contamination, or deficiency. For this research we address only the unreliability of the measurement, or the degree to which the



measurement does not give consistent results, when all other factors remain the same (Hunter and Schmidt, 1990:44).

**Meta-analysis:** A term coined by Gene Glass in 1976 that refers to “the quantitative cumulation and analysis of descriptive statistics studies across studies, without requiring access to original study data” (Hunter and Schmidt, 1990:44).

**Reliability:** A measure that “estimates of the degree to which a measurement is free of random or unstable error. A measure is reliable to the degree that it sup consistent results. Reliability is a contributor to validity and is a necessary but not sufficient condition for validity” (Emory and Cooper, 1991:185).

**Restriction in Range:** A sample study that has been pre-selected and does not represent the overall population. This is a commonly occurring artifact corrected for through meta-analysis techniques though not applicable to this study (Hunter and others, 1982:61).

**Sampling Error:** The degree to which the sample falls short of representing the true characteristics of the population (Hunter and others, 1982:40-41).

### Literature Review: Downsizing

For the last decade, “reorganization,” “downsizing,” “realignment,” and similar terms have pervaded descriptions of corporate strategy. As companies attempt to reduce costs and operate more efficiently, many of these strategies have been implemented. As a result, a previously stable employment market has become unstable, and the workforce

justifiably insecure. Though corporations have adopted euphemisms, suggesting a more benevolent action, the initiatives still tend to result in layoffs, force reductions, and unemployment. Cameron states "More than 85 percent of Fortune 1,000 firms downsized between 1987 and 1991, with more than 50 percent of them downsizing in 1990 alone" (1991:58). Likewise, the DoD is also engaged in force reductions. As Silverberg remarked in 1993,

1995 promises a fiscal bloodbath. A foretaste was delivered on 1 September when the Bottom-Up review canceled four major programs, cut funding for an aircraft carrier and 55 ships and submarines, and reduced uniformed personnel by 160,000. (1993:7)

Actions such as these have an economic affect that permeates the nation. Decreased funding in government programs forces a reduction in government contracts, which causes secondary and tertiary effects in the civilian sector. As a result of such initiatives, employees logically will fall into two separate and distinct groups: those who are victims, and join the ranks of the unemployed, and those who survive. Management has focused much of its attention on easing the burden for the victims in transition, and to that end, many programs have been instituted. Personnel managers have been given tools and counseling techniques to help the employee in transition.

Just knowing the possibilities and how to pursue them dramatically reduces the anxiety employees inevitably feel. Additionally, counseling helps find ways to ease the negative effects of employment transition, including secondary effects such as direct and indirect unemployment costs, diminished self-esteem, and the potential spin-offs (alcoholism, family breakup, suicide, etc.) that often accompany stressful situations.(Office of the Assistant Secretary of Defense, 1992:2-9)

The effect previously noted, when more widespread, can permeate the society at large.

People are literally at sea. Their identity is gone. When a number of companies are cutting back at the same time, that effect is magnified. 'The ripple effect goes far beyond the people laid off, their family, their friends...It's a rending of the fabric of a community.' (McCarty, 1993:8A)

Obviously a need exists to focus attention on the victims. Relatively little is known about the survivors, however, and much less emphasis has been placed on aiding them. Managers of tomorrow will be faced with the challenges associated with supervising a group of such survivors. From the organizational perspective, the problems facing the remaining workforce, and identifying the most effective way of dealing with these issues, would seem to be more salient.

Noer (1990:3) stated that employees surviving a downsizing often experience fear, anxiety, depression, and guilt. He also stated that such people also tend to avoid risk and lack organizational commitment. Keichel, in 1985, also stated that the effects of downsizing can last three years or more, and personnel may experience increases in stress, conflict, and role ambiguity. Furthermore, the company could experience a decrease in worker satisfaction and job involvement. This, coupled with dissatisfied leadership and co-workers, can culminate in a diminishment of the quality of efforts within the organization.

Coincidental with the reductions, both corporations and government are attempting to adopt world-class standards in all areas. The managers primarily responsible for meeting these standards are left with the unenviable task of facilitating such an accomplishment with personnel who may be suffering these effects. The managers themselves may also be members of a survivor group, and may face some of

the same stresses as their subordinates. On the other hand, they may have been lay-off victims during a previous organizational maneuver and may have been hired by the company that is currently experiencing the change. This latter category may magnify the effect both in the supervisor's disposition, and the subordinates' reactions (Brockner and Wiesenfeld, 1993:120).

Much of the empirical work in this crucial but little researched area has been accomplished by Dr. Joel Brockner of Columbia University and Marjorie Armstrong-Stassen of The University of Windsor. Brockner concentrated mainly on the survivors' perception of the fairness and justice in downsizing an organization. "Justice" itself had to be defined in three distinct fashions: distributive justice (how the victims were selected for layoff), procedural justice (the fairness of the action and timing of the layoff notice), and interactive justice (the availability of support for the victim). Armstrong-Stassen selected a different approach, researching levels of trust, commitment, and coping abilities among employees after the layoff occurs. Both researchers found a correlation between the survivors' perception of the necessity for the downsizing, the mechanics of the downsizing effort, and the trust and commitment shown by employees afterward.

### Variables Defined

Many of the studies we researched identified variables that either were not addressed in other studies, or had inconsistent operational definitions. By using only those data that remained consistent across studies we were able to avoid convoluting the

analysis. The remaining variables, then, to be presented in this study include perceived (procedural) justice, organizational commitment, job performance, job security, turnover intention, coping strategies, supervisor support, co-worker support, personal efficacy, optimism, job satisfaction, and organizational morale.

#### Perceived (Procedural) Justice

Perceived injustice and insecurity have been identified in both the theoretical and empirical literature as key mediating variables between a workforce reduction and layoff survivors' responses to the reduction (Brockner and Greenberg, 1990:22). Lerner states that a "sense of justice is at the core of a person's reaction to conditions of scarcity or unexpected change" (1981:13). Brockner and Greenberg suggest that in the case of workforce reduction, jobs may be viewed as scarce resources, (1990:23). Survivors' sense of justice may be undermined by the perceived unfairness in management or implementation of the layoff (procedural justice), the company's justification for the layoff (interactional justice), or by the decision criteria determining which employees get to stay and which are forced to leave (distributive justice).

Procedural justice centers on the procedures by which the outcome distributions are determined. A major constituent of procedural justice is the decision rule used to determine which employees to terminate and which to retain. Decision rules that are perceived as arbitrary are more likely to generate perceptions of injustice. Indeed, employees are more likely to be concerned about procedural justice issues during a layoff (Brockner and Greenberg, 1990:24). If this is the case, perceived unfairness generated by

evaluation of procedural issues should have a greater negative effect on survivors' responses to a layoff.

Though they are not included in the meta-analysis, interactional and distributive justice are pertinent variables. Interactional justice is a relatively recent concept defined as the quality of interpersonal treatment people receive during the implementation of a procedure (Bies and Shapiro, 1987:213). Bies and Shapiro have emphasized the role social interactions play in the perception of injustice. They define a social account as:

a verbal strategy employed by a person to minimize the apparent severity of the predicament or to convince the audience that the wrongful act is not a fair representation of what the actor is 'really like' as a person. (Bies and Shapiro, 1987:214).

If employees receive a tenuous explanation (or none at all) for cutbacks, they may well perceive injustice.

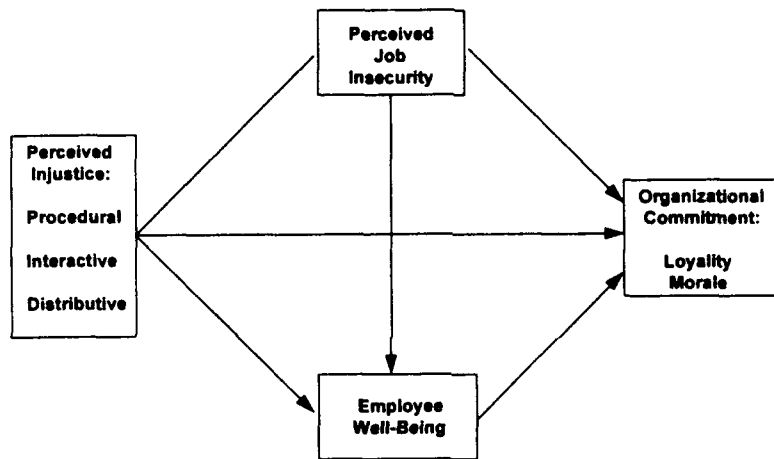
Distributive justice centers on the fairness of the outcome distributions (Deutch, 1985:35) and is best exemplified by equity theory. Equity theory suggests a fair distribution of layoffs across all levels of the organization, with all populations equally represented. Job survivors may experience positive inequity and subsequent guilt after witnessing the layoff of co-workers. However, it is more likely that survivors will perceive that their own jobs are in jeopardy (Brockner and others, 1985:11).

Figure 1 represents the relationships examined. Perceived job insecurity may mediate among the three types of justice and the outcome variables, and assesses the degree of worry about job security, the likelihood of being laid off, and the expectations for the future of the company. Employee well-being (the current standing of employees)

is also posited as mediator among perceived justice, perceived job insecurity, and organizational commitment, (loyalty and morale).

### Organizational Commitment

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.



(Armstrong-Stassen, 1993:44)

Figure 1. Justice Relationship Model

Thus, survivors who perceive a workforce reduction as unfair are more likely to experience negative reactions. What measures, then, does management need to take for employees who have survived the cut? When and how should these measures be accomplished in order to diminish the potential ill effects among survivors? According to the current literature, only communication and planning are effective in belying the negative effects of downsizing. Each of these factors alters the dimensions of the individual's concept of commitment to the organization.

Most definitions of organizational commitment include three components: belief in the organization's goals or values (role ambiguity), willingness to expend extra effort on the organization's behalf (work ethic), and intention to remain with the organization (turnover) (Brockner and others, 1992:424).

The prediction that people who were most highly committed will react most negatively when they perceive unfairness, is consistent with the concept of the psychological contract (Brockner and others, 1992:423). Essentially, over time, members of an organization develop a sense of entitlement, they perceive obligations that their employers have towards them. If the company is perceived as unfair, the individuals are more likely to believe that the company did not live up to its end of the bargain: the company had breached its psychological contract. However, recent studies have shown that survivors' reactions depend on the perceived fairness of the layoff (Brockner and others, 1987:539). These reactions are manifested in the quality of care-taking (that is, outplacement and severance compensation) offered to the layoff victims and the organization's attempt to provide a clear and adequate explanation of the reasons for the layoff, coupled with the severity of the layoff. In addition, the survivor's perception of being valued and cared about cannot be over-emphasized. Organizations which demonstrate that they sincerely value their employees prior to as well as after the reduction stand a much better chance of shortening the survivors' initial reaction period as well as reducing its duration (Eisenberger and others, 1990:52).

From a manager's perspective, organizational commitment is an extremely important attitude to foster in subordinates, probably even more important than job per-



formance. Those who are committed are more likely to take the extra steps necessary to further the company's objectives.

Interestingly, it was found that individuals who had a high level of commitment beforehand exhibited a sharp decline in commitment if their experience with the organization was negatively discrepant from their prior beliefs (Brockner and others, 1992:260).

### Job Performance

Armstrong-Stassen presents a hypothesis on the possible correlation between commitment to the organization and performance on the job (Armstrong-Stassen, 1994:15). This hypothesis is presented primarily in the context of its association with control-type coping strategies. That is, to say 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. This definition applies to the employees' assessment of their own performance.

### Job Security

Greenhalgh and Jick argue that managers and researchers must understand job security as "a crucial phenomenon" because of its impact on effectiveness (1989: 306). They correlate worry about job security to effort, as well as likelihood to resign (or turnover intention). The definition for job security, like other more common variables is self evident. In this application, however, the definition is focused on the employees' assessments of their jobs, that is, how certain are they about their future within the

organization. The complement to this application addresses the likelihood of being laid off.

Though job security is easily defined (or so it seems), its effects on both personnel and organizations are much more elusive. Insecurity has been positively correlated with decreased performance as well as propensity to leave. This reaction further exacerbates an already strained environment, and can “accelerate a job insecurity problem into a crisis that can paralyze organizational functioning” (Greenhalgh and Jick, 1989:306).

### Turnover Intention

Turnover intention, or intent to quit, has to do with the employees' plans for continued employment with the company. Greenhalgh, as previously mentioned, 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 commitment are not yet understood. Davy, Kinicki, and Scheck 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, 1991:305)

Independent of the direction of these causal relationships, it is clear that there are strong correlations among these variables.

### Coping Strategies

Coping, is defined as “the cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Armstrong-Stassen, 1994:4). Coping may be expressed and manifested in a variety of ways. Control coping includes proactive, (usually positive) actions and mindsets. Escape coping, on the other hand, includes avoidance. Actions in the former case can take various forms such as working harder, longer hours, positive thinking, and help seeking. In the latter case, escape coping can take the form of ignoring issues, suppressing thoughts, waiting for “time to heal the wounds”, etc. Armstrong-Stassen hypothesized correlations between coping and (among others), organizational commitment, threat of job loss, job performance, and turnover intention. Due to the limited availability of research in this area, only the first combination can be presented in this study.

### Supervisor Support

Supervisor support has to do with the emotional and instrumental support offered employees by supervisors. Brockner points out that expected employee reactions include “a wide range of emotions, including anxiety, anger, relief, guilt, and envy” (1992:19). He goes on to discuss 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, 1992:19). Items relating to this topic include such points as how much immediate supervisors listen

to problems, provide assistance, and go out of their way for the employee. Supervisor support has been correlated with organizational commitment and job performance, as well as with co-workers' support.

### Co-Worker Support

Surprisingly, co-worker support and supervisor support are presented as positively correlated. Which is the antecedent variable, however, may be a point for debate. Social support is defined as the set of resources provided by other persons (Armstrong-Stassen, 1994:8). These resources may include both co-worker and supervisor support. A focused measurement instrument can be used to differentiate between the two. Specifically, Caplan, Cobb, French, Harrison, and Pinneau developed measurement scales for both supervisor and co-worker support, which are presented as sub-scales to the social support measurement instrument (Armstrong-Stassen, 1994:18). Data presented in this research include correlations between co-worker support and organizational commitment, as well as job security.

### Personal Efficacy

Also termed 'mastery,' personal efficacy has to do with the employees' level of control and sufficiency on the job. These variables are related to the personal control one has over the future, regarding life's chances. That is to say, the employee may perceive the future either as under his or her control or the result of fate. Armstrong-Stassen proposes a sense of mastery to be positively associated with control-oriented coping strategies. Another correlation, efficacy with optimism, states that people who feel they

are in control of their future maintain a more positive outlook, and as a result, tend to interact with their environment more positively.

### Optimism

Optimism, a fairly well-understood concept, is defined as a positive outlook and a belief that good things will happen. Though this may not seem important on the surface, Armstrong-Stassen states 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” (Armstrong-Stassen, 1994:6). Optimistic viewpoints help people engage their environment in a more active and congenial way, facilitating better chances for success. This concept is explored through items such as positive thinking and a positive disposition or outlook.

### Job Satisfaction

Job satisfaction is another concept that is easy to comprehend but difficult to describe. The effect of satisfaction on the employee may also be more powerful than previously thought. Dissatisfaction has been identified to relate directly to unchallenging, repetitive jobs and accompanies both physical and emotional ill health. French stated “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...” (1992: 410). He further argues that the debilitating effect of under utilization causes anxiety and job dissatisfaction. Davy, Kinicki, and Scheck observe that job satisfaction and commitment “may somehow mediate the effect of job security on behavioral intent to withdraw,” and

assert that job security may “affect job satisfaction, which in turn mediates security’s effect on commitment” (1991:305).

Job satisfaction has been measured across the studies, with items factored into both intrinsic and extrinsic dimensions. Job satisfaction has been positively correlated with organizational commitment and negatively correlated with turnover intention.

### Organizational Morale

Morale, another intangible, has been identified as causing both social and somatic problems. From the somatic perspective, stress and discomfort on the job have been historically tied to employee health problems. “The experience clearly demonstrates that the most important factors in health are the intangibles ... In terms of preventing heart disease, it’s just possible that morale is more important than jogging or not eating butter” (French, 1991:15). From the organizational perspective, morale issues are understood to drive decreases in areas such as commitment and satisfaction, which may be manifested in problems with productivity and quality. The employees’ understanding of their job security is also understood to have an impact on morale. Another correlation, that of morale and justice, has also been alluded to in the literature. Armstrong-Stassen operationalizes the concept of morale as exhibited through feelings of enthusiasm and optimism. Correlations between morale and both job security and employees’ views of procedural justice are presented.

### Expected Results

The statistical measures of the variables presented in earlier studies can be used to provide data points for meta-analysis. For this study, only those studies that used the same operational definitions were included in any given prior distribution. Many of the studies researched identified variables that were either not addressed in others, or had inconsistent operational definitions. Meticulous care was taken to use only those data with consistent definitions, across studies, to avoid confounds in the analysis. It is to be noted that many studies in new areas of research use variables with the same name, but their measures have entirely different factor structures. The correlations of the remaining variables, then, to be presented in this study include: organizational commitment, job performance, job security, turnover intention, perceived (procedural) justice, supervisor support, co-worker support, personal efficacy, optimism, coping strategies, job satisfaction, and organizational morale. Since the subjects for each study are different, and the overall population diverse, the results should reflect the actual population parameter for the identified variables. As a result, analysis will reveal the magnitude of the meta-analytic "average effect size," or the most powerful estimate of the effects of downsizing on the measures available.

### Chapter Summary

This chapter addressed the problem, interrelationships, complexities, key terms, and definitions of those variables presented in the available literature. Additionally, the chapter discussed meta-analysis, defining its key terms and application. The studies used

comprise an exhaustive search of those published on the subject. The next chapter discusses the approach to the research effort, meta-analytical procedures, study selection criteria, the results of the literature search, and study analysis techniques. Similar information will be presented on our study, conducted with a sample of DOD employees and military members.



## II. Methodology

### Introduction to the Chapter

This chapter delineates the plan for accomplishing the research. It explains the meta-analytic procedure and discusses important aspects of meta-analysis: cumulation procedures, study artifacts and their impact on study results, integration of research findings across studies, and measures required to complete the meta-analysis. The results of the literature search as well as the selection criteria for the studies and variables included in the meta-analysis are also addressed. Finally, the procedures used to conduct and assess our questionnaire are discussed.

### Meta-Analysis

Meta-analysis is simply a statistical analysis of previous statistical analyses. It integrates statistics of prior studies to get a weighted best estimate of the phenomenon being studied. The purpose of a meta-analysis is to improve the statistical power of a phenomenon of interest.

Glass states:

By recording the properties of studies and their findings in quantitative terms, the meta-analysis of research invites one who would integrate numerous and diverse findings to apply the full power of statistical methods to the task. Thus it is not a technique; rather it is a perspective that uses many techniques of measurement and statistical analysis. (Glass and others, 1981:21)

Davis and Steel divide meta-analysis into three steps: (1) conducting an exhaustive search on the topic of the study; (2) extracting and coding the findings and

characteristics of the studies; and, (3) cumulating and summarizing the findings using any number of known inferential and/or descriptive data analysis procedures (1988:175).

By combining the results of many research studies, it is possible to recognize a relationship that was not otherwise apparent. Davis and Steel state that 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” (1988:176).

### Cumulation Procedures

Hunter and others categorize the cumulation of results across the studies into a five-step process as stated:

- (1) calculate the desired descriptive statistic for each study available, and average that statistic across studies;
- (2) calculate the variance of the statistic 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 [sic] to conclude that the relationship considered is always positive (Hunter and others, 1982:28).

### Study Artifacts and Their Impact on Study Outcomes

Hunter and Schmidt (1990:44) identify several artifacts that alter the size of a study correlation in comparison with the actual correlation. They are sampling error,

error of measurement in the dependent variable, error of measurement in the independent variable, range variation 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 transcriptional error, and variance due to extraneous factors (Hunter and Schmidt, 1990: 45).

Our research addresses three major artifacts identified by Hunter and Schmidt as causing the largest variance: sampling error, error of measurement, and variation in range. Error of measurement can be corrected with respect to the variables in this study. The following discussion describes each of these artifacts in greater detail.

Sampling error: Emory and Cooper describe a “good sample” as one whose design “represents the characteristics of the population it purports to represent” (1991: 243). 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 represents 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 sampling error should decrease as the sample size becomes larger (based on the Law of Large Numbers). Thus, a benefit of meta-analysis is that as the sample size increases, the sampling error decreases (Hunter and Schmidt, 1990:44).

**Error of Measurement:** The error of measurement is 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, 1990:44&46). The actual correlation (the true correlation measured by a perfect study) between the psychometric variables is equal to the observed correlation (with associated variance) divided by the square root of the reliability of the measurement as follows:

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

(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. To illustrate, if 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. Moreover, if the researchers used the same instruments, they would have had the same reliability; however, not all studies disclosed the instruments used. Most authors reported the measure's reliability using Cronbach's Alpha, while some reported both the Alpha coefficient and a Split-Half Correlation. Cronbach's Coefficient Alpha was preferred because it 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 also found to be the most universal and readily available measure of reliability, and is therefore used by most survey researchers. Corrected correlations ( $r_c$ ) were calculated for each relationship reported in the meta-analysis.

**Range Restriction:** The population in this research consists of employees who experienced one or more downsizing actions but remained employed in the same organization. Restricted range corrections were not calculated because samples were randomly selected (as stated in each respective study) from among the population of survivors in a downsized organization. In other words, no range-reducing pre-selection of test subjects was apparent in any of the studies reviewed. Furthermore, the standard deviation of the population at large (survivors) is unknown. This criterion is a necessary element to permit this correction.

#### Cumulating Correlations Across Studies

Meta-analysis allows us to correct for many of the sources of error that affect the correlation coefficient (for example, sampling error and error of measurement). Sampling error is corrected by considering the sampling error for the meta-analysis as equal to the sum of the samples in each study. In other words, 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 and others, 1982:33).

We must also know the variance of the correlations across the studies caused by the sampling error. The effect of sampling error on the variance is to add a known constant — sampling error variance. Once calculated, the error variance is 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 standard deviation of population correlations” (Hunter and others, 1982:33&34).

Once the variance caused by sampling error is corrected, the population variance is apparent. This correction allows researchers to estimate the level of population variance across the studies (Hunter and others, 1982:36).

### Error of Measurement and Sampling Error

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 calculation process began with the corrected correlation  $r_c$  (calculated from Equation 1 above) given for each pair of variables.

According to Hunter, Schmidt, and Jackson: “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:

$$\bar{r}_c = \frac{\sum (N_i r_i)}{\sum N} \quad (2)$$

(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.

Accordingly, the weighted average squared error (variance) is given as follows:

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

(Hunter and others, 1982:41)

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

$$\sigma_p^2 = \sigma_r^2 - \sigma_e^2 = S_r^2 - \frac{(1 - \bar{r}_c^2)^2 K}{N} \quad (4)$$

(Hunter and others, 1982:44)

where  $K$  is the number of studies,  $N$  is the total sample size of  $K$  studies, and  $\bar{r}_c$  is the weighted average corrected correlation for a given pair of variables, combined across studies. With respect to sampling error and error of measurement, 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 means of the test statistic, calculated as follows:

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

(McClave and Benson, 1991:484)

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

The confidence interval indicates the probability that the interval contains the true population correlation. This interval was calculated as follows:

$$\text{Confidence Interval} = r \pm z_{.975} \frac{\sigma}{\sqrt{N}} \quad (6)$$

(McClave and Benson, 1991:312)

where  $r = \bar{r}_c$  the weighted average corrected correlation,  $\sigma$  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 reveals a 95 percent chance that the interval presented contains the true correlation. This probability statement makes a claim with respect to the interval, and not the population's correlation. Confidence intervals were constructed to illustrate the difference between it and credibility intervals.

In contrast to this measure, the credibility interval indicates a probability that the true population correlation is included in the interval presented. This statistic was



derived by substituting the weighted average corrected correlation ( $\bar{r}_c$ ) into the equation below, and solving for  $m''$ .

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

(Microsoft, 1993:FISHER Function Help Key)

where  $m''$  is the Fisher transformation and  $r = \bar{r}_c$ . A population adjustment  $S$  is the square root of the inverse of the total sample size of  $K$  studies. It was found as follows:

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

(Phillips, 1983:282)

This value  $S$  and the  $z$  value for a 95 percent probability (1.96) were then substituted into the following equation, to arrive at a high and low zeta ( $\zeta$ ).

$$m'' - zS \leq \zeta \leq m'' + zS \quad (9)$$

(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 the following equation. The Fisher transformations produce a function that is normally distributed. They may be readily created using Microsoft© Excel™ version 5.0a. (Microsoft, 1993:Function Help Key).

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

(Microsoft, 1993:FISHERINV Function Help Key)

In this formula, the high and low values 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.

### Criteria for Study Selection

Certain types of data must be present to qualify a study for use in the meta-analysis procedure. The following criteria were established:

1. The study must present a conclusion that can be transformed into a common statistic (for example, Pearson's  $r$ ,  $t$ -test, and so on.);
2. The sample size must be reported;
3. The study must report a correlation, or other measure that can legitimately be transformed into a correlation coefficient (for example,  $t$ -test); and
4. The study must report the reliabilities of the measures.

In addition to the above criteria, the following requirements were developed:

5. The study must have been performed on survivors, employed in an organization, who experienced a downsizing action.
6. The study must define the psychometric variables measured. An adequate substitute for a definition was an example of a known measure.
7. The correlations reported in the study must be based on a sample that is unique. In other words, the same data cannot be used in more than one study.

Failure to meet any of the seven criteria described above precluded the study from inclusion into the meta-analysis.

### Results of Literature Search

A rigorous literature search yielded only nineteen research studies that examined a variable's relationship in terms of its impact or association with survivors of a downsized organization. Five of those found were purely anecdotal and offered no quantitative data, and consequently, were inadequate. The remaining fourteen are the only quantitative studies published to date. Professor Marjorie Armstrong-Stassen of the University of Windsor and Professor Joel Brockner of Columbia University, the leading researchers on survivors of downsized organizations, verified this claim. Definitions of variables in four of the remaining fourteen studies could not be adequately assessed, were not observed in other studies, or utilized identical samples for their analyses. The ten remaining studies met all the criteria for selection. These resultant studies and the one conducted by us are listed in Table 1, (eleven total studies). This table identifies the author(s) of each study, the year published, the number of survivors participating in the study, and the variables found in each. The variables (left side) and studies (top) in Table 1 are indexed on their respective reliability coefficients (Cronbach's Alpha). Twelve psychometric variables were identified to have common definitions or relevance across eleven studies (ten research studies and our own).

Table 1

Identified Variables and Respective Reliability Coefficients (Cronbach's Alpha) for Selected Studies

Variables/Study	MAS-1	MAS-2	MAS-3	MAS-4	MAS-5	A,C&H	B,G,R&D	B&C	D,K&S	G&J	O&V
Organizational Commitment (OC)	0.89	0.81	0.78	0.78				0.88	0.88		0.80
Supervisor Support (SS)		1*		0.86							0.86
Co-Worker Support (CWS)				0.80							0.76
Personal Efficacy (PE)				0.78		0.73					0.69
Optimism (OP)				0.84		0.78					0.79
Turnover Intention (TI)				0.77				0.76	1*	1*	0.78
Job Performance (JP)		1*		1*		0.76					0.89
Job Security (JS)	0.81	0.96	0.82	0.82	0.82	1*	0.82		0.88		0.76
Coping Strategies (CS)			0.82	0.77							0.91
Procedural Justice (PJ)	0.72	0.83	1*		0.80		0.76		0.90		
Job Satisfaction (JSA)								0.77	0.87	0.68	
Organizational Morale (OM)	0.89		0.89								
Year of Study:	1994	1993	1993	1994	1994	1993	1992	1993	1991	1989	1994
Participants in Study (N):	223	74	200	200	200	345	597	82	88	114	76

\* A reliability of 1 indicates a single item measure.

MAS-1, 2, 3, 4, & 5: Armstrong-Stassen, 1994, 1993, 1993, 1994, & 1994 respectively.  
 A, C, & H: Armstrong-Stassen, Cameron, and Horsburgh, 1993.  
 B, G, R, & D: Brockner, Grover, Reed, and DeWitt, 1991.  
 B & C: Begley and Czajka, 1993.  
 D, K, & S: Davey, Kinicki, and Scheck, 1991.  
 G & J: Greenhalgh and Jick, 1989.  
 O & V: O'Hare and Vilardi, 1994.

### Study Analysis Technique

A heuristic approach was undertaken to the classify each variable's definition and to determine its relationship with others. The approach is described as follows:

1. Variable definitions were identified across studies using the stated definition or an example of the measurement scale as given in the study.
2. Common definitions were determined as a result of step 1. These definitions are described in the Variables Defined section of Chapter I.
3. All like meanings of variables as used in the respective study were then compared against the common definition to determine if the researchers were indeed measuring the same phenomenon. This step controlled for 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. Discovery did not automatically result in the elimination of the variable but it remained a potential candidate until the author's meaning surfaced. Disguising was usually found in job security and turnover intention. In several studies aggregation was apparent when the definition or measurement scale included other elements, for example, procedural justice included elements of interactive and/or distributive justice.
4. As a result of step 3, variables that could not be uncovered or those which contained secondary meanings were discarded. The remaining variables qualified as candidates for pairing.
5. A working table was constructed (much like Table 1) to determine if a correlation existed among studies. At this point, any study containing only one variable was eliminated because no paired relationship was possible. Using the working table, 19 paired relationships were uncovered.
6. Each variable's reliability was then identified in terms of its Cronbach's Coefficient Alpha ( $r_{xx}$ ) and recorded in Table 1.
7. Variables were then classified into groups containing two, three, four, five, or six studies.

Initially, 45 correlated variables (or correlations between pairs of variables) were uncovered. Of those, thirty-six pairs were found in two studies; five pairs included three

studies; two pairs were found in four studies; one pair contained five studies; and one contained six studies. To enhance the cogency of the meta-analysis, those paired variable relationships that contained just two studies required a significance level at the  $p < 0.15$  or higher. This criterion eliminated 26 pairs from this group and reduced the number of two study correlations between pairs of variables to 10. Virtually all of those excluded exhibited significance levels of  $p < 0.84$ . The remaining relationships for all classifications reflected significance levels of  $p < 0.15$  or higher. Finally, 19 correlations between pairs of variables were identified in two or more studies.

#### Method for Our Questionnaire

Subjects: The participants in this study consisted of 76 students of the 1995 Air Force Institute of Technology (AFIT) class of the School of Logistics and Acquisition Management. This body was composed of 68 US Air Force (USAF) officers, 2 US Army (USA) officers, and 6 Department of the Air Force civilians. Demographic data reflected that 92 percent were employed by the Department of Defense (DoD) for more than two years. Every participant stated that he (57 males) or she (19 females) had experienced at least one reduction in force while employed by their current DoD component. Their ages ranged from 22 to greater than 41, with the majority (63 percent) in their twenties. Most were married (79 percent) and all had at least an undergraduate degree. Nearly all (95 percent) were highly dependent on the income received from DoD as the primary source of support for their immediate family. Forty-

three percent of the participants came from small organizations and the remaining 57 percent from large. This non-random sample was used as a means to gather data and supplement those studies selected for meta-analysis. Additionally, these participants were in the DoD zone of consideration for a reduction in force and had not been selected. Therefore, they are survivors and meet the fifth criterion listed for study selection (see page 29).

**Instrument Items:** A five-part Likert scale was used for each of 150 psychometric items with responses ranging from "strongly disagree" (a response of 1) to "strongly agree" (a response of 5). The questionnaire consisted of 150 psychometric items grouped into 15 variables and 11 demographic responses. The 15 variables measured organizational commitment, organizational support, supervisor support, co-worker support, cooperation, personal efficacy, optimism, tolerance for ambiguity, expectancy for success, job involvement, influence, turnover intention, job performance, job security, and coping strategies. Answers were recorded on an optically scannable form and tabulated via a scanner to an electronic data base file. The optical scanner reduced the responses on page 1 of the form by a value of one but did not alter those on page 2. Unreadable data created by erasures and extraneous marks on the answer form were corrected in the data base using Microsoft© Disk Operating System (DOS™) Text Editor, version 6.2. There were no missing values. Students completed the questionnaire in an average time of 35 minutes, with a range of 20 to 45 minutes. Participation was purely voluntary and a 100 percent response rate was achieved.

**Instrument Development:** The measurement scales used in our study were selected on the basis of established psychometric properties that demonstrated a high reliability and validity. The affective and normative organizational commitment scales developed by Allen and Meyer (1990); the job involvement scale (Kanungo, 1982); and the job performance scale (Price and Mueller, 1981) were used to assess the attitudinal and behavioral outcome variables. Intention to turnover items were selected from Cammann and others (1983) along with a modified version of the conflict index developed by Armstrong-Stassen (1989). Personal and organizational coping resources were assessed with items from McLain's (1991) tolerance for ambiguity scale; Paulhus's (1983) personal efficacy series; the Life Orientation Test for optimism by Scheier and Carver (1985); the perceived organizational support scale (Eisenberger and others, 1986); and the supervisor and co-worker support scales by Caplan and others (1975). The perceived threat of job security measures, employed Jick's (1979) modified version. The influence and cooperation were developed from Armstrong-Stassen (1989). Coping strategies were evaluated with Latack's (1986) coping scale. This is one of the few coping measures that specifically targets coping with work-related stressors. Age, gender, length of time with the organization (tenure), organizational layoff history, magnitude of cutbacks, and management levels comprised the demographic factors. However, results for these demographic variables were not reported in any of the studies reviewed and consequently not used in any of the results.



SAS™ statistical programs were developed to generate each variable's internal reliability. Corrections for the scanner's alterations (scanner recorded one less than the number recorded for only the first page) as well as those items requiring reverse scoring were included in each program. Reliability programs for split-half and Cronbach's Alpha correlation coefficients were constructed with SAS™ (SAS, 1985: 861) for each of the 15 psychometric variables in the instrument. This program is contained in Appendix F. The correlations obtained from the split-half technique were assimilated into Spearman - Brown's correction formula and calculated as follows:

$$r_{xx} \text{ or } r_{yy} = \frac{2 r_{hh}}{1 + r_{hh}} \quad (11)$$

(Emory and Cooper, 1991:187)

where  $r_{xx}$  (or  $r_{yy}$ ) is the reliability of the variable and  $r_{hh}$  is the calculated reliability (Pearson's product-moment  $r$ ) from its two halves. All variables demonstrated generally high reliability (greater than 0.70) as estimated by one of the two techniques. The results of the reliability analyses are depicted in Table 2. The questionnaire key (Appendix E) for this instrument identifies the specific items associated with each measured variable, those items reverse scored, and those items deleted. The questionnaire instructions and a copy of the actual instrument are contained in Appendices C and D respectively. The 15 psychometric variables measured in our questionnaire were aggregated and intercorrelated using Pearson's product-moment coefficient of correlation ( $r$ ). The results of the SAS program (Appendix G) used to produce these values are found in Appendix A. These variables were then subjected to the heuristic process described earlier in this

chapter. Those identified as numbers 10 through 15 in Table 2 were eliminated from further consideration because they were not addressed by other studies. The variables that survived the rigors of analysis are portrayed in Table 3.

**Table 2**  
**Reliability Analyses on Our Study**

Instrument Variable	Odd / Even Split-Half $r$	Cronbach's Coefficient Alpha
1. Organizational Commitment (OC)	0.85	0.80
2. Supervisor Support (SS)	0.84	0.86
3. Co-Worker Support (CWS)	0.82	0.76
4. Personnel Efficacy (PE)	0.70	0.69
5. Optimism (OP)	0.86	0.79
6. Turnover Intention (TI)	0.75	0.78
7. Job Performance (JP)	0.90	0.89
8. Job Security (JS)	0.71	0.76
9. Coping Strategies (CS)	0.91	0.91
10. Organizational Support (OS)	0.88	0.86
11. Cooperation (CO)	0.84	0.82
12. Tolerance for Ambiguity (TFA)	0.69	0.75
13. Expectancy for Success (EFS)	0.84	0.86
14. Job Involvement (JI)	0.87	0.85
15. Influence (IN)	0.72	0.77

Procedures: The questionnaire was administered to the students as a single group in the Air Force Institute of Technology Auditorium, Building 641, Area B, Wright-Patterson Air Force Base, Ohio at 1550 hours on 27 May 1994. Each of the participants was given a copy of the questionnaire instructions (Appendix C), an optically scannable form, as well as a copy of the instrument (Appendix D). The instructions were

reviewed with the participants and inquiries concerning the questionnaire resolved by us.

Additional number two pencils were available and distributed as necessary.

Table 3

Means, Standard Deviations, Reliability Coefficients,  
and Correlated Variables of Our Questionnaire

Instrument Variable:	1	2	3	4	5	6	7	8	9
	OC	SS	CWS	PE	OP	TI	JP	JS	CS
1. Organizational Commitment (OC)	<i>0.80</i>								
2. Supervisor Support (SS)	0.20	<i>0.86</i>							
3. Co-Worker Support (CWS)	<b>0.24</b>	<b>0.34</b>	<i>0.76</i>						
4. Personnel Efficacy (PE)	-0.04	0.05	0.06	<i>0.69</i>					
5. Optimism (OP)	0.02	-0.03	0.15	0.08	<i>0.79</i>				
6. Turnover Intention (TI)	<b>-0.32</b>	<b>-0.24</b>	-0.19	<b>-0.23</b>	-0.05	<i>0.78</i>			
7. Job Performance (JP)	0.19	0.04	0.12	0.06	-0.03	-0.11	<i>0.89</i>		
8. Job Security (JS)	0.15	0.04	<b>-0.24</b>	0.05	<b>-0.29</b>	0.16	0.00	<i>0.76</i>	
9. Coping Strategies (CS)	0.19	<b>0.25</b>	-0.09	0.21	-0.11	-0.09	-0.03	<b>0.42</b>	<i>0.91</i>
Means:	62.07	14.66	19.21	35.70	13.82	8.74	58.22	7.80	43.93
Standard Deviations:	8.94	3.85	3.09	3.71	2.86	3.07	7.16	2.54	13.46

Notes: Reliability coefficients (Cronbach's Coefficient Alpha) appear on the diagonal.

Correlations greater than or equal to 0.23 are significant at the 0.05 level.

Correlations greater than or equal to 0.30 are significant at the 0.01 level.

N = 76

Chapter Summary

This chapter presented the methodology used to accomplish the meta-analysis on the correlated variables measured on survivors of downsized organizations. It comprised an explanation of the collection procedures, meta-analysis results and artifacts, as well as their impact on the outcome of the study. The analysis facilitates the assimilation and integration of research findings across all studies, to include our questionnaire performed for this effort. The next chapter derives and discusses these findings.

### **III. Findings**

#### **Introduction to the Chapter**

This chapter presents the data and findings obtained following the cumulation procedures as outlined in Chapter II. It is organized according to the order in which the correlations were calculated. Tables 1 through 19, Appendix B, contain the data for each of the studies assessed and the combined results of the variables. Our study is discussed with respect to differences between it and others researched.

#### **Discussion**

The meta-analysis includes corrections for sampling-error and error of measurement for each correlated pair of variables. The values of these artifacts as well as the corrected correlations for all known samples are included in Appendix B, Tables 1 through 19. These tables present the meta-analysis of all 19 identified variable pairs.

The statistics presented in Table 4 (below) summarize the most important results for each variable pair compiled in Tables 1 through 19, (Appendix B). For example, the relationship of organizational commitment and job security was found to be 0.35 (also see Appendix B, Table 1). The values of the population variance (corrected) were then used to create 95 percent ( $p < 0.05$ ) confidence and credibility intervals (Appendix B, Table 1).

Table 4

Summary: Sample Sizes, Correlations, Standard Deviations, and Credibility Intervals

Correlated Relationship	Sample Size (N)	Weighted Ave. Corrected Correlation (p < 0.0001)	Standard Deviation	95% Credibility Interval Width	
OC & JS	661	0.35	0.0259	0.28 < r < 0.42	0.14
OC & PJ	585	0.45	0.0000	0.39 < r < 0.52	0.13
OC & TI	466	-0.63	0.1154	-0.68 < r < -0.58	0.10
OC & JP	350	0.41	0.0786	0.32 < r < 0.50	0.18
OC & SS	350	0.36	0.0451	0.27 < r < 0.45	0.18
OC & CS	476	0.43	0.0745	0.35 < r < 0.50	0.15
OC & CWS	276	0.30	0.0000	0.19 < r < 0.41	0.22
JS & CS	476	0.29	0.0866	0.21 < r < 0.37	0.16
JS & TI	621	0.29	0.0000	0.22 < r < 0.37	0.15
JS & OM	423	0.34	0.0000	0.26 < r < 0.43	0.17
JS & OP	276	0.23	0.0303	0.12 < r < 0.34	0.22
JS & CWS	276	0.24	0.0000	0.13 < r < 0.35	0.22
JP & OP	545	0.29	0.0000	0.21 < r < 0.36	0.15
JP & SS	274	0.26	0.0000	0.14 < r < 0.36	0.22
PJ & JS	1382	0.31	0.2765	0.26 < r < 0.36	0.10
PJ & OM	423	0.39	0.0000	0.31 < r < 0.47	0.16
SS & CWS	276	0.32	0.0000	0.21 < r < 0.42	0.21
JSA & TI	196	-0.71	0.0000	-0.77 < r < -0.63	0.14
PE & OP	545	0.46	0.0934	0.39 < r < 0.53	0.14

- OC: Organizational Commitment      < is understood to be less than or equal to.  
 JS: Job Security  
 PJ: Procedural Justice  
 TI: Turnover Intention  
 JP: Job Performance  
 SS: Supervisor's Support  
 CS: Coping Strategies  
 CWS: Co-Workers' Support  
 OM: Organizational Morale  
 OP: Optimism  
 PE: Personal Efficacy  
 JSA: Job Satisfaction

Applying this understanding to the confidence intervals presented in Tables 1 - 19

Appendix B, one can interpret the range within which the population correlation is most

likely to be located. For example, the confidence interval of  $0.29 < r < 0.32$  will include the population correlation (0.31) between procedural justice and job security with a 0.95 probability (Table 15, Appendix B). The results identify a 95 percent probability that the confidence interval between 0.29 and 0.32 will include the population correlation for procedural justice and job security. Other relationships identified present much smaller intervals. For example, in Table 2, Appendix B, the confidence interval for organizational commitment and procedural justice (from 0.45 to 0.45) includes the population correlation.

To revisit the previous example, the correlated relationship for procedural justice and job security (0.31) is located within the credibility interval of  $0.26 < r < 0.36$  (Table 15, Appendix B). This result identifies a 95 percent probability that the true correlated relationship for procedural justice and job security (0.31) is contained between 0.26 and 0.36. Other relationships identified, which presented much smaller ranges in the confidence interval, are now expanded to reveal the true population statistic. For example, the correlation between organizational commitment and procedural justice (0.45) now falls between 0.39 and 0.52 (Table 2, Appendix B). Table 4 identifies the meta-analysis statistics of each of the variable pairs reflected in Appendix B.

As illustrated here, the confidence interval proves inappropriate for use in meta-analysis and is much more conservative in constructing a functional (and practical) interval estimator for the population parameter  $r$ . At this point in our research, the statistical rigors reveal that best estimate of the paired variable is  $\bar{r}_c$ , which is the true

population correlation. Each of these correlations were found to be highly significant at the  $p < 0.0001$  level, (see Table 4, Weighted Average Corrected Correlation).

In addition to these results, an inherent objective of this study was to identify potential differences in the strength of variable relationships between the civilian sector and the DoD. Many of the variables presented could not be used to isolate such relationships because they were either not represented in our measuring instrument, or only one other study existed. Generally, when only one other study existed, there was a sizable difference in the sample ( $N$ ).

The variables presented in Tables 6, 7, 11, 12, and 17 of Appendix B, could not be used to assess differences since they only include one other study. Other relationships may have been a function of the small sample size ( $N$ ) in our study. Others however, may indicate diverse relationships. For example, Table 9 (Appendix B) documents the relationship between job security and turnover intention. The difference in these corrected correlations may indicate a weaker relationship between these variables in the DoD than in civilian industry. This weaker relationship between variables is illustrated in Tables 1, 3, 4, and 9 of Appendix B. Table 5 (Appendix B) appears to surface no difference between the DoD and civilian industry regarding organizational commitment and supervisory support. Table 8 (Appendix B) seems to indicate a stronger relationship between job security and coping strategies in DoD than in the civilian sector. All these relationships are speculative at best, but may be borne out with further research.

### Chapter Summary

This chapter presented the findings obtained following the cumulation procedures previously discussed. Important distinctions between the achieved confidence and credibility intervals were discussed. A discussion of our study of DoD personnel in comparison to the other studies was also offered. The following chapter addresses the researchers' conclusions and recommendations.



#### **IV. Conclusions and Recommendations**

##### **Introduction to the Chapter**

This chapter contains conclusions drawn from the results of our research and applied to the variables identified in the literature review. Recommendations are made to facilitate application to management problems relating to a stress-producing organizational phenomenon. The result offers a potential tool for management to help mitigate undesirable results.

##### **Conclusions**

This research identified and evaluated those attitudes and behaviors prevalent among downsizing survivors. The research identified variables that can be used to measure these behaviors and attitudes as well as their interrelationships. Using all available studies on the effects of a downsizing action, measures were compiled that identified the strength of these relationships among variables. An identifiable correlation between the variables across studies was found via the meta-analytic procedure. Further, the meta-analysis pulled together the results of a number of diverse studies, and significantly increased the power of the estimated population parameter, (the correlation coefficient), due to the increase in  $N$ .

A lack of consistent operational definitions for the variables across studies was a major limitation in the literature researched (as discussed in Chapter II, "Study Analysis

Techniques"). Much of the existing research attempts to define and measure variables generally accepted as present in most organizations experiencing a downsizing.

Unfortunately, no common operational definitions for the variables exist. This promotes incongruities across the studies, and dampens both general understanding and widespread application. Many of the studies researched had used their own uniquely defined variables measuring their presence and relative intensity. An attempt was made in this effort, to provide concise definitions to mitigate this problem. Unfortunately, this rendered some of the data (and some entire studies) completely unusable.

Many conclusions can be drawn from the variables assessed via this meta-analysis. For example, Noer posited that survivors tend to avoid risk and lack organizational commitment. Further, he stated the organization could experience decreased job satisfaction and job involvement among those employees culminating in diminished quality of efforts. Keichel also stated that the personnel may experience decreased worker satisfaction and job involvement. Meta-analysis suggested a strong positive correlation between organizational commitment and job performance (see Appendix B, Table 4). This lends support to both Noer's and Keichel's claims, and shows these relationships remain consistent across studies with different populations, locations, and organizational cultures.

Findings presented by both Brockner and Armstrong-Stassen include a connection between justice (defined by both the survivor's perception of the necessity for the downsizing and the mechanics of the downsizing effort), and the trust and commitment

shown by employees afterward. The meta-analysis surfaced a strong positive correlation between organizational commitment and procedural justice (see Appendix B, Table 2). Once again, the meta-analytic results lend support to the researchers' assertions, and illustrate stability across the relationships.

Our questionnaire results were also consistent with other reported studies in terms of the direction of the relationship. Some differences were isolated, however, in the relative strength of the relationships (such as job security, turnover intention, and so on) and are discussed in the previous chapter. In general, however, the relationships indicated by these results share common ground with those published in the literature.

### Recommendations

From the perspective of potential follow-on research, the meta-analytic procedure was described in sufficient detail to permit incorporation of future research studies. Additional research on downsizing will serve to further refine the relationships as presented, or may add data sufficient to assess those variables not usable in this meta-analysis. Also, further studies may identify new variables not currently identified as potentially relevant to downsizing.

The results of our research provide initial inroads to establishing the average effect size and more importantly, the range of the variables. The average effect size of the variables and their ranges may then be used by managers to preview indicators of reactions and behaviors likely among downsizing survivors (see Table 4). The following

illustration, given in Figure 2, offers an example of likely survivor behaviors and attitudes suggested by Alevras and Frigeri (1992).

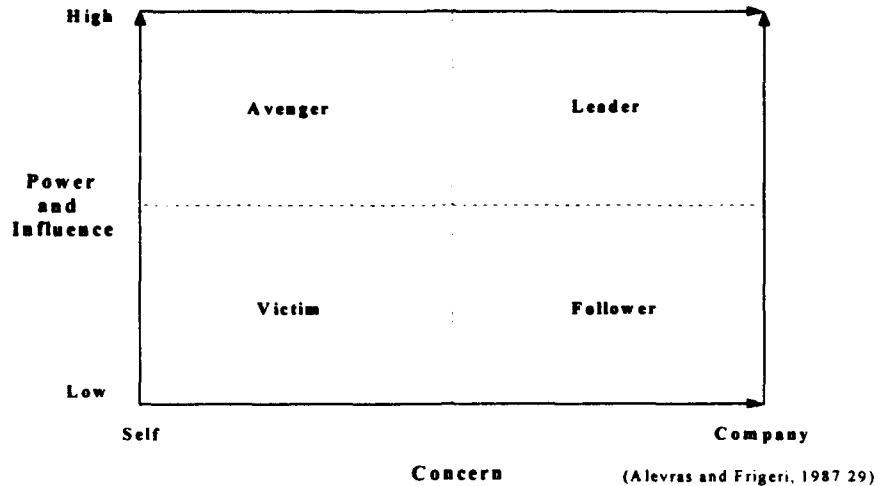


Figure 2. Change Reaction Model

This convenient paradigm may be used to help managers and supervisors confront new (and potentially volatile) situations in their departments. The horizontal axis represents the subordinates' attention or area of mental concentration. At one extreme is sole concern for the self, characterized by anger or self pity. On the other extreme is concern for the distressed organization. In short, the horizontal axis represents a continuum of potential employee reactions from internalizing the downsizing action to externalizing it (compliance on the surface level) as a manageable environmental phenomenon (Alevras and Frigeri, 1987:30). On the vertical axis is the issue of power. As a result of a layoff, the employees may believe that they do not possess any control over their jobs or events but are at the mercy of the organization's impulse, which may be construed as arbitrary or capricious. Other employees may feel differently. They may perceive the changes as opportunities to improve their position or to generate negative feelings against the company.

This quadrant model may help focus the manager's attention on what to expect as a result of a downsizing action. The manager must consider what action to take to drive down the expected negative effects and shift the attitudes and behaviors accordingly.

Thus, Alveras and Frigeri's model provides an example of how potential reactions can be previewed by managers. The reactions measured by our questionnaire provide insight to the relationships between the reactions in terms of behavioral and attitudinal variables. This model, then, in conjunction with meta-analytic techniques can surface the relationships most pertinent. Applying this technique to the variable pairs of our study can yield a capability to forecast the effects of those variables in a downsized organization. Moreover, the insight and prior action by managers, may enable them to dilute the negative effects of the downsizing action and diminish their duration.

The variables identified in this study also have important implications for managers who are forced to consider a downsizing action. For example, as portrayed in Figure 1, perceived injustice, (whether stemming from the implementation scheme, the company's justification, or the employee selection process), adversely influences perceived job security and employee well-being. In turn, perceived job insecurity and low employee well-being are associated with reduced commitment to the company and depressed organizational morale. The anecdotal evidence on survivors suggests that lower commitment and morale are associated with reduced productivity (Morton, 1987:54). Clearly, managers need to ensure, as much as possible, the perceived fairness of the layoff.

Furthermore, the findings of this study also imply that managers need to be especially concerned about how they justify the necessity of a workforce reduction. Reporting in *Social Justice Research*, Bies and Shapiro (1987:214) found that it is the adequacy of justification, rather than the actual claim, that is the critical component in determining people's reactions. Thus, management should communicate to the employees, honestly and sincerely, why the layoff is necessary.

### Summary

Downsizing has become a way of life in the 1990's. Tomorrow's supervisors will be challenged in an environment populated predominantly with the survivors of these initiatives. This study presented a meta-analysis of those variables identified in current research and applied consistently across the available studies. Our research presented the variables used to measure behaviors and attitudes prevalent among downsizing survivors. The study demonstrated how the variables are interrelated, the strength and direction of their interrelationships, and the correlation between the variables measured by the current research. Our effort identified and summarized the relationships among these variables. The study identified limitations in the current research due to a lack of consistent operational definitions. The procedure significantly ( $p < 0.0001$ ) magnified the individual correlations, but moreover meta-analysis elevated the power and thus the utility of the available information.

Appendix A Statistics for Our Questionnaire

Means, Standard Deviations, Reliability Coefficients, and Correlations

Instrument Variable:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
	OC	OS	SS	CWS	CO	PE	OP	TFA	EFS	JI	IN	TI	JP	JS	CS	GR	TEN	PRESJOB	RIF	XRIF	MRIF	SEX	AGE	MS	INC	ED	SO		
1 Organizational Commitment (OC)	0.86																												
2 Organizational Support (OS)	0.15	0.86																											
3 Supervisor Support (SS)	0.20	0.30	0.86																										
4 Co-Worker Support (CWS)	0.24	0.14	0.34	0.76																									
5 Cooperation (CO)	-0.02	-0.10	-0.18	-0.28	0.82																								
6 Personal Efficacy (PE)	-0.04	0.01	0.05	0.06	-0.10	0.69																							
7 Optimism (OP)	0.02	0.20	-0.03	0.15	-0.14	0.08	0.79																						
8 Tolerance for Ambiguity (TFA)	-0.10	-0.12	-0.15	-0.04	-0.02	-0.13	0.12	0.73																					
9 Expectancy for Success (EFS)	-0.14	0.10	-0.03	0.15	-0.10	0.35	0.21	-0.09	0.86																				
10 Job Involvement (JI)	0.16	0.36	0.24	0.16	-0.19	-0.03	-0.08	-0.16	-0.01	0.85																			
11 Influence (IN)	-0.14	0.30	0.24	-0.01	-0.16	0.13	0.20	-0.04	0.14	0.18	0.77																		
12 Turnover Intention (TI)	-0.32	-0.22	-0.24	-0.19	0.02	-0.23	-0.03	0.19	-0.04	-0.13	-0.20	0.78																	
13 Job Performance (JP)	0.19	0.03	0.04	0.12	-0.16	0.06	-0.03	0.07	0.10	0.38	-0.11	0.89																	
14 Job Security (JS)	0.15	-0.34	0.04	-0.24	0.02	0.05	-0.29	0.07	-0.27	0.13	-0.07	0.16	0.00	0.76															
15 Coping Strategies (CS)	0.19	0.09	0.25	-0.09	0.01	0.21	-0.11	0.06	-0.01	0.15	0.10	-0.09	-0.03	0.42	0.91														
16 Grade (GR)	-0.02	0.15	-0.16	-0.09	0.02	0.04	0.25	-0.20	0.21	-0.02	0.17	-0.19	0.08	-0.16	-0.10														
17 Tenure in DOD (TEN)	0.14	-0.05	0.14	-0.07	0.00	-0.25	-0.18	0.18	0.18	-0.31	-0.10	-0.27	0.09	-0.19	0.03	0.25	-0.46												
18 Time in Present Job (PRESJOB)	0.24	0.22	0.10	-0.04	-0.07	0.00	-0.08	-0.19	-0.10	0.16	-0.09	-0.01	-0.02	0.18	0.04	0.12													
19 Times Experienced RIF (RIF)	0.12	0.17	0.06	-0.01	0.07	-0.16	-0.06	0.12	-0.13	-0.13	-0.14	0.02	-0.27	-0.21	0.19	-0.12	0.39	0.29											
20 Times Organization had RIF (XRIF)	0.05	-0.08	-0.09	-0.16	0.01	-0.11	0.00	0.01	-0.03	0.08	-0.19	0.04	-0.18	-0.02	0.29	-0.09	0.16	0.22	0.38										
21 Management Level RIF (MRIF)	-0.04	0.03	-0.01	-0.04	0.09	-0.06	0.09	0.00	0.13	0.07	-0.08	0.08	-0.14	-0.04	0.26	0.10	0.05	0.07	0.35	0.43									
22 Sex (SEX)	-0.01	-0.12	0.09	0.19	-0.01	0.14	-0.10	-0.04	0.12	0.17	-0.25	-0.14	0.06	-0.04	-0.13	-0.13	-0.05	-0.13	-0.21	0.06	0.06								
23 Age (AGE)	0.11	-0.10	0.02	-0.05	0.04	-0.13	-0.23	0.35	-0.25	-0.13	-0.18	0.03	-0.05	-0.01	0.11	-0.46	0.63	0.03	0.27	0.18	-0.02	0.11							
24 Marital Status (MS)	0.22	0.16	-0.07	0.03	0.05	0.08	-0.19	-0.05	-0.12	-0.13	-0.26	-0.13	-0.08	0.00	0.34	-0.07	0.36	0.14	0.31	0.19	0.12	-0.14	0.23						
25 Primary Source of Income (INC)	-0.04	0.03	0.08	0.08	-0.18	-0.06	0.17	-0.08	0.06	-0.02	0.03	0.07	0.00	-0.12	0.10	0.11	0.04	0.03	0.08	0.09	-0.03	-0.29	-0.03	-0.05					
26 Education Level (ED)	-0.02	-0.09	-0.09	-0.13	0.16	-0.15	0.14	0.11	-0.15	0.11	0.01	0.14	0.08	0.09	0.07	0.08	0.17	-0.08	0.01	0.10	0.11	0.00	0.20	0.01	-0.09				
27 Size of Organization (SO)	0.12	0.14	-0.10	0.16	-0.23	0.00	-0.02	0.08	0.17	0.17	-0.07	-0.07	0.10	-0.07	0.02	-0.27	0.08	0.17	0.15	0.05	0.05	0.02	0.05	0.12	-0.14	0.08			
Means	62.07	56.30	14.66	19.21	20.00	35.70	13.82	32.07	48.20	27.30	9.83	8.74	38.22	7.80	43.93	3.92	2.22	2.45	2.08	2.17	1.87	1.25	2.53	1.86	1.96	3.18	1.57		
Standard Deviations	8.94	7.69	3.85	3.09	4.55	3.71	2.86	4.84	4.67	6.27	2.45	3.07	7.16	2.54	13.46	0.36	0.79	0.60	0.80	0.84	0.81	0.44	0.81	0.48	0.26	0.72	0.50		

Notes: Reliability coefficients (Cronbach's Coefficient Alpha) appear on the diagonal

— Indicates a single item measure

Intercorrelations greater than or equal to 0.23 are significant at the 0.05 level

Intercorrelations greater than or equal to 0.30 are significant at the 0.01 level

N = 76

Appendix B: Table 1

Meta-Analysis & Artifacts: Organizational Commitment and Job Security						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	JS r <sub>yy</sub>			
MAS-1	1994	0.89	0.81	223	0.35	0.41
MAS-2	1993	0.81	0.96	74	0.41	0.46
MAS-4	1994	0.78	0.82	200	0.27	0.34
D,K&S	1991	0.88	0.88	88	0.24	0.27
O&V	1994	0.80	0.76	76	0.15	0.19
Total Number of Participants (N):				661		
Weighted Average Correlations:					0.29	0.35
Sample Variance:				0.00648		
Population Variance (Corrected):				0.00067		
Standard Deviation:				0.02592		
95% Confidence Interval:				0.35 < r < 0.35		
95% Credibility Interval:				0.28 < r < 0.42		

< is understood to be less than or equal to.

OC: Organizational Commitment

JS: Job Security

MAS-1, 2, & 4: Armstong-Stassen, Marjorie

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

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



Appendix B: Table 2

Meta-Analysis & Artifacts: Organizational Commitment and Procedural Justice

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	PJ r <sub>yy</sub>			
MAS-1	1994	0.89	0.72	223	0.40	0.50
MAS-2	1993	0.81	0.83	74	0.38	0.46
MAS-3	1993	0.78	1	200	0.39	0.44
D,K&S	1991	0.88	0.90	88	0.32	0.36
Total Number of Participants (N):				585		
Weighted Average Correlations:					0.38	0.45
Sample Variance:				0.00220		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.45 < r < 0.45		
95% Credibility Interval:				0.39 < r < 0.52		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

OC: Organizational Commitment

PJ: Procedural Justice

MAS-1, 2, & 3: Armstong-Stassen, Marjorie

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

Appendix B: Table 3

Meta-Analysis & Artifacts: Organizational Commitment and Turnover Intention						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	TI r <sub>yy</sub>			
MAS-4	1994	0.78	0.77	200	-0.58	-0.75
B&C	1993	0.88	0.76	82	-0.54	-0.66
D,K&S	1991	0.88	1	88	-0.51	-0.54
O&V	1994	0.80	0.78	76	-0.32	-0.41
Total Number of Participants (N):				446		
Weighted Average Correlations:					-0.51	-0.63
Sample Variance:				0.01653		
Population Variance (Corrected):				0.01332		
Standard Deviation:				0.11540		
95% Confidence Interval:				-0.64 < r < -0.62		
95% Credibility Interval:				-0.68 < r < -0.58		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

OC: Organizational Commitment

TI: Turnover Intention

MAS-4: Armstrong-Stassen, Marjorie

B & C: Begley, 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. Vilardi

Appendix B: Table 4

Meta Analysis & Artifacts: Organizational Commitment and Job Performance

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	JP r <sub>yy</sub>			
MAS-2	1993	0.81	1	74	0.34	0.38
MAS-4	1994	0.78	1	200	0.44	0.50
O&V	1994	0.80	0.89	76	0.19	0.23
Total Number of Participants (N):				350		
Weighted Average Correlations:					0.36	0.41
Sample Variance:				0.01207		
Population Variance (Corrected):				0.00618		
Standard Deviation:				0.07861		
95% Confidence Interval:				0.41 < r < 0.42		
95% Credibility Interval:				0.32 < r < 0.50		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

OC: Organizational Commitment

JP: Job Performance

MAS-2 & 4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 5

Meta-Analysis & Artifacts: Organizational Commitment and Supervisor Support						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation rxy	Corrected Correlation rc
		OC rxx	SS ryy			
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	0.80	0.86	76	0.20	0.24
Total Number of Participants (N):				350		
Weighted Average Correlations:					0.30	0.36
Sample Variance:				0.00853		
Population Variance (Corrected):				0.00203		
Standard Deviation:				0.04507		
95% Confidence Interval:				0.36 < r < 0.36		
95% Credibility Interval:				0.27 < r < 0.45		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

OC: Organizational Commitment

SS: Supervisor Support

MAS-2 & 4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 6

Meta-Analysis & Artifacts: Organizational Commitment and Coping Strategies

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	CS r <sub>yy</sub>			
MAS-3	1993	0.78	0.82	200	0.41	0.51
MAS-4	1994	0.78	0.82	200	0.34	0.43
O&V	1994	0.80	0.91	76	0.19	0.22
Total Number of Participants (N):				476		
Weighted Average Correlations:					0.35	0.43
Sample Variance:				0.00974		
Population Variance (Corrected):				0.00555		
Standard Deviation:				0.07451		
95% Confidence Interval:				0.42 < r < 0.44		
95% Credibility Interval:				0.35 < r < 0.50		

< is understood to be less than or equal to.

OC: Organizational Commitment

CS: Coping Strategies

MAS-3 & 4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 7

Meta-Analysis & Artifacts: Organizational Commitment and Co-Worker Support						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		OC r <sub>xx</sub>	CWS r <sub>yy</sub>			
MAS-4	1994	0.78	0.80	200	0.24	0.30
O&V	1994	0.80	0.76	76	0.24	0.31
Total Number of Participants (N):				276		
Weighted Average Correlations:					0.24	0.30
Sample Variance:				0.00000		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.30 < r < 0.30		
95% Credibility Interval:				0.19 < r < 0.41		

< is understood to be less than or equal to.

OC: Organizational Commitment

CWS: Co-Worker Support

MAS-4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 8

Meta-Analysis & Artifacts: Job Security and Coping Strategies

Author(s) of Study	Year Published	Reliability		Sample Size N <sub>i</sub>	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JS r <sub>xx</sub>	CS r <sub>yy</sub>			
MAS-3	1993	0.82	0.82	200	0.15	0.18
MAS-4	1994	0.82	0.77	200	0.26	0.33
O&V	1994	0.76	0.91	76	0.42	0.51
Total Number of Participants (N):				476		
Weighted Average Correlations:					0.24	0.29
Sample Variance:				0.01276		
Population Variance (Corrected):				0.00750		
Standard Deviation:				0.08662		
95% Confidence Interval:				0.29 < r < 0.30		
95% Credibility Interval:				0.21 < r < 0.37		

< is understood to be less than or equal to.

JS: Job Security

CS: Coping Strategies

MAS-3 & 4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 9

Meta-Analysis & Artifacts: Job Security and Turnover Intention

Author(s) of Study	Year Published	Reliability		Sample Size N <sub>i</sub>	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JS r <sub>xx</sub>	TI r <sub>yy</sub>			
MAS-4	1993	0.82	0.77	200	0.30	0.38
D,K&S	1994	0.88	1	345	0.24	0.26
O&V	1994	0.76	0.78	76	0.16	0.21
Total Number of Participants (N):				621		
Weighted Average Correlations:					0.25	0.29
Sample Variance:				0.00394		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.29 < r < 0.29		
95% Credibility Interval:				0.22 < r < 0.37		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

JS: Job Security

TI: Turnover Intention

MAS-4: Armstong-Stassen Marjorie

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

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



Appendix B: Table 10

Meta-Analysis & Artifacts: Job Security and Organizational Morale

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JS r <sub>xx</sub>	OM r <sub>yy</sub>			
MAS-1	1994	0.81	0.89	223	0.27	0.32
MAS-3	1993	0.82	0.89	200	0.32	0.37
Total Number of Participants (N):				423		
Weighted Average Correlations:					0.29	0.34
Sample Variance:				0.00080		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.34 < r < 0.34		
95% Credibility Interval:				0.26 < r < 0.43		

< is understood to be less than or equal to.

JS: Job Security

OM: Organizational Morale

MAS-1 & 3: Armstong-Stassen, Marjorie

Appendix B: Table 11

Meta-Analysis & Artifacts: Job Security and Optimism

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JS r <sub>xx</sub>	OP r <sub>yy</sub>			
MAS-4	1994	0.81	0.84	200	0.15	0.18
O&V	1994	0.76	0.79	76	0.29	0.37
Total Number of Participants (N):				276		
Weighted Average Correlations:					0.19	0.23
Sample Variance:				0.00739		
Population Variance (Corrected):				0.00092		
Standard Deviation:				0.03031		
95% Confidence Interval:				0.23 < r < 0.24		
95% Credibility Interval:				0.12 < r < 0.34		

< is understood to be less than or equal to.

JS: Job Security

OP: Optimism

MAS-4: Armstong-Stassen, Marjorie

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

Appendix B: Table 12

Meta-Analysis & Artifacts: Job Security and Co-Worker Support

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JS r <sub>xx</sub>	CWS r <sub>yy</sub>			
MAS-4	1994	0.82	0.80	200	0.17	0.21
O&V	1994	0.76	0.76	76	0.24	0.32
Total Number of Participants (N):				276		
Weighted Average Correlations:					0.19	0.24
Sample Variance:				0.00224		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.24 < r < 0.24		
95% Credibility Interval:				0.13 < r < 0.35		

< is understood to be less than or equal to.

JS: Job Security

CWS: Co-Worker Support

MAS-4: Armstrong-Stassen, Marjorie

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

Appendix B: Table 13

Meta-Analysis & Artifacts: Job Performance and Optimism

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JP r <sub>xx</sub>	OP r <sub>yy</sub>			
MAS-4	1994	1	0.84	200	0.23	0.25
A,C&H	1993	0.76	0.78	345	0.24	0.31
Total Number of Participants (N):				545		
Weighted Average Correlations:					0.24	0.29
Sample Variance:				0.00086		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.29 < r < 0.29		
95% Credibility Interval:				0.21 < r < 0.36		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

JP: Job Performance

OP: Optimism

MAS-4: Armstong-Stassen, Marjorie

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

Appendix B: Table 14

Meta-Analysis & Artifacts: Job Performance and Supervisor Support

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation rxy	Corrected Correlation rc
		JP rxx	SS ryy			
MAS-2	1994	1	1	74	0.14	0.14
MAS-4	1993	1	0.86	200	0.28	0.30
Total Number of Participants (N):				274		
Weighted Average Correlations:					0.24	0.26
Sample Variance:				0.00517		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.26 < r < 0.26		
95% Credibility Interval:				0.14 < r < 0.36		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

JP: Job Performance

SS: Supervisor Support

MAS-2 & 4: Armstong-Stassen, Marjorie

Appendix B: Table 15

Meta-Analysis & Artifacts: Procedural Justice and Job Security

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		PJ r <sub>xx</sub>	JS r <sub>yy</sub>			
MAS-1	1994	0.72	0.81	223	0.26	0.34
MAS-2	1993	0.83	0.96	74	0.18	0.20
MAS-3	1993	1	0.82	200	0.33	0.36
MAS-5	1994	0.80	0.82	200	0.27	0.33
B,G,R&D	1991	0.76	0.82	597	0.24	0.30
D,K,&S	1994	0.90	0.88	88	0.15	0.17
Total Number of Participants (N):				1,382		
Weighted Average Correlations:					0.24	0.31
Sample Variance:				0.07998		
Population Variance (Corrected):				0.07643		
Standard Deviation:				0.27645		
95% Confidence Interval:				0.29 < r < 0.32		
95% Credibility Interval:				0.26 < r < 0.36		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

PJ: Procedural Justice

JS: Job Security

MAS-1, 2, 3, & 5: Armstong-Stassen, Marjorie

B, G, R, & D: Brockner, Joel, Steven Grover, Thomas Reed, and Rocki DeWitt

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

Appendix B: Table 16

Meta-Analysis & Artifacts: Procedural Justice and Organizational Morale

Author(s) of Study	Year Published	Reliability		Sample Size N <sub>i</sub>	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		PJ r <sub>xx</sub>	OM r <sub>yy</sub>			
MAS-1	1994	0.72	0.89	223	0.34	0.42
MAS-3	1993	1	0.89	200	0.33	0.35
Total Number of Participants (N):				423		
Weighted Average Correlations:					0.34	0.39
Sample Variance:				0.00140		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.39 < r < 0.39		
95% Credibility Interval:				0.31 < r < 0.47		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

PJ: Procedural Justice

OM: Organizational Morale

MAS-1 & 3: Armstong-Stassen, Marjorie

Appendix B: Table 17

Meta-Analysis & Artifacts: Supervisor Support and Co-Workers Support						
Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		SS r <sub>xx</sub>	CWS r <sub>yy</sub>			
MAS-4	1994	0.86	0.80	200	0.23	0.28
O&V	1994	0.86	0.76	76	0.34	0.42
Total Number of Participants (N):				276		
Weighted Average Correlations:					0.26	0.32
Sample Variance:				0.00410		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				0.32 < r < 0.32		
95% Credibility Interval:				0.21 < r < 0.42		

< is understood to be less than or equal to.

SS: Supervisor Support

CWS: Co-Worker Support

MAS-4: Armstrong-Stassen, Marjorie

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



Appendix B: Table 18

Meta-Analysis & Artifacts: Job Satisfaction and Turnover Intention

Author(s) of Study	Year Published	Reliability		Sample Size N <sub>i</sub>	Uncorrected Correlation r <sub>xy</sub>	Corrected Correlation r <sub>c</sub>
		JSA r <sub>xx</sub>	TI r <sub>yy</sub>			
B&C	1993	0.77	1	82	-0.64	-0.73
G&J	1989	0.68	1	114	-0.57	-0.69
Total Number of Participants (N):				196		
Weighted Average Correlations:					-0.60	-0.71
Sample Variance:				0.00035		
Population Variance (Corrected):				0.00000		
Standard Deviation:				0.00000		
95% Confidence Interval:				-0.71 < r < -0.71		
95% Credibility Interval:				-0.77 < r < -0.63		

A reliability of 1 indicates a single item measure.

< is understood to be less than or equal to.

JSA: Job Satisfaction

TI: Turnover Intention

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

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

Appendix B: Table 19

Meta-Analysis & Artifacts: Personnel Efficacy and Optimism

Author(s) of Study	Year Published	Reliability		Sample Size Ni	Uncorrected Correlation rxy	Corrected Correlation rc
		PE rxx	OP ryy			
MAS-4	1994	0.78	0.84	200	0.5	0.62
A,C&H	1993	0.73	0.78	345	0.28	0.37
Total Number of Participants (N):				545		
Weighted Average Correlations:					0.36	0.46
Sample Variance:				0.01413		
Population Variance (Corrected):				0.00873		
Standard Deviation:				0.09344		
95% Confidence Interval:				0.45 < r < 0.47		
95% Credibility Interval:				0.39 < r < 0.53		

< is understood to be less than or equal to.

PE: Personnel Efficacy

OP: Optimism

MAS-4: Armstong-Stassen, Marjorie

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

### **Appendix C: Questionnaire Instructions**

1. Please read each question and fill in your answer on the green AFIT Data Collection Form (AFIT Form 11A) using a **number 2 pencil**. If you do not have a number 2 pencil, one will be provided to you upon request.

2. Please answer each question and enter only one answer per question. Match your selection in the questionnaire (i.e., **letter a, b, c, d, or e**) to the corresponding circled letter on the data collection form –for that specific question number– and fill-in the appropriate circled entry. Please do not make any other marks on the data form.

3. The part numbers on the questionnaire (Parts 1, 2, 3, 4, 5, & 6) and those on the form (i.e., I, II, III, & IV) **do not** match. This fact is immaterial and irrelevant for this study. However, question numbers on the questionnaire **do** correspond to those on the data collection form.

4. Please mark either **a** or **b** on the data collection form for those questions with only 2 answers.

5. There is no need to fill-in the following areas of the green AFIT Data Collection Form (AFIT Form 11A):

- Mark sense areas for Last Name, First, MI, Birth Date, Student Number, Grade, Sex, Form of This Test, Semester, or Teacher Only blocks.

- The School, City, Instructor, Grade, or Test entries at the top of the form.

6. The term DoD (Department of Defense), as used in this questionnaire, pertains to the specific branch of service (i.e., Army, Navy, Air Force, or Marines) in which you work as a civilian, enlisted member, or officer. Furthermore, the DoD branch identifies your particular organization or unit. Note: If you are a student, please apply those questions to your last job as indicated in the specific headings.

## **Appendix D: Questionnaire Instrument**

### **PART I**

Listed below are a series of statements that represent possible feelings that individuals might have about the organization for which they work. Please indicate the degree of your agreement or disagreement with each statement by selecting the appropriate response and then marking the attached answer form. **Note: If you are a student, please apply questions 1 - 38 to your last job.**

1. I would be very happy to spend the rest of my career with the DoD.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
2. I am not afraid of what might happen if I quit my job without having another one lined up.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
3. I think that people these days move from employer to employer too often.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
4. I enjoy discussing the DoD with people outside it.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
5. It would be very hard for me to leave the DoD right now, *even* if I wanted to.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
6. I do not believe that a person must always be loyal to his or her organization.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
7. I think that I could easily become attached to another organization as I am to the DoD.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
8. It wouldn't be too costly for me to leave the DoD now.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
9. One of the major reasons I continue to work for the DoD is that I believe loyalty is important and therefore I feel a sense of moral obligation to remain.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
10. I do not feel like 'part of the family' at my branch of the DoD.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
11. Right now, staying with the DoD is a matter of necessity as much as desire.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

12. If I got another offer for a better job elsewhere I would not feel it was right to leave the DoD.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

13. I do not feel 'emotionally attached' to the DoD.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

14. I feel that I have too few options to consider leaving the DoD.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

15. I was taught to believe in the value of remaining loyal to one organization.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

16. The DoD has a great deal of personal meaning for me.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

17. One of the few serious consequences of leaving the DoD would be the scarcity of available alternatives.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

18. Things were better in the days when people stayed with one organization for most of their careers.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

19. I do not feel a strong sense of belonging to the DoD.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

20. One of the major reasons I continue to work for the DoD is that leaving would require considerable personal sacrifice; another organization may not match the overall benefits I have here.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

21. I do not think that wanting to be a 'company man' or 'company woman' is sensible anymore.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

22. The DoD values my contribution to its well-being.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

23. If the DoD could hire someone to replace me at a lower rate of salary it would do so.

a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

24. The DoD fails to appreciate any extra effort from me.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
25. The DoD strongly considers my goals and values.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
26. The DoD would ignore any complaint from me.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
27. The DoD disregards my best interests when it makes decisions that affect me.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
28. Help is available from the DoD when I have a problem.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
29. The DoD really cares about my well-being.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
30. The DoD is willing to extend itself in order to help me perform my job to the best of my ability.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
31. Even if I did the best job possible, the DoD would fail to notice.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
32. The DoD is willing to help me when I need a special favor.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
33. The DoD cares about my general satisfaction at work.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
34. If given the opportunity, the DoD would take advantage of me.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
35. The DoD shows very little concern for me.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
36. The DoD cares about my opinions.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
37. The DoD takes pride in my accomplishments at work.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

38. The DoD tries to make my job as interesting as possible.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**PART 2**

The following questions ask you about your relationships with your immediate superior and your colleagues. **Note: If you are a student, please apply questions 39 - 55 to your last job.**

39. How much does your immediate supervisor go out of his or her way to make your life easier for you at work?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

40. Are you at ease when you are talking with your immediate supervisor?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

41. How much can your immediate supervisor be relied on when things get tough at work?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

42. How much is your immediate supervisor willing to listen to your personal problems?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

43. If you are afraid of being selected in the reduction in force, how much would your supervisor be willing to listen to you talk about your concerns?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

44. How much do your colleagues go out of their way to make your life easier for you at work?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

45. Are you at ease when you are talking with your colleagues?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

46. How much can your colleagues be relied on when things get tough at work?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

47. How much are your colleagues willing to listen to your personal problems?

- a. Not at all   b. A little   c. Somewhat   d. Quite a bit   e. Very much

**Appendix D: Questionnaire Instrument** (continued)

48. If you were afraid of being selected in a reduction in force action, how much would your colleagues be willing to listen to you talk about your concerns?

- a. Not at all      b. A little      c. Somewhat      d. Quite a bit      e. Very much

**Since the cutbacks in DoD: (If you are a student, apply questions to your last job.)**

49. Organizations in your DoD activity seem to cooperate with each other well.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

50. People in other units try to help you out when they can.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

51. Organizations in your DoD activity act as if they are working against each other.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

52. Conflict has increased in my organization.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

53. There is increased conflict among the members of my work group.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

54. There is increased conflict between my work group and people in other work groups or departments in the organization.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

55. There is increased conflict among my colleagues.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree

***PART 3***

The following series of statements are to determine how people believe they will do in certain situations. Please indicate the degree to which you believe the statement would apply to you personally. Give the answer that you truly believe best applies to you and not what you would like to be true or think others would like to hear.

56. When I get what I want, it's usually because I worked hard for it.

- a. Strongly Disagree    b. Disagree    c. Neither Agree nor Disagree    d. Agree    e. Strongly Agree



**Appendix D: Questionnaire Instrument** (continued)

57. When I make plans, I am almost certain to make them work.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
58. I prefer games involving some luck over games requiring pure skill.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
59. I can learn almost anything if I set my mind to it.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
60. My major accomplishments are entirely due to hard work and intelligence.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
61. I usually don't make plans because I have a hard time following through on them.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
62. Competition encourages excellence.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
63. The extent of personal achievement is often determined by chance.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
64. On any sort of assignment or competition I like to know how well I do relative to everyone else.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
65. Despite my best efforts I have few worthwhile accomplishments.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
66. In uncertain times, I usually expect the best.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
67. I always look on the bright side of things.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
68. I'm always optimistic about my future.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
69. I'm a believer in the idea that "every cloud has a silver lining."  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
70. I don't tolerate ambiguous situations well.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

71. I find it difficult to respond when faced with an unexpected event.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
72. I don't think new situations are any more threatening than familiar situations.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
73. I try to avoid situations which are ambiguous.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
74. I prefer familiar situations to new ones.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
75. I avoid situations which are too complicated for me to easily understand.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
76. I enjoy tackling problems which are complex enough to be ambiguous.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
77. I try to avoid problems which don't seem to have only one "best" solution.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
78. I dislike ambiguous situations.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
79. I have little trouble coping with unexpected events.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
80. I prefer a situation in which there is some ambiguity.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**In the future, I expect that I will:**

81. Be unable to accomplish my goals.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
82. Find my efforts to change situations I don't like, to be ineffective.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
83. Carry through my responsibilities successfully.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

84. Handle unexpected problems successfully.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
85. Get the promotions I deserve.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
86. Succeed in the projects I undertake.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
87. Discover that my life is not getting much better.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
88. Find that no matter how hard I try, things just don't turn out the way I would like.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
89. Handle myself well in whatever situation I'm in.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
90. Be successful in my endeavors in the long run.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
91. Experience many failures in my life.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
92. Attain the career goals I have set for myself.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
93. Achieve recognition in my profession.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**PART 4**

The following statements have to do with how you feel about your job. **Note: If you are a student, please apply questions 94 - 125 to your last job.**

94. The most important things that happen to me involve my present job.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree
95. To me, my job is only a small part of who I am.  
a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

96. I am very much personally involved in my job.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

97. I live, eat, and breathe my job.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

98. Most of my interests are centered around my job.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

99. I have very strong ties with my present job which would be very difficult to break.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

100. Usually I feel detached from my job.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

101. Most of my personal life goals are job oriented.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

102. I consider my job to be very central to my existence.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

103. I like to be absorbed in my job most of the time.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

104. I have enough power in this organization to control events that might affect my job.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

105. In my organization, I can prevent negative things from affecting my work situation.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

106. I understand my organization well enough to be able to control things that affect me.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

107. Following a reduction in force announcement, I seriously considered quitting my DoD branch.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

108. I will probably look for a new career in the next year, not in the DoD.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

**Appendix D: Questionnaire Instrument** (continued)

109. I often think about quitting my DoD branch.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

110. I would quit the DoD at once if I could get anything else.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

111. I have already started to look for a job elsewhere outside of the DoD.

- a. Strongly Disagree   b. Disagree   c. Neither Agree nor Disagree   d. Agree   e. Strongly Agree

112. How would you rate your job performance as a manager? (Please select one and mark the answer sheet.)

- a. Much better than average
- b. Better than average
- c. About average
- d. Slightly below average
- e. Considerably below average

113. How would most of your colleagues rate your job performance as a manager? (Please select one and mark the answer sheet.)

- a. Much better than average
- b. Better than average
- c. About average
- d. Slightly below average
- e. Considerably below average

114. How would your immediate superior rate your job performance as a manager? (Please select one and mark the answer sheet.)

- a. Much better than average
- b. Better than average
- c. About average
- d. Slightly below average
- e. Considerably below average

**Appendix D: Questionnaire Instrument** (continued)

How would you rate your performance in the following items before the reduction(s) in force:

- |  | <i>a. Considerably below average</i> | <i>b. Slightly below average</i> | <i>c. About average</i>    | <i>d. Somewhat above average</i> | <i>e. Well above average</i> |
|--|--------------------------------------|----------------------------------|----------------------------|----------------------------------|------------------------------|
| 115. Performance quality.                                    | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 116. Performance quantity.                                   | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 117. Avoiding mistakes.                                      | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 118. Finishing work on time.                                 | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 119. Working in a neat and orderly fashion.                  | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 120. Performing up to your superior's stds.                  | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 121. Performing up to your own standards.                    | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 121. Performing up to your own standards.                    | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 122. Satisfying others who depend upon your job performance. | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 123. Effort level.   | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 124. Getting to work on time.                                | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |
| 125. Attendance record.                                      | <input type="checkbox"/> a           | <input type="checkbox"/> b       | <input type="checkbox"/> c | <input type="checkbox"/> d       | <input type="checkbox"/> e   |

**Appendix D: Questionnaire Instrument** (continued)

**126.** How much confidence do you have that the DoD will remain a steady place of employment for as long as you want to continue working? (Please select one and mark the answer sheet.)

- a. I have 100% confidence.
- b. Fairly high confidence (that is, I'm about 75% certain).
- c. Moderate confidence (that is, I'm only about 50% certain).
- d. Some confidence (that is, I'm only about 25% certain).
- e. I have zero confidence.

**127.** Are you personally worried about your job security? (Please select one and mark the answer sheet.)

- a. Not at all worried
- b. A little worried
- c. Somewhat worried
- d. Moderately worried
- e. Extremely worried

**128.** How much influence do you feel you have over decisions concerning the future of your job? (Please select one and mark the answer sheet.)

- a. No influence at all
- b. A little influence
- c. Some influence
- d. Moderate influence
- e. A great deal of influence

**129.** What do you feel is the likelihood of your being selected in the reduction in force? (Please select one and mark the answer sheet.)

- a. Not at all likely
- b. Only slightly likely
- c. Somewhat likely
- d. Moderately likely
- e. Extremely likely

**Appendix D: Questionnaire Instrument** (continued)

**130.** To what extent, in your judgment, are you likely to be employed in your present job one year from now? (Please select one and mark the answer sheet.)

- a. Not at all likely
- b. Only slightly likely
- c. Somewhat likely
- d. Moderately likely
- e. Extremely likely

**131.** To what extent are you presently safe from dismissal in your current employment? (Please select one and mark the answer sheet.)

- a. Not at all safe
- b. Only slightly safe
- c. Somewhat safe
- d. Moderately safe
- e. Extremely safe

***PART 5***

This section contains a list of possible reactions people might have to different situations. Describe how you reacted to the recent reductions in force.

- |   | <i>a. Did not do this</i>  | <i>b. Seldom did this</i>  | <i>c. Occasionally did this</i> | <i>d. Often did this</i>   | <i>e. Did this a great deal</i> |
|---|----------------------------|----------------------------|---------------------------------|----------------------------|---------------------------------|
| <b>132.</b> Got together with my supervisor to discuss the situation.       | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| <b>133.</b> Spoke with people (other than my supervisor) who were involved. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| <b>134.</b> Reminded myself that work isn't everything.                     | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |



**Appendix D: Questionnaire Instrument** (continued)

- |  | <i>a. Did not do this</i>  | <i>b. Seldom did this</i>  | <i>c. Occasionally did this</i> | <i>d. Often did this</i>   | <i>e. Did this a great deal</i> |
|--|----------------------------|----------------------------|---------------------------------|----------------------------|---------------------------------|
| 135. Tried to see this situation as an opportunity to learn and develop new skills.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 136. Anticipated the negative consequences so that I was prepared for the worst.   | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 137. Told myself that I could probably work things out to my advantage.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 138. Thought about the challenges I could find in this situation.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 139. Separated myself as much as possible from the people who created the situation.   | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 140. Tried to work faster and more efficiently.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 141. Gave it my best effort to do what I thought was expected of me.   | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 142. Sought advice from people outside the situation who may not have power but who could help me think of ways to do what was expected of me. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 143. Requested help from people who had the power to do something for me.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |

**Appendix D: Questionnaire Instrument** (continued)

- |  | <i>a. Did not do this</i>  | <i>b. Seldom did this</i>  | <i>c. Occasionally did this</i> | <i>d. Often did this</i>   | <i>e. Did this a great deal</i> |
|--|----------------------------|----------------------------|---------------------------------|----------------------------|---------------------------------|
| 144. Accepted this situation because there was nothing I could do to change it.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 145. Worked on changing policies which caused this situation.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 146. Reminded myself that other people have been in similar situations and that I could probably do as well as they did. | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 147. Tried to find out more about the situation.   | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 148. Wished that the situation would go away or somehow be over with.  | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |
| 149. Refused to believe that it was happening.   | <input type="checkbox"/> a | <input type="checkbox"/> b | <input type="checkbox"/> c      | <input type="checkbox"/> d | <input type="checkbox"/> e      |

**Appendix D: Questionnaire Instrument** (continued)

***PART 6***

This section asks you to provide some background information about yourself. This information will allow comparisons among different groups of employees, for example, men and women and junior and senior managers. To protect your anonymity, only subgroups with 5 or more persons will be used.

**150.** Which of the following categories best describes your grade?

- a. E-7 to E-9
- b. GS-10 or GS-11
- c. GS-12 or above
- d. O-1 to O-3
- e. O-4 or above

**151.** How long have you worked in the DoD?

- a. 2 years or less
- b. Between 3 and 10 years inclusive
- c. Between 11 and 15 years inclusive
- d. Between 16 and 20 years inclusive
- e. 21 years or more

**152.** How long have you been in your present job?

**Note:** If you are a student, please apply this question to your last job.

- a. 6 months or less
- b. Between 6 months and 2 years inclusive
- c. Between 2 and 5 years inclusive
- d. Between 10 and 15 years inclusive
- e. 16 or more years

**153.** Since you began working for the DoD, how many times have you experienced any form of a reduction in force?

- a. Never
- b. Once
- c. Twice
- d. Three times
- e. Four or more times

**Appendix D: Questionnaire Instrument** (continued)

**154.** How many times has the organization in which you work undergone a reduction in force?

- a. Never
- b. Once
- c. Twice
- d. Three times
- e. Four or more times

**155.** How many times have you observed a reduction in force of management-level employees?

- a. Never
- b. Once
- c. Twice
- d. Three times
- e. Four or more times

**156.** Are you: a. Male      b. Female

**157.** How old were you on your last birthday?

- a. 22 years old or less.
- b. Between 23 and 30 years old inclusive.
- c. Between 31 and 35 years old inclusive.
- d. Between 36 and 40 years old inclusive.
- e. 41 years old or more.

**158.** Your marital status is:

- a. Single, never married
- b. Married
- c. Divorced or separated
- d. Widowed
- e. Other

**159.** Is your income the primary source of financial support for your immediate family?

- a. No
- b. Yes

**Appendix D: Questionnaire Instrument** (continued)

**160.** What is the highest level of education you have completed?

- a. High school degree
- b. Some college
- c. Undergraduate degree
- d. Some graduate school
- e. Graduate degree

**161.** Are you assigned to a small or large organization? (If you are a student, apply questions to your last job.)

- a. Small
- b. Large

Please feel free to make any additional comments about your reactions to the cutbacks in DoD or, to the questionnaire items.

**Thank you for your cooperation in completing this questionnaire. Your participation in this study is greatly appreciated and very much valued.**

## **Appendix E: Questionnaire Key, Reverse Scored Items, and Deleted Items**

### Part 1:

1 - 21 Organizational Commitment (oc 1 - oc 21) Questions 2, 6, 7, 8, 10, 13, 19, & 21 were reverse scored. Questions 11 & 21 were deleted.

22 - 38 Organizational Support (os 1 - os 17) Questions 2, 3, 5, 6, 10, 13, & 14 were reverse scored. No questions were deleted.

### Part 2:

39 - 43 Supervisor Support (ss 1 - ss 4) No questions were reversed scored or deleted.

44 - 48 Co-Worker Support (cws 1 - cws 5) No questions were reverse scored or deleted.

49 - 55 Cooperation (co 1 - co 7) Questions 1 & 2 were reversed scored. No questions were deleted.

### Part 3:

56 - 65 Personnel Efficacy (pe 1 - pe 10) Questions 3, 6, 8, & 10 were reverse scored. Question 58 was deleted.

66 - 69 Optimism (op 1 - op 4) No questions were reversed scored or deleted.

70 - 80 Tolerance for Ambiguity (tfa 1 - tfa 11) Questions 3, 7, 10 & 11 were reverse scored. No questions were deleted.

81 - 93 Expectancy for Success (efs 1 - efs 13) Questions 1, 2, 7, 8, & 11 were reverse scored. Question 81 was deleted.

### Part 4:

94 - 103 Job Involvement (ji 1 - ji 10) Questions 2 & 7 were reverse scored. No questions were deleted.

104 - 106 Influence (in 1 - in 3) No questions were reversed scored or deleted.

107 - 111 Turnover Intention (ti 1 - ti 5) No questions were reversed scored or deleted.

112 - 125 Job Performance (jp 1 - jp 14) Questions 1, 2, & 3 were reverse scored. No questions were deleted.

**Appendix E: Questionnaire Key, Reverse Scored Items, and Deleted Items** (continued)

126 - 131 Job Security (js 1 - js 6) Questions 3 & 6 were reverse scored. Questions 126 & 130 were deleted.

Part 5:

132 - 149 Coping Strategies (cs 1 - cs 18) No questions were reversed scored or deleted.

Part 6: The reverse scoring and deleting procedure was not applicable.

150 - 161 Demographics

(grade = gr - Question 150)

(tenure = ten - Question 151)

(Length in Present Job = presjob - Question 152)

(Experienced RIF in DoD = rif - Question 153)

(Times Organization Undergone RIF = xrif - Question 154)

(Times Observed RIF in Management = mifx - Question 155)

(sex - Question 156)

(age - Question 157)

(Marital Status = ms - Question 158)

(Source of Financial Support = inc - Question 159)

(Level of Education = ed - Question 160)

(Small or Large Organization = so - Question 161)

## Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha

```
options Linesize=130;
data sheets;
infile survey missover;
input oc1 1 oc2 2 oc3 3 oc4 4 oc5 5 oc6 6 oc7 7 oc8 8 oc9 9 oc10 10 oc11 11 oc12 12
      oc13 13 oc14 14 oc15 15 oc16 16 oc17 17 oc18 18 oc19 19 oc20 20 oc21 21 os1 22 os2
      23 os3 24 os4 25 os5 26 os6 27 os7 28 os8 29 os9 30 os10 31 os11 32 os12 33 os13 34
      os14 35 os15 36 os16 37 os17 38 ss1 39 ss2 40 ss3 41 ss4 42 ss5 43 cws1 44 cws2 45
      cws3 46 cws4 47 cws5 48 col 49 co2 50 co3 51 co4 52 co5 53 co6 54 co7 55 pe1 56
      pe2 57 pe3 58 pe4 59 pe5 60 pe6 61 pe7 62 pe8 63 pe9 64 pe10 65 op1 66 op2 67 op3
      68 op4 69 tfa1 70 tfa2 71 tfa3 72 tfa4 73 tfa5 74 tfa6 75 tfa7 76 tfa8 77 tfa9 78 tfa10 79
      tfa11 80 efs1 81 efs2 82 efs3 83 efs4 84 efs5 85 efs6 86 efs7 87 efs8 88 efs9 89 efs10
      90 efs11 91 efs12 92 efs13 93 ji1 94 ji2 95 ji3 96 ji4 97 ji5 98 ji6 99 ji7 100 ji8 101 ji9
      102 ji10 103 in1 104 in2 105 in3 106 ti1 107 ti2 108 ti3 109 ti4 110 ti5 111
      jp1 112 jp2 113 jp3 114 jp4 115 jp5 116 jp6 117 jp7 118 jp8 119 jp9 120 jp10 121 jp11
      122 jp12 123 jp13 124 jp14 125 js1 126 js2 127 js3 128 js4 129 js5 130 js6 131 cs1 132
      cs2 133 cs3 134 cs4 135 cs5 136 cs6 137 cs7 138 cs8 139 cs9 140 cs10 141 cs11 142
      cs12 143 cs13 144 cs14 145 cs15 146 cs16 147 cs17 148 cs18 149 gr 150 ten 151
      presjob 152 rif 153 xrif 154 mrif 155 sex 156 age 157 ms 158 inc 159 ed 160 so 161;
;
oc1=oc1+1;
oc2=oc2+1;
oc3=oc3+1;
oc4=oc4+1;
oc5=oc5+1;
oc6=oc6+1;
oc7=oc7+1;
oc8=oc8+1;
oc9=oc9+1;
oc10=oc10+1;
oc11=oc11+1;
oc12=oc12+1;
oc13=oc13+1;
oc14=oc14+1;
oc15=oc15+1;
oc16=oc16+1;
oc17=oc17+1;
oc18=oc18+1;
oc19=oc19+1;
oc20=oc20+1;
oc21=oc21+1;
```



**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
os1=os1+1;
os2=os2+1;
os3=os3+1;
os4=os4+1;
os5=os5+1;
os6=os6+1;
os7=os7+1;
os8=os8+1;
os9=os9+1;
os10=os10+1;
os11=os11+1;
os12=os12+1;
os13=os13+1;
os14=os14+1;
os15=os15+1;
os16=os16+1;
os17=os17+1;
;
ss1=ss1+1;
ss2=ss2+1;
ss3=ss3+1;
ss4=ss4+1;
ss5=ss5+1;
;
cws1=cws1+1;
cws2=cws2+1;
cws3=cws3+1;
cws4=cws4+1;
cws5=cws5+1;
;
co1=co1+1;
co2=co2+1;
co3=co3+1;
co4=co4+1;
co5=co5+1;
co6=co6+1;
co7=co7+1;
;
pe1=pe1+1;
pe2=pe2+1;
```

**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
pe3=pe3+1;
pe4=pe4+1;
pe5=pe5+1;
pe6=pe6+1;
pe7=pe7+1;
pe8=pe8+1;
pe9=pe9+1;
pe10=pe10+1;
;
op1=op1+1;
op2=op2+1;
op3=op3+1;
op4=op4+1;
;
tfa1=tfa1+1;
tfa2=tfa2+1;
tfa3=tfa3+1;
tfa4=tfa4+1;
tfa5=tfa5+1;
tfa6=tfa6+1;
tfa7=tfa7+1;
tfa8=tfa8+1;
tfa9=tfa9+1;
tfa10=tfa10+1;
tfa11=tfa11+1;
;
oc2=6-oc2;
oc6=6-oc6;
oc7=6-oc7;
oc8=6-oc8;
oc10=6-oc10;
oc13=6-oc13;
oc19=6-oc19;
oc21=6-oc21;
os2=6-os2;
os3=6-os3;
os5=6-os5;
os6=6-os6;
os10=6-os10;
os13=6-os13;
```

**Appendix E: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
os14=6-os14;
col=6-col;
co2=6-co2;
pe3=6-pe3;
pe6=6-pe6;
pe8=6-pe8;
pe10=6-pe10;
taf3=6-tfa3;
tfa7=6-tfa7;
tfa10=6-tfa10;
tfa11=6-tfa11;
efs1=6-efs1;
efs2=6-efs2;
efs7=6-efs7;
efs8=6-efs8;
efs11=6-efs11;
ji2=6-ji2;
ji7=6-ji7;
jp1=6-jp1;
jp2=6-jp2;
jp3=6-jp3;
js3=6-js3;
js6=6-js6;
;
ocodd=oc1+oc3+oc5+oc7+oc9+oc13+oc15+oc17+oc19;
oceven=oc2+oc4+oc6+oc8+oc10+oc12+oc14+oc16+oc18+oc20;
osodd=os1+os3+os5+os7+os9+os11+os13+os15+os17;
oseven=os2+os4+os6+os8+os10+os12+os14+os16;
ssodd=ss1+ss3;
sseven=ss2+ss4;
cwsodd=cws1+cws3+cws5;
cwseven=cws2+cws4;
coodd=col+co3+co5+co7;
coeven=co2+co4+co6;
peodd=pe1+pe5+pe7+pe9;
peeven=pe2+pe4+pe6+pe8+pe10;
opodd=op1+op3;
opeven=op2+op4;
tfaodd=tfa1+tfa3+tfa5+tfa7+tfa9+tfa11;
tfaeven=tfa2+tfa4+tfa6+tfa8+tfa10;
```

**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
efsodd=efs3+efs5+efs7+efs9+efs11+efs13;
efseven=efs2+efs4+efs6+efs8+efs10+efs12;
jiodd=ji1+ji3+ji5+ji7+ji9;
jieven=ji2+ji4+ji6+ji8+ji10;
inodd=in1+in3;
ineven=in2;
tiodd=ti1+ti3+ti5;
tieven=ti2+ti4;
jpodd=jp1+jp3+jp5+jp7+jp9+jp11+jp13;
jpeven=jp2+jp4+jp6+jp8+jp10+jp12+jp14;
jsodd=js1+js6;
jseven=js2+js4;
csodd=cs1+cs3+cs5+cs7+cs9+cs11+cs13+cs15+cs17;
cseven=cs2+cs4+cs6+cs8+cs10+cs12+cs14+cs16+cs18;
;
proc corr Alpha nomiss;
  va  c1 oc2 oc3 oc4 oc5 oc6 oc7 oc8 oc9 oc10 oc12 oc13 oc14 oc15
  oc16 oc17 oc18 oc19 oc20;
  title 'Alpha Coefficient on the Organizational Commitment (oc) Scale';
;
proc corr Alpha nomis;
  var os1 os2 os3 os4 os5 os6 os7 os8 os9 os10 os11 os12 os13 os14 os15
  os16 os17;
  title 'Alpha Coefficient on the Organizational Support (os) Scale';
;
proc corr Alpha nomiss;
  var ss1 ss2 ss3 ss4;
  title 'Alpha Coefficient on the Supervisor Support (ss) Scale';
;
proc corr Alpha nomiss;
  var cws1 cws2 cws3 cws4 cws5;
  title 'Alpha Coefficient on the Co-Worker Support (cws) Scale';
;
proc corr Alpha nomiss;
  var co1 co2 co3 co4 co5 co6 co7;
  title 'Alpha Coefficient on the Cooperation (co) Scale';
;
proc corr Alpha nomiss;
  var pe1 pe2 pe4 pe5 pe6 pe7 pe8 pe9 pe10;
  title 'Alpha Coefficient on the Personnel Efficacy (pe) Scale';
```

**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
;  
proc corr Alpha nomiss;  
  var op1 op2 op3 op4;  
  title 'Alpha Coefficient on the Optimism (op) Scale';  
;  
proc corr Alpha nomiss;  
  var tfa1 tfa2 tfa3 tfa4 tfa5 tfa6 tfa7 tfa8 tfa9 tfa10 tfa11;  
  title 'Alpha Coefficient on the Tolerance for Ambiguity (tfa) Scale';  
;  
proc corr Alpha nomiss;  
  var efs2 efs3 efs4 efs5 efs6 efs7 efs8 efs9 efs10 efs11 efs12 efs13;  
  title 'Alpha Coefficient on the Expectancy for Success (efs) Scale';  
;  
proc corr Alpha nomiss;  
  var ji1 ji2 ji3 ji4 ji5 ji6 ji7 ji8 ji9 ji10;  
  title 'Alpha Coefficient on the Job Involvement (ji) Scale';  
;  
proc corr Alpha nomiss;  
  var in1 in2 in3;  
  title 'Alpha Coefficient on the Influence (in) Scale';  
;  
proc corr Alpha nomiss;  
  var ti1 ti2 ti3 ti4 ti5;  
  title 'Alpha Coefficient on the Turnover Intention (ti) Scale';  
;  
proc corr Alpha nomiss;  
  var jp1 jp2 jp3 jp4 jp5 jp6 jp7 jp8 jp9 jp10 jp11 jp12 jp13 jp14;  
  title 'Alpha Coefficient on the Job Performance (jp) Scale';  
;  
proc corr Alpha nomiss;  
  var js1 js2 js4 js6;  
  title 'Alpha Coefficient on the Job Security (js) Scale';  
;  
proc corr Alpha nomiss;  
  var cs1 cs2 cs3 cs4 cs5 cs6 cs7 cs8 cs9 cs10 cs11 cs12 cs13 cs14 cs15 cs16 cs17 cs18;  
  title 'Alpha Coefficient on the Coping Strategies (cs) Scale';  
;  
proc corr Pearson nomiss;  
  var ocodd oceven;  
  title 'Split-Half Reliability Analysis on the Organizational Commitment (oc) Scale';
```

**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
;  
proc corr Pearson nomiss;  
  var osodd oseven;  
  title 'Split-Half Reliability Analysis on the Organizational Support (os) Scale';  
;  
proc corr Pearson nomiss;  
  var ssodd sseven;  
  title 'Split-Half Reliability Analysis on the Supervisor Support (ss) Scale';  
;  
proc corr Pearson nomiss;  
  var cwsodd cwseven;  
  title 'Split-Half Reliability Analysis on the Co-Worker Support (cws) Scale';  
;  
proc corr Pearson nomiss;  
  var coodd coeven;  
  title 'Split-Half Reliability Analysis on the Cooperation (co) Scale';  
;  
proc corr Pearson nomiss;  
  var peodd peeven;  
  title 'Split-Half Reliability Analysis on the Personnel Efficacy (pe) Scale';  
;  
proc corr Pearson nomiss;  
  var opodd opeven;  
  title 'Split-Half Reliability Analysis on the Optimism (op) Scale';  
;  
proc corr Pearson nomiss;  
  var tfaodd tfaeven;  
  title 'Split-Half Reliability Analysis on the Tolerance for Ambiguity (tfa) Scale';  
;  
proc corr Pearson nomiss;  
  var efsodd efseven;  
  title 'Split-Half Reliability Analysis on the Expectancy for Success (efs) Scale';  
;  
proc corr Pearson nomiss;  
  var jiodd jieven;  
  title 'Split-Half Reliability Analysis on the Job Involvement (ji) Scale';  
;  
proc corr Pearson nomiss;  
  var inodd ineven;  
  title 'Split-Half Reliability Analysis on the Influence (in) Scale';
```

**Appendix F: SAS Program for Split-Half & Cronbach's Coefficient Alpha** (continued)

```
;  
proc corr Pearson nomiss;  
  var tiodd tieven;  
  title 'Split-Half Reliability Analysis on the Turnover Intention (ti) Scale';  
;  
proc corr Pearson nomiss;  
  var jpodd jpeven;  
  title 'Split-Half Reliability Analysis on the Job Performance (jp) Scale';  
;  
proc corr Pearson nomiss;  
  var jsodd jseven;  
  title 'Split-Half Reliability Analysis on the Job Security (js) Scale';  
;  
proc corr Pearson nomiss;  
  var csodd cseven;  
  title 'Split-Half Reliability Analysis on the Coping Strategies (cs) Scale';  
  
runsas
```

## Appendix G: SAS Program for All Variable Correlations

```
options Linesize=130;
data sheets;
infile survey missover;
input oc1 1 oc2 2 oc3 3 oc4 4 oc5 5 oc6 6 oc7 7 oc8 8 oc9 9 oc10 10 oc11 11 oc12 12
      oc13 13 oc14 14 oc15 15 oc16 16 oc17 17 oc18 18 oc19 19 oc20 20 oc21 21 os1 22
      os2 23 os3 24 os4 25 os5 26 os6 27 os7 28 os8 29 os9 30 os10 31 os11 32 os12 33
      os13 34 os14 35 os15 36 os16 37 os17 38 ss1 39 ss2 40 ss3 41 ss4 42 ss5 43 cws1 44
      cws2 45 cws3 46 cws4 47 cws5 48 col 49 co2 50 co3 51 co4 52 co5 53 co6 54 co7 55
      pe1 56 pe2 57 pe3 58 pe4 59 pe5 60 pe6 61 pe7 62 pe8 63 pe9 64 pe10 65 op1 66 op2
      67 op3 68 op4 69 tfa1 70 tfa2 71 tfa3 72 tfa4 73 tfa5 74 tfa6 75 tfa7 76 tfa8 77 tfa9 78
      tfa10 79 tfa11 80 efs1 81 efs2 82 efs3 83 efs4 84 efs5 85 efs6 86 efs7 87 efs8 88 efs9
      89 efs10 90 efs11 91 efs12 92 efs13 93 ji1 94 ji2 95 ji3 96 ji4 97 ji5 98 ji6 99 ji7 100
      ji8 101 ji9 102 ji10 103 in1 104 in2 105 in3 106 ti1 107 ti2 108 ti3 109 ti4 110 ti5 111
      jp1 112 jp2 113 jp3 114 jp4 115 jp5 116 jp6 117 jp7 118 jp8 119 jp9 120 jp10 121 jp11
      122 jp12 123 jp13 124 jp14 125 js1 126 js2 127 js3 128 js4 129 js5 130 js6 131 cs1 132
      cs2 133 cs3 134 cs4 135 cs5 136 cs6 137 cs7 138 cs8 139 cs9 140 cs10 141 cs11 142
      cs12 143 cs13 144 cs14 145 cs15 146 cs16 147 cs17 148 cs18 149 gr 150 ten 151resjob
      152 rif 153 xrif 154 mrif 155 sex 156 age 157 ms 158 inc 159 ed 160 so 161;
;
oc1=oc1+1;
oc2=oc2+1;
oc3=oc3+1;
oc4=oc4+1;
oc5=oc5+1;
oc6=oc6+1;
oc7=oc7+1;
oc8=oc8+1;
oc9=oc9+1;
oc10=oc10+1;
oc11=oc11+1;
oc12=oc12+1;
oc13=oc13+1;
oc14=oc14+1;
oc15=oc15+1;
oc16=oc16+1;
oc17=oc17+1;
oc18=oc18+1;
oc19=oc19+1;
oc20=oc20+1;
oc21=oc21+1;
```



**Appendix G: SAS Program for All Variable Correlations** (continued)

```
os1=os1+1;
os2=os2+1;
os3=os3+1;
os4=os4+1;
os5=os5+1;
os6=os6+1;
os7=os7+1;
os8=os8+1;
os9=os9+1;
os10=os10+1;
os11=os11+1;
os12=os12+1;
os13=os13+1;
os14=os14+1;
os15=os15+1;
os16=os16+1;
os17=os17+1;
;
ss1=ss1+1;
ss2=ss2+1;
ss3=ss3+1;
ss4=ss4+1;
ss5=ss5+1;
;
cws1=cws1+1;
cws2=cws2+1;
cws3=cws3+1;
cws4=cws4+1;
cws5=cws5+1;
;
co1=co1+1;
co2=co2+1;
co3=co3+1;
co4=co4+1;
co5=co5+1;
co6=co6+1;
co7=co7+1;
;
pe1=pe1+1;
pe2=pe2+1;
pe3=pe3+1;
```

**Appendix G: SAS Program for All Variable Correlations** (continued)

```
pe4=pe4+1;
pe5=pe5+1;
pe6=pe6+1;
pe7=pe7+1;
pe8=pe8+1;
pe9=pe9+1;
pe10=pe10+1;
;
op1=op1+1;
op2=op2+1;
op3=op3+1;
op4=op4+1;
;
tfa1=tfa1+1;
tfa2=tfa2+1;
tfa3=tfa3+1;
tfa4=tfa4+1;
tfa5=tfa5+1;
tfa6=tfa6+1;
tfa7=tfa7+1;
tfa8=tfa8+1;
tfa9=tfa9+1;
tfa10=tfa10+1;
tfa11=tfa11+1;
;
oc2=6-oc2;
oc6=6-oc6;
oc7=6-oc7;
oc8=6-oc8;
oc10=6-oc10;
oc13=6-oc13;
oc19=6-oc19;
oc21=6-oc21;
os2=6-os2;
os3=6-os3;
os5=6-os5;
os6=6-os6;
os10=6-os10;
os13=6-os13;
os14=6-os14;
```

**Appendix G: SAS Program for All Variable Correlations** (continued)

```
col=6-col;  
co2=6-co2;  
pe3=6-pe3;  
pe6=6-pe6;  
pe8=6-pe8;  
pe10=6-pe10;  
tfa3=6-tfa3;  
tfa7=6-tfa7;  
tfa10=6-tfa10;  
tfa11=6-tfa11;  
efs1=6-efs1;  
efs2=6-efs2;  
efs7=6-efs7;  
efs8=6-efs8;  
efs11=6-efs11;  
ji2=6-ji2;  
ji7=6-ji7;  
jp1=6-jp1;  
jp2=6-jp2;  
jp3=6-jp3;  
js3=6-js3;  
js6=6-js6;  
;  
oc2=6-oc2;  
oc6=6-oc6;  
oc7=6-oc7;  
oc8=6-oc8;  
oc10=6-oc10;  
oc13=6-oc13;  
oc19=6-oc19;  
oc21=6-oc21;  
os2=6-os2;  
os3=6-os3;  
os5=6-os5;  
os6=6-os6;  
os10=6-os10;  
os13=6-os13;  
os14=6-os14;  
col=6-col;  
co2=6-co2;
```

**Appendix G: SAS Program for All Variable Correlations** (continued)

```
pe3=6-pe3;
pe6=6-pe6;
pe8=6-pe8;
pe10=6-pe10;
tfa3=6-tfa3;
tfa7=6-tfa7;
tfa10=6-tfa10;
tfa11=6-tfa11;
efs1=6-efs1;
efs2=6-efs2;
efs7=6-efs7;
efs8=6-efs8;
efs11=6-efs11;
ji2=6-ji2;
ji7=6-ji7;
jp1=6-jp1;
jp2=6-jp2;
jp3=6-jp3;
js3=6-js3;
js6=6-js6;
;
oc=oc1+oc2+oc3+oc4+oc5+oc6+oc7+oc8+oc9+oc10+oc12+oc13+oc14+oc15+oc16+
  oc17+oc18+oc19+oc20;
;
os=os1+os2+os3+os4+os5+os6+os7+os8+os9+os10+os11+os12+os13+os14+os15+os16
  +os17;
;
ss=ss1+ss2+ss3+ss4;
;
cws=cws1+cws2+cws3+cws4+cws5;
;
co=co1+co2+co3+co4+co5+co6+co7;
;
pe=pe1+pe2+pe4+pe5+pe6+pe7+pe8+pe9+pe10;
;
op=op1+op2+op3+op4;
;
tfa=tfa1+tfa2+tfa3+tfa4+tfa5+tfa6+tfa7+tfa8+tfa9+tfa10+tfa11;
;
efs=efs2+efs3+efs4+efs5+efs6+efs7+efs8+efs9+efs10+efs11+efs12+efs13;
;
```

**Appendix G: SAS Program for All Variable Correlations** (continued)

```
ji=ji1+ji2+ji3+ji4+ji5+ji6+ji7+ji8+ji9+ji10;  
;  
in=in1+in2+in3;  
;  
ti=ti1+ti2+ti3+ti4+ti5;  
;  
jp=jp1+jp2+jp3+jp4+jp5+jp6+jp7+jp8+jp9+jp10+jp11+jp12+jp13+jp14;  
;  
js=js1+js2+js4+js6;  
;  
cs=cs1+cs2+cs3+cs4+cs5+cs6+cs7+cs8+cs9+cs10+cs11+cs12+cs13+cs14+cs15+cs16+  
  cs17+cs18;  
;  
proc corr Pearson nomiss;  
  var oc os ss cws co pe op tfa efs ji in ti jp js cs gr ten presjob rif xrif mrif sex age ms inc  
  ed so;  
  title 'Correlations Among All Variable Scales';  
  
runsas
```

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## Vitae

Lieutenant Colonel Donald A. O'Hare, was born and grew up in upstate New York. He graduated from Rensselaer Polytechnic Institute in 1974 with Bachelor of Science and Master of Engineering degrees in Biomedical Engineering and earned a commission in the Medical Service Corps, through the US Army Reserve Officer Training Corps. From 1975 through 1984, he served as a company commander, medical supply officer, division support-command logistics officer (S-4), and medical planning officer in the 7th Infantry Division, Fort Ord, CA; the XVIII Airborne Corps, Fort Bragg, NC; the 8th Infantry Division (Mechanized), Bad Kreuznach, Germany; and the European Command Logistic Coordinating Cell, RAF Burtonwood, United Kingdom, respectively. He was then posted to Fort Carson, CO to serve as the Chief, Medical Material Branch and the Chief, Logistics Division, Evans US Army Community Hospital from 1984 to 1987. LTC O'Hare returned to Germany in 1987 as the Inspector General, 7th Medical Command, US Army Europe and held that position until 1990. During this latter period he earned a Masters in Business Administration from Boston University. In 1990 LTC O'Hare returned to the United States and assigned as the Chief, Logistics Division, Winn US Army Community Hospital, Fort Stewart, GA until he entered the School of Logistics and Acquisition Management of the Air Force Institute of Technology in May 1993. LTC O'Hare and his wife and daughter, will transfer to Frederick, MD where he will be assigned to the US Army Surgeon General's office as a health care materiel officer.

Captain Carmine F. Vilardi was born in Dumont, NJ and graduated from Hackensack High School in 1976. Moving to a southern part of the state in 1977, he met and married the former Virginia Ann Penson of Toms River, NJ. In 1978, Captain Vilardi enlisted in the US Air Force as an Avionics System Technician and by 1984 attained the rank of Staff Sergeant while earning three college degrees. He earned a commission in 1985 through the Air Force Officers' Training School, was trained and qualified in aircraft maintenance, and broadened his career by entering the acquisition logistics discipline. In May 1993 he was assigned to the School of Logistics and Acquisition Management of the Air Force Institute of Technology, Air University. Captain Vilardi holds degrees in Avionics Technology, Psychology, and Social Psychology. He is a member in Psi Chi ( $\Psi\chi$ ) and Sigma Iota Epsilon ( $\Sigma IE$ ) Honor Societies and is pursuing graduate degrees at both the Air Force Institute of Technology and Harvard University. Captain Vilardi has three children ranging from 13 to 16 and upon graduation, will be assigned to the Air Force Logistics Management Agency, Gunter Annex, Maxwell Air Force Base, AL.

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