RELATIONSHIPS BETWEEN CAREER RESILIENCE AND CAREER BELIEFS OF EMPLOYEES IN TAIWAN

A Dissertation

by

YU-CHING LIU

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2003

Major Subject: Educational Psychology

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ABSTRACT

Relationships between Career Resilience and Career Beliefs

of Employees in Taiwan. (December 2003)

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The purpose of this study was to explore the relationships between career resilience and career beliefs among employees in Taiwan. This study also examined whether selected demographic variables had effects on career resilience and career beliefs. A pilot study involving 178 participants was conducted in Taiwan to validate the instruments used in the main study. Twenty items were selected for measuring career resilience. These items were taken from London's Career Motivation Inventory (1993b), Noe, R. A., Noe, A. W., and Bachhuber's measures of career motivation (1990), and Michigan's Career Resilience Scale (Bice, 1999, January 24-30). Forty-nine items consisting of 10 subscales in the Career Beliefs Scale were adopted from Yang's Chinese Career Beliefs Inventory—Form B (1996). The study had 578 current employees from diverse work settings in Taiwan.

Career resilience scores were negatively correlated with the total career beliefs scores ($r = -.22$, $p < .01$), which indicated that participants who were higher on career resilience tended to possess fewer irrational career beliefs. Career resilience scores were negatively correlated with belief in fate, avoidance of decision making, the belief that

some occupations are more prestigious than others, possessing sex role stereotypes, assuming other's help can determine the best choice, and the belief that salary is the primary concern when making career choices. Career resilience scores were positively correlated with the belief that one should find the best-fit career and that work is very important in one's life. However, the magnitudes of coefficients were small (the absolute *r* values were all less than .40).

The results of ANOVA showed that gender, education, type of institution, recent participation in training/educational activities, and supervisory experience yielded statistically significant main effects in career resilience scores. Additionally, there was a significant interaction effect on career resilience for gender by education.

MANOVA results showed that gender, age, educational levels, types of institutions, supervisory experience, career change, and recent participation in training activities yielded statistically significant differences among career beliefs. Discriminant analyses were applied to further investigate the differences among the 10 career belief subscales for the significant demographic variables.

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TABLE OF CONTENTS

Page

ABSTRACT iii

ACKNOWLEDGMENTS v

TABLE OF CONTENTS vi

LIST OF TABLES xi

LIST OF FIGURES xiii

CHAPTER

I INTRODUCTION 1

Background 1
Rapid Advances in Technology 1
Global Competition 1
Organization Restructuring 2
Loss of Job Security 3
Career Path No Longer Predictable and Upward Mobility 4
Continued Learning and Benchmarking Employability Are Required 5
Statement of the Problem 6
Purpose of the Study and Research Questions 9
Definition of Terms 10
Career Resilience 10
Career Beliefs 11
Limitations of This Study 11
Summary 11
Overview of Remaining Chapters 12

II LITERATURE REVIEW 13

Career Resilience 13
Studies on Resilient Children 13
London's Theory of Career Resilience 16
Waterman's and Collard's Perception of Career Resilience 20
Measures of Career Resilience 21
London's Career Motivation Inventory 21
Noe's Measures of Career Motivation 22

TABLE OF CONTENTS--CONTINUED

CHAPTER Page

An Integrated Career Resilience Subscale 22
Michigan's Career Resilience Scale 23
Research on Career Resilience 24
Career Resilience and Personal Characteristics 24
Career Resilience and Age, Gender, Education, and Ethnicity 26
Career Resilience and Work Environment and Related Issues 27
Career Beliefs 29
Formation of Beliefs 29
Beliefs and Career-Related Behaviors 32
Irrational Career Beliefs/Career Myths 33
The Characteristics of Irrational Career Beliefs 37
Beliefs in Self-Efficacy 38
Measures of Career Beliefs 40
Krumboltz's Career Beliefs Inventory (CBI) 40
The Chinese Career Beliefs Inventory (CCBI) 42
Normative Sample 44
Reliability 44
Construct Validity 44
Research on Career Beliefs 46
Career Beliefs and Decision-Making and Career-Related Behaviors 46
Career Beliefs and Age, Gender Differences, and Sex Role Stereotypes 48
Career Beliefs of Unemployed Adults 50
Career Beliefs Research in Taiwan 51
Summary 52

III METHODOLOGY 55

The Pilot Study 55
Purpose 55
Instruments 56
The Measures of Career Resilience 56
The Career Beliefs Scale 57
The Personal Data Sheet 60
Sample 60
Procedures 61
Data Analysis 62
The Means and Standard Deviations (*SD*s) of Items in the Measures of Career Resilience 63

TABLE OF CONTENTS—CONTINUED

CHAPTER Page

Factor Analyses and Reliabilities for the Measures of Career Resilience 64
The Means and *SD*s of Items in the Career Beliefs Scale 66
Factor Analyses and Reliabilities for the Career Beliefs Scale 66
The Main Study 71
Purpose 71
Sample 72
Instruments 72
The Measures of Career Resilience 72
The Career Beliefs Scale 72
The Personal Data Sheet 73
Procedures 73
Data Analysis 75
Summary 78

IV RESULTS 80

Description of the Sample 80
Results for Research Question 1 83
Results for Research Question 2 88
Results for Research Question 3 92
Results for Research Question 4 93
Results for Research Question 5 95
Differences of Career Beliefs by Gender 98
Differences of Career Beliefs by Type of Institution 98
Differences of Career Beliefs by Educational Level 100
Differences of Career Beliefs by Age Range 101
Differences of Career Beliefs by Supervisory Experience 104
Differences of Career Beliefs by Career Change 104
Differences of Career Beliefs by Participation in Training Activities 107
Summary 107

V SUMMARY, DISCUSSION, AND RECOMMENDATIONS 110

Summary 110
Purpose of the Study 110
Research Questions 111

TABLE OF CONTENTS--CONTINUED

CHAPTER Page

Instruments ... 112
The Measures of Career Resilience ... 112
The Career Beliefs Scale ... 112
The Personal Data Sheet ... 113
Sample ... 113
Procedures of Data Collection ... 114
Discussion ... 115
Results for Research Question 1 ... 115
Results for Research Question 2 ... 117
Results for Research Question 3 ... 121
Results for Research Question 4 ... 122
Results for Research Question 5 ... 122
Differences of Career Beliefs by Gender ... 122
Differences of Career Beliefs by Type of Institution ... 123
Differences of Career Beliefs by Educational Level ... 124
Differences of Career Beliefs by Age Range ... 125
Differences of Career Beliefs by Supervisory Experience ... 126
Differences of Career Beliefs by Career Change ... 126
Differences of Career Beliefs by Participation in Training Activities ... 127
Limitations of the Study ... 127
Recommendations ... 130

REFERENCES ... 134

APPENDIX A ... 143

APPENDIX B ... 144

APPENDIX C ... 145

APPENDIX D ... 146

APPENDIX E ... 148

APPENDIX F ... 153

APPENDIX G ... 154

APPENDIX H ... 155

TABLE OF CONTENTS--CONTINUED

Page

APPENDIX I 156

APPENDIX J 157

APPENDIX K 158

VITA 159

LIST OF TABLES

TABLE		Page
3-1	Factor Loadings and Reliability Coefficients for the Career Resilience Items	67
3-2	Factor Loadings and Reliability Coefficients for the Career Beliefs Items	68
4-1	Demographic Characteristics of the Sample	81
4-2	Demographic Characteristics of Employees in Taiwan in 2002	83
4-3	Correlation Matrix for Career Resilience and Career Beliefs Total and Subscale Scores	85
4-4	Regressions of Career Beliefs Subscale Scores on Career Resilience Scores	86
4-5	Structure Coefficients and Test Results of Standardized Beta Weights for the Career Belief Subscales	87
4-6	Main Effects of Demographic Variables on Career Resilience Scores	89
4-7	Means and *SD*s of Career Resilience Scores by Selected Demographic Variables	91
4-8	Gender by the Other Demographic Variables Two-Way Interaction Effects on Career Resilience Scores	92
4-9	Trend Analysis on Career Resilience Scores by Years of Paid Work	94
4-10	Main Effects of Demographic Variables on Career Beliefs Subscales	95
4-11	Means, *SD*s, and ANOVA Results of Demographic Subgroups on Career Beliefs Total Scores	96
4-12	Discriminant Analysis on Career Beliefs Subscales by Gender	99
4-13	Discriminant Analysis on Career Beliefs Subscales by Type of Institution	100

LIST OF TABLES--CONTINUED

TABLE Page

4-14 Discriminant Analysis on Career Beliefs Subscales by Educational Level 102

4-15 Discriminant Analysis on Career Beliefs Subscales by Age Range 103

4-16 Discriminant Analysis on Career Belies Subscales by Supervisory Experience 105

4-17 Discriminant Analysis on Career Beliefs Subscales by Career Change 106

4-18 Discriminant Analysis on Career Beliefs Subscales by Participation in Training Activities 108

LIST OF FIGURES

FIGURE Page

3-1 The Scree Plot for the Career Resilience Items..... 65

4-1 Gender by Education Interaction on Career Resilience Scores..... 93

4-2 Means of Career Resilience Scores by Years of Paid Work..... 94

CHAPTER I

INTRODUCTION

Background

Business strategies, organizational structures, and processes of production in business and industry have undergone fundamental changes since the 1980s. These changes result from rapid advances in technology, global competition, and restructuring within organizations (Collard, Epperheimer, & Saign, 1996; Miles & Snow, 1996; Story, 2000; Walton, 1999; Waterman, R. H., Waterman, J. A., & Collard, 1994). They have significant impacts on today's workplace:

Rapid Advances in Technology

Technology innovation in automation has increased productivity as well as reduced the need of labor in manufacturing procedures. Formerly, labor-intensive industries had to lay-off extra employees in considering their costs. Workers who have no skills or who do not keep pace with the technology advances find it difficult to obtain jobs in the current workplace. In addition, advances in communication and information technology allow transmission of information quickly and world-widely; thus facilitating the development of international organizations, and consequently increasing the global competition (Story, 2000).

Global Competition

Globalization has tremendous influence on the nature and forms of work.

This dissertation follows the style and format of the *Journal of Vocational Behavior*.

Because of the availability of wider products and the labor market, companies have freedom of choice about where their goods are produced, based on the location that can provide relatively inexpensive materials and labor. Thus, globalization results in reduced job opportunities in expansive countries. On the other hand, globalization increases the opportunities for individuals who work on international assignments to enhance their competency (Story, 2000). Globalization also yields worldwide competition; consequently, it accelerates changes in economy and industry. All companies are forced to be more efficient and flexible when they struggle to survive in this complex and turbulent environment.

Organization Restructuring

After the rise of Industrial Revolution in the late 1800s till the second half of the 20th century, as firms grew larger, they built up more and more levels of management hierarchy in order to keep operations under control (Miles & Snow, 1996). However, the multi-level bureaucratic structure could not respond efficiently to the fast changing environment. Therefore, organizations conducted restructuring (e.g., downsizing, delayering, mergers) to maximize communication and flexibility during the 1980s to 1990s. They decentralized decision-making processes so that the frontline workers could respond to problems immediately, and they also created cross-functional teams that could operate like a small business unit. These changes caused a lot of middle managers to downsize, even though their jobs were presumably secure.

Some of the independent firms are linked together into an interrelated chain, each contributes their expertise to strengthen their competition. The "network" structure was

formed in the 1970s (Miles & Snow, 1996). Recently, a new "cellular organization" is beginning to be recognized. According to Miles and Snow's definition: "a cellular organization is made up of cells (self-managing teams, autonomous business units, etc.) that could exist on their own, but by interacting with other cells, can produce a more potent and competent organism" (p. 109). Therefore, it does not matter if it's an individual employee or an organization, cooperation and teamwork are increasingly important in performing more complex functions more efficiently.

The updating technology, increasing competition from all over the world, and leaner structure in organizations in turn have great impacts on individuals' careers. In contrast to the traditional view about one's career development, employees now are facing more challenges adapting to the competitive and unpredictable workplace.

Loss of Job Security

Organizational downsizing and delayering during the 1980s and 1990s increased the fear of job insecurity. Lifelong employment is no longer promised because even the organization itself does not know whether or not it can survive tomorrow under the intensive competition. Job insecurity affects an individual's long-term career planning when the future is unpredictable and unstable. Individuals need to take responsibility for their own placement and career development (Arthur & Rousseau, 1996; Collard et al., 1996; Hall & Associates, 1996; Young & Collin, 2000).

Hall and Associates (1996) identified that the psychological contract between employers and employees had been transitioned. A psychological contract (or social contract) is not a legal document, but rather an agreement between employers and

employees. Schein (1965, cited in Collard et al., 1996) depicted the implicit old (or traditional) psychological employment contract as: employees work hard, the job is within the scope of their job description, and they are loyal to the company in exchange for salary, status, and job security; thus, employers have to take care of their employees' career development. The contract implies a parental relationship (Collard et al. 1996). Today, the new contract is changed to a partnership relation: "It is the employees' responsibility to manage his or her own careers." It is the company's responsibility to "provide employees the tools, the open environment, and the opportunities for assessing and developing their skills" to "exchange for better productivity and some degree of commitment to the company" (Waterman et al., 1994, p. 88).

Career Paths No Longer Predictable and Upward Mobility

Traditionally, career success means climbing up to the top position of a hierarchical organization, followed by increasing pay. In conducting restructuring, organizations become flatter and thinner, so there are fewer opportunities for advanced movement. Individuals may move laterally between divisions or even downwardly within an organization's structure. Hall and Associates (1996) argued that the traditional career goal—path to the top—was redefined as psychological success—pace with a heart (p. 34). The feeling of success is internally and individually defined. It does not come from job promotion, but from the accomplishment of challenging work, or from self-actualization in terms of one's unique values and vision about life.

Since organizations are becoming more flexible in structure and staffing, they have begun to offer flextime, work at home options, part-time employment, job sharing,

contract work, or project-based work assignment. For some people, periodical changes in employment status (e.g., from full-time to part-time or being laid-off) and the degree of membership in an organization (e.g., from core worker to contract worker) may create confusion about self-identity as well as frustration. On the contrary, some people benefit from the flexible job system. They can adjust their work commitments over time in accordance with their family or non-work needs, hence developing a more expanded view of self-concept and having a balanced life (Mirvis & Hall, 1996).

Continued Learning and Benchmarking Employability Are Required

In the past, jobs were relatively static. Once an employee mastered certain skills, he or she could perform competently and stay employed as long as he or she worked. However, due to rapid technology innovation and increasing competition, today's employees have to continuously update their skills in order to keep pace with the changes. These updated skills are demanded not only for those who work in high-tech industrial, but also for those who have frequent job rotation, short-term project assignment, lateral career movement, or re-entry a new career—all will require sustained learning in order to maintain employment security. Benchmarking demanded skills against the standards in their area are also needed, such as obtaining certificates or licenses. It represents the employees' competence and thus enhances their employability. Hall and Associates (1996) commented that the new career is no longer "earning a living" but "learning a living." London and Smither (1999) describe a self-determined, career related continuous learner as:

> …they regularly assess their work environments to identify what they need to know. They develop alternative visions of the future to anticipate what they will need to know tomorrow. They seek feedback and assess their current skills and knowledge to determine learning gaps. They search for development opportunities and set learning objectives (p. 89).

Statement of the Problem

Similar trends have emerged in Taiwan. Because of businesses and industries downsizing, closing down, or moving abroad, the unemployment rate soared above 5% in July of 2001 for the first time since 1935 (Directorate-General of Budget, Accounting and Statistics, 2001, September). According to the 2001 Manpower Statistics Annual Report (Directorate-General of Budget, Accounting and Statistics, 2002), 54% of the unemployed persons are product and machine operators and related workers; however, those workers in all only account for 35% of the total labor force in Taiwan. The primary reason for job loss is "established closed or business shrink" (45.9%). The data indicates that the higher unemployment rate among product and machine operators and related workers is due to the impact of global competition that forces the labor-intensive firms to close or to move to less expensive labor cost countries, plus the automatic technique outdates those who have no skill or low skill workers. Statistics show that the duration in average weeks of unemployment for unemployed persons was 29.67 weeks in December 2001; compared to the average 17.20 weeks in 1995. That means unemployed people have to suffer a much longer time before finding their next job.

Taiwan joined the World Trade Organization (WTO) in 2002. WTO is an international organization whose main function is ensuring a free, non-discriminatory global trading system. Each member of the WTO receives a guarantee that its exports will be treated fairly and consistently in other countries' markets. Each country agrees to do the same for imports into its own market (World Trade Organization, 2003). Therefore, both companies and employees are encountering more competition from globalization. Even now, the assumed lifelong employment in government is facing challenges. In order to increase efficiency, nine government-owned enterprises have been undergoing privatization (Commission of National Corporations, 2001, September); the central government plans to cut 3.225% of its employees per year in 2002 and 2003 (Central Personnel Administration, 2003). In sum, hundreds of thousands of people will be affected by government restructuring. Commitment to lifelong employment is gradually disappearing.

In response to the changes in the current workplace, Waterman et al. (1994), Collard et al. (1996), and Griffith (1998) advocate "building a career-resilient workforce." A career-resilient worker should not cling to one job, one company, or one career path. He/she has to manage his/her own career development and devote to continued learning in order to maintain employability. With the competitive skills required in the workforce, he/she can find a job whenever it is needed. Collard et al. (1996) pointed out that career resilience is "the result, or the outcome of being self-reliant" (p. 34), and these two terms can be used interchangeably. The emphasis of career self-reliance is on self-awareness, learning, and dealing with change. The authors

illustrate a "Career Self-Reliance Wheel" to portray the concept of career self-reliance/resilience (p. 37). The major components of the Wheel are: Being self-aware and value driven, individuals know who they are and where they are going; being connected and flexible, they can work with others; being future-focused and dedicated to continuous learning, they can maintain functional work skills and know how to deal with changes.

From London's point of view (1983), career resilience is one component of career motivation (the others are career insight and career identity). It is an internal construct that arouses and directs an individual's career decisions and behaviors. He defined career resilience as "the ability to adapt to changing circumstance, even when the circumstances are discouraging or disruptive" (p. 34). Being resilient keeps individuals moving forward and gives them strength to overcome career barriers, such as job loss, job transfer, job stress, and poor performance. London hypothesizes three sub-domains of career resilience: (a) belief in self (self-efficacy), (b) willingness to take risks, and (c) working independently or cooperatively as needed (London, 1983). London and Mone (1987) stated that career resilience is the key to overcoming career stress. In sum, career resilience is a required personal characteristic when individuals face the turbulent and uncertain workplace.

Although the concept of career resilience was proposed by London (1983) almost 20 years ago, little research has focused on this topic. Since career resilience is a required characteristic for employees to achieve success in the current and future workplace, more understanding about the construct of career resilience and how it relates

to other career variables, such as career beliefs, will shed significant insight on designing or improving manpower training program and career counseling. In addition, career beliefs are essential factors affecting one's career decision and job behaviors (Krumboltz, Rude, Mitchell, Hamel, & Kinnier, 1982). However, the majority of the literature focused on describing or categorizing individuals' career beliefs and how they affect one's career decisions. No research was found which studied the current workers' career beliefs in Taiwan, nor which examined the relationship between career beliefs and career resilience. This study investigated the relationships between the two important domains, and may provide a new research arena.

Purpose of the Study and Research Questions

The primary purpose of this study was to explore the relationships between career resilience and career beliefs among employees in Taiwan. This study also examined whether the demographic variables had effects on career resilience and career beliefs of employees in Taiwan. The research questions to be answered by this study were as follows:

1. What are the relationships between career resilience and career beliefs of employees in Taiwan?
2. Are there any differences in the career resilience scores of employees in Taiwan with regard to demographic characteristics such as gender, age, educational level, number of years of paid work, supervisory experience, career change, organization change, employment at a public or a private

institution, and participation in training/educational activities for more than one week in the most recent six months?

3. Are there any two-way interaction effects between gender and the other demographic variables on the career resilience scores of employees in Taiwan?
4. What is the relationship (linear, quadratic, cubic, or quartic) between the number of years of paid work and the career resilience scores of employees in Taiwan?
5. Are there any differences in the career belief subscale scores of employees in Taiwan with regard to demographic characteristics such as gender, age, educational level, number of years of paid work, supervisory experience, career change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months?

Definition of Terms

Career Resilience

Synthesizing London's (1997) and Collard et al's (1996) definitions, career resilience in this study is defined as a person's ability to actively manage his or her work life and adapt to the changing workplace even when the changes cause career disruption.

Career Beliefs

Career beliefs are assumptions and generalizations an individual holds about the self and the world of work, which affect one's career decision-making and career development (Krumboltz, 1994a).

Limitations of This Study

Because of practical constraints, random sampling was not conducted in this study. Although the participants worked at a wide range of organizations, the percentage distribution of the surveyed sample differed from that of the population in ages, education levels, and type of institutions (i.e., private and public sectors) (Directorate-General of Budget, Accounting and Statistics, 2003). Therefore, generalization of the findings cannot be applied with confidence to the employed population in Taiwan.

A survey research design was used in this study. Data were collected based on participants' self-report. Gall, J. P., Gall, M. D., and Borg (1999) pointed out that the drawbacks of survey research are "respondents can conceal information that they don't want others to know. Also, even if respondents want to give accurate information, they may not have the self-awareness to do so" (p. 173).

Summary

Today's workplace has undergone fundamental changes. In response to the changing and uncertain work environment, human resource professionals and career counselors advocate that individuals have to be career resilient; that is, they should take responsibility for their own career development, continue to learn, and benchmark their skills in order to keep their employability. This study explores the relationships between

career resilience and career beliefs among employees in Taiwan and examines whether the demographic variables (e.g., gender, age, education, type of institution, number of years of paid-work, career/organization change, participation in training/educational activities for more than one week in the most recent six months) relate to participants' career resilience and/or the career beliefs.

Overview of Remaining Chapters

Chapter II reviews the literature on career resilience, measurements of career resilience, career beliefs, and measurements of career beliefs. Chapter III describes the methods used in both the pilot and main studies; including the description about the participants, instruments, procedures, and methods and results of data analysis. Chapter IV reports the research findings. Chapter V contains a summary of this study, a discussion of the results, and recommendations for future studies.

CHAPTER II

LITERATURE REVIEW

This chapter presents a review of literature relevant to career resilience and career beliefs. The first section is the review of theoretical concepts, measurements, and research in regard to career resilience. The second section is an overview of the formation of beliefs, Krumboltz's social learning theory of career decision-making, career myths, measurements, and related studies. The last section is a brief summary that concludes this chapter.

Career Resilience

Studies on Resilient Children

During the 1970s, psychologists and psychiatrists began to pay attention to the phenomenon of resilience in children who developed well despite having been exposed to the threats of risk or adversity. Researchers were interested in what factors made these children "invulnerable," and hoped their findings could foster interventions and policies (Masten, 2001). Summarizing the results of major longitudinal studies, a set of personality characteristics of resilient children was identified as buffering factors, such as the ability to elicit others' positive attention, holding an optimistic view of their suffering experiences, possessing beliefs in a meaningful life, and having control over their fate, seeking out novel experiences, taking an active approach toward problem solving, autonomy, and self-reliance (Werner, 1984). In addition, a clear self-concept and positive self-esteem were also found to be critical to enhance adaptive competencies (Masten, 2001). Along with these personal attributes, family warmth and external

support for counsel and advice from teachers, counselors, coaches, and good neighbors all contributed to facilitating children's coping skills and protected them from malfunctions (Rak & Patterson, 1996; Rutter, 1993).

Although resilience has been studied for over three decades, Luthar, Cicchetti, and Becker (2000) pointed out that little consensus has been achieved concerning the definition of resilience as well as the operationalization and measurement of key constructs of resilience. Luthar et al. viewed resilience as a "dynamic developmental process" rather than as a personal trait. They argued that if resilience is perceived only as a personal trait, this might induct into a conclusion that some people just do not have the right trait to overcome adversity. Such perspectives added little assistance to clarifying the process underlying resilience, or to improving the design of intervention programs.

Research findings revealed that some children who were labeled as resilient in some domains might display problems in other domains. For example, an adolescent who experienced adversities but manifested successful adaptation in academic areas might suffer emotional difficulties. Thus, resilience may help individuals function uniformly within similar adjustment spheres, but it may not show consistency across heterogeneous areas. The evidence of uneven functioning across distinct domains leads to the need for specificity in describing resilience outcome regarding its particular competence criteria. Luthar et al. suggested using circumscribed terms such as "educational resilience," "emotional resilience," or "behavior resilience" to specify the particular dimension to which the study can apply. Accordingly, "career resilience"

should be used as a more precise term for representing the resilience constructs in career domains.

Since resilience competencies are inconsistent across diverse adaptation domains, it is complicated for researchers to outline optimal indicators of resilience within individual studies. Different competence criteria may reflect particular constructs of resilience in the assessed domain. Luthar et al. suggested examining the outcomes separately if they represented discrete constructs. Additionally, when multiple criteria are considered separately, are some more important than others? Luthar et al. recommended that the researcher prioritize the more critical indicators over others based on the nature of risk under study. For instance, in the study of career resilience, employability should be given more priority than academic competence. However, if all the outcomes are conceptually critical, they can be weighted equally, and either considered separately or combined into a composite. Another concern was how well the competence could be judged as resilience. When individuals are at risk or under adversity, should their resiliency competence achieve an "excellent level" or simply maintain at an average level that will meet the criteria of resilience? Again, Luthar et al. advised that the choice should be guided by the nature of the risk studied. Concerns about how to examine the constructs of resilience and how to define the outcome criteria would provide more insight on conceptual and methodological aspects in the study of resilience.

London's Theory of Career Resilience

The term "career resilience" originated in London's Career Motivation Theory proposed in 1983. His career motivation theory intended to explain what motivates managers to engage in and meet managerial role requirements. The theory then expanded beyond managers to all workers, and went further to encompass motivation associated with a wide range of career decisions and related behaviors.

There are three variables included in London's inactive model of career motivation: individual characteristics, situational conditions, and career decisions and behaviors, which interact with each other and, in turn, influence career motivation. Individual characteristics include needs, interests, and personalities that are relevant to one's career. Situational conditions include many elements of the work environment that have potential impacts on one's career motivation, such as staffing policies, leadership style, job design, group cohesiveness, and the compensation system. London conceptualized career motivation as a multi-dimensional construct that is internal to the individual, influenced by situational conditions, and reflected in one's career decisions and behaviors. The individual characteristics consist of three domains:

1. Career insight—how realistically and clearly individuals perceive themselves and their career goals.
2. Career identity—how central one's career is to his or her identity.
3. Career resilience—how one resists career disruption in a less than optimal environment.

In motivation terms, career insight is the energizing component of career motivation, career identity is the direction of career motivation, and career resilience is the maintenance component of career motivation. London and Noe (1997) defined career resilience as "the ability to adapt to changing circumstances, even when the circumstances are discouraging or disruptive" (p. 62). London (1983) posited three sub-domains under career resilience: self-efficacy, risk taking, and dependency. He elucidated that the self-efficacy sub-domain includes self-esteem, autonomy, adaptability, internal control, need achievement, initiation, creativity, inner work standards, and development orientation. The risk-taking sub-domain contains risk-taking tendencies, fear of failure, need for security, and tolerance of uncertainty and ambiguity. The third sub-domain—dependency—consists of career dependency and the need for superior/peer approval. London stated that additional components can be included in the resilience domain, but people do not need to possess all these characteristics or be equally high on all dimensions to be resilient. He further concluded that generally self-confidence, risk taking, and independent action go together as the major components of career resilience.

London and Noe (1997) claimed that the dimensions of career motivation have strong links to existing career theories. The authors argued that career resilience is "conceptually similar to Holland's notion that career decisions are influenced by the ability to face barriers, the need for information and reassurance, and vocational identity" (p. 63, as cited in London & Noe, 1997). Career resilience is also related to career maturity. People who are mature in terms of career development tend to be more

intelligent, better able to adjust, higher achieving, and more successful on the job (Crites, 1978). Another related theory is Dawis and Lofquist's Work Adjustment Theory (1984). They defined work adjustment as a "continuous and dynamic process by which the individual seeks to achieve and maintain correspondence with the work environment" (p. 55). The adjustment styles—flexibility, activeness, and reactiveness—describe how individuals tolerate dissatisfaction (i.e., the work environment cannot fulfill the requirements of the individuals' needs), or how they respond to the incongruence (activeness—acting on the work environment or reactiveness—changing the expression of the work personality to increase correspondence).

Self-efficacy, one sub-domain of career resilience, is derived from Bandura's Self-Efficacy Theory (1977). According to Bandura, self-efficacy refers to the individual's self-appraisal about whether they have the ability to accomplish a given task. An efficacy expectation is the conviction that one can successfully execute a task. Moreover, whether or not an individual conducts certain behavior needs to consider another factor: outcome expectancy, which is the person's estimation about the possible outcome if he/she initiates this behavior. Expectations of personal ability and possible outcome affect both the individuals' initiative and the persistence of the coping behavior. Growing evidence from many domains, including career decisions and related behaviors, supports the relationship between self-efficacy and successful performance and adaptation.

Another closely related concept is hardiness. Kobasa (1979) defined hardiness as a cluster of personality characteristics that function as a resistance resource when

individuals deal with stressful life events. According to Kobasa, hardiness consists of three components: commitment (involve oneself in a stressful situation), control (feel and act as if one is influential in the stressful situations), and challenge (belief that change rather than stability is normal in life). Hardiness seems to be an important stress mediator. People who showed stronger control, greater involvement in one's life, and a more positive response to change were more likely to maintain health in the face of high stress (Kobasa, 1979, Kobasa, Maddi, & Kahn, 1982).

Career resilience is the key to overcoming career stress and career barriers (London & Mone, 1987). People high in career resilience are able to control what happens to them; they are willing to take risks even when the outcome is uncertain; they can tolerate the unambiguous situation; they get a sense of accomplishment and persist in their goals; they are autonomous and able to adapt to changing conditions; and they work independently, but can cooperate with others if they need to. Understanding one's own resilience and providing opportunities to enhance it should help the individual overcome career barriers.

London and Mone (1987) stated that career resilience is more personally driven and is generally established in early ages (during the adolescent years and the early 20s). They believed that people can learn to be resilient and hardy through positive reinforcement for exercising their judgments and acting independently. Constructive performance feedback can increase an individual's confidence and self-esteem. Encouragement of autonomy and creativity, provision of opportunities for taking risks

without severe negative consequences, and the creation of teamwork opportunities can also facilitate an individual's career resilience.

London suggested that career resilience is a multidimensional construct. Those dimensions do not necessarily include all related individual characteristics, nor are they orthogonal. Further research will be needed to refine the dimensions, group those dimensions into specific domains, or derive more coherent domains.

Waterman's and Collard's Perception of Career Resilience

Waterman et al. (1994) and Collard et al. (1996) promoted building a resilient workforce in response to the changing and competitive workplace. From their point of view, resilient workers should take responsibility for their own career management and enhance their employability skills. Collard et al. claimed that career resilience and career self-reliance are interchangeable because both embrace the same concepts, and career resilience is the result or the outcome of being self-reliance. They illustrated a "Career Self-Reliance Wheel," which contains six key characteristics, to portray the concept of career self-reliance/resilience. These six characteristics are: self-aware, value-driven, future-focused, dedicated to continuous learning, flexible, and connected. Based on self-awareness, individuals are able to maintain a sense of control and find direction in the face of change. Being value driven, individuals should align their values with those of the organization. They should be dedicated to continuous learning in order to keep their profession current, and be future-focused so they can foresee customer needs and prepare for the market trend. They should also build and maintain a network

of contacts to facilitate teamwork and help them succeed in a career, and they should be flexible so they can quickly adapt to change.

When comparing the characteristics described in career resilience to the findings of the studies on resilient children, there are many elements each have in common, such as a belief in self, a sense of control, initiative (taking an active approach toward problem solving), autonomy, self-reliance, a clear self-concept, and positive self-esteem. This might indicate that resilience represents a constellation of personality characteristics that serve as a coping mechanism to adapt to disruptive situations.

Measures of Career Resilience

London's Career Motivation Inventory

The original measures of career motivation were designed by London and his staff at American Telephone & Telegraph (AT&T) (London & Bray, 1985). Using information gained from the assessment center at AT&T, they developed 45 items for the 3 dimensions of career motivation, with 21 of those items related to career resilience. London's Career Motivation Inventory was reduced to a 17-item version (1993b). Each item was rated on a five-point scale, from 1 = low to 5 = high, and the midpoint 3 = moderate. London's Career Motivation Inventory focused on feelings and attitudes. The factor analyses of the 17 items yielded three independent factors that confirmed the three pre-posit dimensions of career identity, insight, and resilience. Five items clustered under the factor of career resilience (factor loadings ≥ .40). Although the test-retest reliability for the career resilience items was not specified in the report, the 3½ month test-retest reliability coefficients for the combined scales ranged from .48 ($p <$

.01) to .73 ($p < .001$) for employees' self-ratings, and .27 ($p < .05$) to .78 ($p < .001$) for supervisor's ratings. Internal consistency reliabilities of resilience items were .66 for employees' self-ratings and .86 for supervisor's ratings.

Noe's Measures of Career Motivation

Noe et al. (1990) designed a 26-item inventory to measure career motivation. The subscale of career resilience consisted of 13 items. These items referred mostly to behaviors. It consists of a five-point scale as well. In their study, these 26 items resulted in three factors that provided preliminary evidence of construct validity. Career resilience items yielded moderate internal-consistency reliability ($\alpha = .74$). Based on London's career motivation theory, the authors also hypothesized that personal and situational variables would influence an employee's career motivation. The results supported most of their hypotheses that personal characteristics (career stage, work-role salience) and situational characteristics (managerial support, presence of motivating job characteristics) were significantly correlated with career resilience ($r = .18, .34, .23, .46$, respectively, significant at least at the .05 level).

An Integrated Career Resilience Subscale

Combining both London's and Noe et al's items, Grzeda and Prince (1997) suggested a 14-item subscale to measure career resilience (five items from London's inventory and nine items from Noe et al's measures). Grzeda and Prince investigated the convergent and discriminant validity for these items on 94 Canadian managers and professionals who had recently been displaced because of downsizing. First, they employed factor analysis, five items drawn from London's inventory loaded on one

factor (resilience), with a reliability coefficient (α) of .69. Noe et al's items concerning career resilience showed two factors: risk-taking and self-efficacy. Standardized Cronbach α reliabilities for these two factors were .67 and .78, respectively. Evaluation of discriminant validity demonstrated that career resilience was comprised of three expected sub-domains: resilience, risk-taking, and self-efficacy, as suggested by career motivation theory. The test on convergent validity showed that career resilience positively and significantly related to creativity and autonomy as measured by the Career Orientations Inventory Scales (R^2 = .44 and .10, p < .01 and .05, respectively). It also related positively to persistence- and perseverance- latent variables, which were measured by the Self-efficacy Scale (R^2 = .51 and .12, p < .01 and .05, respectively). Grzeda and Prince concluded that the results supported the hypothesized positive relationships between career resilience and its associate constructs, and the career resilience subscale received the strongest support in their study.

Michigan's Career Resilience Scale

Developed by Morgan Lyons for Operation ABLE of Michigan, this scale consisted of 14 items that focused on employees' employability and willingness to change (Bice, 1999, January 24-30). This scale uses a five-point scale ranging from 5 (strongly agree), through 2 (agree somewhat), to 1 (don't agree at all). A reliability α coefficient equaled .88 on 719 participants. The item-total correlations showed that this scale is unidimensional (Operation ABLE of Michigan, 2001, March). Validity evidence is unavailable for this scale.

Research on Career Resilience

Research on career resilience is relatively scarce. Most studies focused on validation of London's career motivation theory and career motivation inventories, or examined the relationship between career motivation and career commitment. Studies from London (1993b) and Noe et al. (1990) showed that career motivation consisted of career insight, career identity, and career resilience. Career resilience seemed to be the strongest factor, that is, it can be more clearly identified as an independent factor than the other two (career insight and career identity) in the validation studies (Hall, 1990; Grzeda & Prince, 1997). In addition, the results of discriminant validity demonstrated that career resilience comprised three sub-domains, which the authors named resilience, self-efficacy, and risk taking (Grzeda & Prince, 1997). Since most studies used "career motivation" as a variable, sometimes career resilience could not be separated from the combined variable—career motivation. The results for studies reporting career resilience as a variable are described as follows.

Career Resilience and Personal Characteristics

Hall's (1990) pilot test of London's Career Motivation Inventory (45 items) with 308 responses found that career resilience was significantly and positively related ($p <$ .05) to achievement, control, influence, dependence, extension, and affiliation, as measured by the Motivational Analysis of Organizations-Behavior Inventory. Noe et al. (1990) surveyed 237 workers, and Grzeda and Prince investigated 94 employees who were downsized. The results showed that career resilience was significantly and positively related to autonomy ($p < .05$). Lin's (1997) study of 1,388 Taiwanese

undergraduate students discovered that students who showed high spontaneous learning behavior got higher scores on career resilience than the low spontaneous behavior group ($p < .001$). Career resilience was found to be positively relative to self-efficacy. For example, Grzeda and Prince's study, Fisher and Stafford's (2000) study of 467 graduates and undergraduate students, Gowan, Craft, and Zimmermann's (2000) study of 171 United State Army personnel who were making the transition to civilian jobs, and Pulley's qualitative study (1995) of 20 participants who lost jobs, all agreed with this conclusion.

In Grzeda and Prince's study, career resilience was significant and positively correlated with creativity, persistency, and perseverance as well ($R^2 = .44$, .51, and .10, respectively, significant at least at the .05 level). Gowan et al's results indicated that career resilience had a positive relationship with self-esteem ($r = .53$, $p < .005$), but a negative relationship with future harm appraisal ($r = –.31$, $p < .005$); that is, participants with high career resilience were more likely to hold positive anticipation or a less stressful appraisal about the future. It was found that career resilience was significantly correlated with the desire for recognition ($r = .31$, $p < .01$, London, 1993a). This might be explained by the premise that desire for recognition can be viewed as a motivational source of achievement, and achievement is theoretically related to career resilience. These findings are generally congruent with the hypothesized characteristics of career resilience.

Career Resilience and Age, Gender, Education, and Ethnicity

Most studies indicated that career resilience was positively related to age (Brainerd, 1992; Carson & Bedeian, 1994; Fu, 2001; London, 1993a; Noe et al., 1990). Fu (2001) found that 32-to-34 year old female employees showed higher career resilience than those within 25 to 27 years old. London and Noe (1997) assumed that this might be due to workers' increasing experience, especially the experience required for adapting to change. As for whether there is a gender difference in career resilience, London and Mone (1987) seemed to imply that women might show lower career resilience. For example, they stated that women are more likely to underestimate their potential and to give lower evaluations of their performances than men do. Women have not been encouraged to participate in team sports, do not learn how to view risk as an opportunity for success, and are limited in their opportunities for reaching their full potential. These factors are considered to have negative effects on being career resilient. However, Woodd (2000) argued that women might be higher in career resilience than men in the face of the turbulent workplace. Generally, women's career patterns suit better for the requirements in today's work environment. For example, women have more chances to shift from full-time to part-time jobs or from permanent to temporary work. They are more likely to have career breaks (quit from jobs and become a full-time home maker). Hence, they have more experiences with career interruption/disruption. In addition, women usually rate extrinsic factors (salary, promotion, job security, etc.) lower than men do. Therefore, women appear to be more adaptive and flexible in the less secure, non-linear upward workplace. Nevertheless, no gender difference on career

resilience was reported in relative studies (London, 1993a; Noe et al., 1990). Only one study in Taiwan revealed that male students were higher in career resilience than female students (Lin, 1997). The author conjectured that female students were less willing to take risks, and risk-taking is one sub-dimension of career resilience. Unlike gender difference, Chang (1995) surveyed 225 Taiwanese employees who worked at high-tech companies. Her data showed no significant difference among participants based on educational levels. Fisher and Stafford (2000) found that there was no significant difference among African American, Hispanic, and Anglo American students on career resilience.

Career Resilience and Work Environment and Related Issues

London's (1993b) and Noe et al's (1990) studies showed that workers who believed they were empowered and who felt that their supervisors supported their career development yielded higher career resilience. London proposed that people who become resilient have been reinforced for exercising their judgment, and have received approval and admiration for taking challenges and acting independently. Similar to the working participants, Fisher and Stafford's (2000) student sample also showed career resilience correlated positively with positive support from significant others (e.g., teachers, parents, and friends). Nevertheless, although career resilience was significantly and positively correlated with all supervisor support activities in Kidd and Smewing's (2001) study, the results of hierarchical regression analysis indicated that there is no relationship between supervisor support and career resilience.

According to Noe et al's research, workers tended to be high in career resilience if they viewed their work as important and perceived their job as including motivating characteristics (e.g., autonomy, feedback from the job, satisfaction, and challenging). Their study did not find a significant correlation between employees' managerial positions and career resilience.

Results of the studies with part-time versus full-time workers were controversial. In London's (1993a) sample, part-time workers were higher in career resilience than full-time workers. Whereas, in Brainerd's (1992) data, full-time nurses had higher levels of career resilience than part-time nurses did.

Hofsted (as cited in Noordin, Williams, & Zimmer, 2002) hypothesized culture differences in terms of collectivism-individualism. A collectivistic culture emphasizes belonging to an in-group; in return for their loyalty, people are provided with protection and security. An individualistic culture encourages an individual's initiative and achievement. Therefore, a logical expectation is that employees in individualistic cultures will show higher levels of career resilience than those in collectivistic cultures. Noordin et al's (2002) finding supported their hypotheses. Australian managers (indicated as an individualistic culture) showed higher career resilience than Malaysian managers (indicated as a collectivistic culture). In addition, based on semi-structured interviews, Leung and Clegg (2001) reported that women who worked for the Hong Kong public sectors evaluated themselves low on career resilience. Government sectors were viewed as a highly structured work environment, less risk-taking, and a less

competitive job content nature. These women declared that these factors fitted their personalities better because they are not risk-taking and aggressive.

Findings of the relationship between career motivation and career/organizational commitment were not consistent. Some studies showed a positive correlation between these two variables (Carson & Bedeian, 1994; Kidd & Smewing, 2001). Scoble (1991) found no relationship in the nurse sample.

Career Beliefs

Formation of Beliefs

A number of writers seem to agree that beliefs are formed through individuals' learning and interaction with the environment (Fishbein & Ajzen, 1975; Krumboltz, 1979; Rokeach, 1972). Fishbein and Ajzen (1975) posited beliefs as a person's subjective judgments about oneself and the environment around him/her. They hypothesized three types of formation of beliefs: 1. Descriptive beliefs, which are formed on the basis of a person's direct observation and experience with an object (it could be a person, an event, or an idea). 2. Inferential beliefs are established through a process of inference from prior beliefs about certain objects. 3. Informational beliefs, instead of direct observation and inference, a person may accept information about objects provided by outside sources, such as books, newspapers, television, friends, coworkers, etc. Beliefs serve as an information base to build a person's conceptual structure. Based on a set of salient beliefs, a person forms a specific attitude toward an object; consequently, he/she generates a relative intention, which may influence his/her

behavior. People will test the accuracy of their beliefs by comparing theirs with others' opinions, and the feedback provides a source for revising their original beliefs.

Rokeach (1972) postulated that "beliefs are inferences made by an observer about underlying states of expectancy" (p. 2). They are organized into architectural systems in which beliefs vary along a central-peripheral dimension. The more central a belief locates, the more important it is to the individual, and the more resistant it is to change. The core of the belief system primarily represents a person's truths about his/her physical and social reality, and the nature of "self."

Employing the social learning theory (Bandura, 1977), Krumboltz's Social Learning Theory of Career Decision Making (1979) constructed a framework for understanding career-related behaviors. People's personalities, preferences, and behaviors are learned through two types of experiences:

1. Instrumental learning. It occurs when individuals' behaviors are positively reinforced or negatively punished. As a result, people tend to repeat the behaviors that are rewarded, but avoid the behaviors that are punished or not appreciated.
2. Associative learning. It occurs when individuals associate the affectively neutral event/stimulus with an emotionally-laden events/stimulus, observe the behaviors of others, or gain new information through media (e.g., books, television, the Internet).

Krumboltz also identified four kinds of factors that influence career development:

1. Genetic endowment and special abilities. Genetic endowment is inherited qualities that may affect an individual's ability to acquire certain educational and occupational preferences and skills. It includes ethnicity, gender, physical appearance, special abilities, and disabilities.
2. Environmental conditions and events. They are social, cultural, political, and economic forces which are outside the individual's control, but which can potentially impact people's career development.
3. Learning experience. Each individual has unique learning experiences through instrumental and associative learning mechanisms that result in different career preferences, aspirations, and choices of careers.
4. Task approach skills. Interaction among the above three factors (genetic endowment, environmental conditions and events, and learning experiences), people develop their own task approach skills and apply them to tasks or problems they encountered. These skills include performance standards, values, work habits, perceptual and cognitive processing schema, and emotional responses.

The above four factors contribute to the development of individuals' overall belief systems. Krumboltz (1979, 1983) viewed the belief system as personal generalizations in an attempt to represent their own reality about self and environment. Individuals are constantly observing themselves and assessing their performance in comparison to their own or others' standards; thus, establishing their self-concept, or

self-observation generalizations. Self-observation generalizations are related to one's attitudes, interests, and values; and they may be overt or covert self-statements.

People's beliefs about the environment are world-view generalizations. They result from individuals' observations and interactions with the environment. World-view generalizations are used to predict what will occur in the future and in other environments.

Beliefs and Career-Related Behaviors

Mitchell and Krumboltz (1996) stated that "people's beliefs about themselves and the world of work influence their approach to learning new skills and ultimately affect their aspirations and actions" (p. 243). Krumboltz pointed out that individuals' interests and values are developed through one's learning experiences, and both of them become the categories of self-observation generalizations. Krumboltz (1991) described that the way people make career decisions, search for jobs, and seek promotions depends on what they believe about themselves and the world of work. For example, a person who believes he/she has the ability and an interest in learning mechanics is more likely to choose mechanic as a major or as an occupation. Another example is that a person who believes the computer business will continue to prosper in the future will cling to computer-related careers.

Beliefs are the generalizations that are formed through the learning process from personal observations and inferences. They may not always be accurate. However, beliefs affect people's behaviors regardless of whether they are accurate or not. Krumboltz (1994b) declared that beliefs are neither good nor bad. A belief could be

dysfunctional for one person but functional for another. Hence, whether a person's belief is good or bad depends on the person and the situation. A false belief becomes problematic when it discourages individuals from exploring career information and activities, or forecloses desired alternatives. "If their beliefs are accurate and constructive, they will act in ways that are likely to foster the achievement of their goals. If their beliefs are inaccurate, and self-defeating, they will act in ways that make sense to them but may hinder accomplishment of their goals" (Krumboltz, 1991, p. 1).

Irrational Career Beliefs/Career Myths

Early in the 1960s, Ellis (1962) discovered the relationships among the irrational beliefs and the causes of psychological problems. He listed 11 irrational beliefs that people used to distort reality and produce emotional distress. Since the 1970s, vocational counselors have recognized that some of the beliefs that clients hold are erroneous, which may interfere with the clients' vocational decision-making and lead to anxiety and dissatisfaction. They labeled these beliefs as irrational expectations, misconceptions, or myths (Lewis & Gilhousen, 1981; Nevo, 1987; Thompson, 1976; Woodrick, 1979). Early literature has been devoted to describing various erroneous beliefs that cause dysfunctional career-related behaviors.

For instance, Thompson (1976) discussed seven misconceptions found in his vocational counseling experience:

1. Exactitude. Clients viewed vocational planning and decision-making as very scientific, and as leading to an exact, perfect career plan.

2. Singularity and finality. Clients believed that career decisions are made at one point in their lifetime. Once a decision is made, it cannot be changed because the decision should remain valid throughout their lifetime.
3. Expectations for vocational tests. Clients relied on psychometric tests because they believed the test results could show them what they should do. Actually, clients usually intended to shift the responsibility for making their decisions.
4. Misconceived relationship between interests and abilities. Clients assumed that a direct causal relationship existed between interests and abilities. Therefore, they wanted to discover what they were interested in; then doing well would follow automatically. On the other hand, they found excuses for poor performance by attributing it to lack of interest.
5. Clients irrationally thought that they should thoroughly analyze all the possible choices in every step. However, analyzing all the steps may result in "overwhelming oneself with decisions" (p. 33).
6. Dichotomize career goals as either complete success or failure. This extreme misconception could increase clients' anxieties about making any decision.
7. Passage of time. Clients suspended their actions and simply believed that the passage of time would clarify alternatives and result in making better decisions. However, if the clients did not use their time to explore or rethink their plans, it was unlikely that a good decision would be made.

Woodrick (1979) identified 19 career myths in his study of college students. Besides the misconceptions discussed by Thompson, the additional career myths listed in Woodrick's work were:

1. The perfect job myth. Students believed "somewhere out there the right job is just waiting for me. All I have to do is keep looking until I find it" (p. 7).
2. The myth that happiness is dependent upon vocational success. Students equated their happiness with the successful achievement of one's career goals, rather than with the process of exerting themselves toward the goal.
3. The myth of work as the central, one most important element of a person's life.
4. Work as a calling myth. There is one occupation that is calling a person; a person only performs best in his/her calling job.
5. The myth of anyone can be president or work ethic myth. This myth described the belief that anyone can do or be anything if they have aspirations and work hard enough. However, hard work is only one variable for achieving success.
6. My son (daughter) the doctor myth. This myth portrayed that a person's self-worth is measured by occupational status.
7. The expert myth. Students believed experts (e.g., counselors, teachers, parents) or tests could tell a person what career is best or right for him/her.
8. College as vocational training myth. This myth represented the belief that going to college can promise better jobs.

9. The myth of chance and circumstance. This myth implied that it is no use to plan for a career in advance because the outcome is determined by luck, chance, or the environment.
10. The myth of intuition. Everyone has innate intuition to know what the right decision is for him/her when it comes to choosing the right occupation.
11. The myth of rationality. This myth stated that decision-making should rely solely on a rational approach—that people's feelings or intuitions are unreliable.
12. The myth of sex role. This myth is associated with traditional stereotypes about proper sex roles in the workplace, such as whether women should place more effort in home and family; or whether women should stick to women's jobs.

Later, in Lewis and Gilhousen's study (1981), career myths similar to Woodrick's were reported. One additional irrational belief was "I want you have it better than I did." This myth implied that there is a set of established rules that, if followed, will lead to a better life. This belief also assumed that the younger generation must achieve more than their parents.

Nevo (1987) observed 10 irrational career expectations that contribute to clients' indecisions and frustrations when they deal with career choices. Most of the irrational expectations have been described previously. Two that are different from those previously discussed beliefs are: My vocation should satisfy the important people in my life, and entering a vocation will solve all my problems.

The Characteristics of Irrational Career Beliefs

Mitchell (as cited in Krumboltz, 1983) categorized five reasons that caused false beliefs:

1. Overgeneralization.
2. Inference made without checking sources.
3. Inability to see the possibility for changing learned behavior.
4. Catastrophizing.
5. Illogical inference.

Krumboltz (1994a) pointed out that some beliefs are so well ingrained in society that people may not be able to identify them but, instead, they hold these beliefs as undoubtable truths. He (1983) characterized troublesome beliefs into the following factors:

1. Faulty Generalizations. The base of generalization may have been accurate, but the overgeneralization becomes a poor decision.
2. Self-comparison with a single standard. Judgment about one's performance may be different depending on what/who it is compared with. If a person compares himself/herself with someone who performs better, he/she will feel incompetent.
3. Exaggerated estimate of the emotional impact of an outcome. People often exaggerate their fear about negative outcomes. They think if the decisions turn out not as they wanted, they cannot stand the disaster; so they are afraid of making decisions.

4. False causal relationships. If people relate success to hard work and ambition, this will encourage their aspirations and endeavors. If they relate success to chance or fate, this will lead to no action or to waiting for good luck.
5. Ignorance of relevant facts. If individuals only focus on the idealistic image of an occupation, they will overlook the relevant facts and distort reality.
6. Undue weight given to low probability events. Avoiding making career decisions based on a very low probability event (e.g., earthquake or tornado in some areas) may limit alternatives.
7. Self-deception. Sometimes the stated beliefs are rationalizations or socially acceptable ones for which actual reasons cannot be revealed.

Beliefs in Self-Efficacy

Bandura's Self-Efficacy Theory hypothesized that people have beliefs about their own ability to successfully perform a specific task (1977). The belief about their abilities is defined as efficacy expectancy. In addition, people have beliefs about the results of their performance, which is defined as outcome expectancy. If a person believes he/she has the required capacity to accomplish the task, and also believes that the outcome will turn out to be positive, he/she is more likely to initiate the behavior, and to devote efforts to implementing the goal, even if he/she faces hindrance. In contrast, low self-efficacy tends to block individuals' actions, because people just simply give up, or set lower goals for themselves.

Betz and Hackett (1981) were the first to apply the self-efficacy theory to career domains. Career self-efficacy was proposed to play a major mediational role in the process of choosing and pursuing a career. They emphasized self-efficacy expectation as an important variable in understanding and modifying women's career development. Their studies indicated that self-efficacy was significantly related to occupational choice. Gender differences could explain women's low self-efficacy in non-traditional occupations (i.e., male-dominated occupations), which limited the range of their career options; and why women underutilized their abilities and talents in career pursuits, which was the reason they were under represented in many male-dominated careers, such as mathematics, engineering, and science.

Empirical evidence for the influence of self-efficacy on career related behavior has been reported (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Betz & Hackett, 1981; 1986; Cited in Lent & Hackett, 1987; Taylor & Popma, 1990). Taylor and Popma's (1990) study revealed that career decision self-efficacy was the only significant predictor of vocational indecision. Niles and Sowa (1992) correlated Career Decision-Making Self-Efficacy (CDMSE) with general self-efficacy, personality hardiness (control, commitment, and challenge) and career beliefs (status, preference, motivation, and flexibility). The results supported that CDMSE was significantly and positively related to general self-efficacy, motivation, commitment, control, flexibility, and preference (r ranged from .19 to .43, $p < .01$); more saliently, motivation (which was defined as individuals' willingness to overcome obstacles and to explore career options) was the strongest predictor in the regression for CDMSE. Bandura, Barbaranelli,

Caprara, and Pastorelli (2001) identified that children's self-efficacy was the essential determinant of their perceived occupational self-efficacy and preference of career choice. Lent and Hackett (1987) suggested that career self-efficacy had potential for understanding and facilitating career adjustment.

Measures of Career Beliefs

Identifying individuals' career beliefs is important because holding irrational assumptions may impede progress toward career goals, thus leading to dissatisfaction due to a lack of action or inappropriate coping skills.

Krumboltz's Career Beliefs Inventory (CBI).

The CBI was designated as a counseling tool to increase individuals' awareness of their career beliefs and to assess the potential impact of these beliefs on occupational choice and the pursuit of a career (Krumboltz, 1991). The CBI has 96 items grouped into 25 scales. These 25 scales are organized under 5 headings:

1. My current career situation. This includes four scales: Employment Status, Career Plans, Occupations of Uncertainty, and Openness.
2. What seems necessary for my happiness. This heading consists of five scales: Achievement, College Education, Intrinsic Satisfaction, Peer Equality, and Structured Work Environment.
3. Factors that influence my decisions contains six scales: Control, Responsibility, Approval of Others, Self-other Comparison, Occupation/College Variation, and Career Paths Flexibility.

4. Change I am willing to make. Three scales are under this heading: Post-training Transition, Job Experimentation, and Relocation.
5. Effort I am willing to initiate. This includes seven scales: Improving Self, Persisting While Uncertain, Taking Risks, Learning Job Skills, Negotiating/Searching, Overcoming Obstacles, and Working Hard.

The CBI has been administered to more than 7,500 individuals in 12 states in the United States and in Australia. The ages of participants range from 12 to 75, including employed/unemployed adults and undergraduates, high school, and junior high school students. Both test-retest and internal consistency reliabilities yielded from low to moderate. On the college sample, 3-month test-retest reliabilities ranged from .27 to .68; and the one-month test-retest reliabilities on the high school sample ranged from .35 to .74. The relatively low test-retest reliabilities might reflect the groups' change of beliefs over a period of time. The reliabilities of internal consistency mostly fall between .40 and .50. The low internal consistency might be due to the small number of items in the scales because 10 scales consist of only 2 items, and the longest scale has 8 items. The CBI was criticized because some scales require additional items to achieve the desired internal consistency (Fuqua & Newman, 1994).

Studies on the construct validity show an extremely small correlation between the CBI and other career related instruments, such as the Strong Interest Inventory, the Self-Directed Search, the Myers-Briggs Type Indicator**,** the School and College Ability Test**,** the Career Assessment Inventory, and the Fundamental Interpersonal Relations Orientation-Behavior (Naylor & Krumboltz, 1994). Those results provided evidence for

the construct validity that the CBI clearly measures constructs differently from aptitudes, interests, and personalities. Holland, Johnston, Asama, and Polys (1993) validated the CBI using the NEO Personality Inventory, the Self-Directed Search, the Vocational Identity, and the Preconscious Activity Scale. They concluded that the CBI had at least moderate construct validity. In addition, substantial correlation with the State-Trait Anxiety Scale indicated that certain irrational beliefs caused individuals' emotional discomfort.

A factory analysis using Varimx (orthogonal) rotation on the CBI scale scores extracts four factors: 1. beliefs that work is valuable vs. work has little value; 2. beliefs in exploring options vs. maintaining a consistent direction; 3. beliefs in the importance of self-reliance vs. seeking help from others; 4. Beliefs in the importance of compliance vs. not being constrained (as cited in Fuqua & Newman, 1994). Therefore, instead of 25 scales, the factor analysis represents four major underlying variables that the CBI potentially measures. However, Fuqua and Newman (1994) suggested using oblique rotation (because factors might be well correlated) on items not on scale scores.

The Chinese Career Beliefs Inventory (CCBI)

In Taiwan, fewer than five measures on career beliefs have been designed for study purposes (Chi, 1994; Jin, Lin, & Tien, 1989; Wu, 1991), and their participants have all been students. Yang (1996) developed and standardized the Chinese Career Beliefs Inventory for assessing the career beliefs held by high school and college students, and for evaluating the effects of cognitive career counseling approaches.

The CCBI consists of three forms: Form A-1, Form A-2, and Form B (CCBI-B). Form A-1 is the longest form, and it contains 180 items. Form B is the shortest form, with 99 items (Yang, 1996). The items were generated by adopting three approaches: 1. a review of Western literature, 2. a review of Chinese literature related to career beliefs, and 3. the use of questionnaires and interviews to collect common career beliefs among Taiwanese senior high school and university students. All items were classified as relating to different concepts; then one Chinese professor, one high school counselor, and one testing expert were invited to edit the items. There were 296 items in the pilot form. Items were written as positive or negative statements. Respondents indicated their agreement (from strongly agree to strongly disagree) with the statements on a five-point Likert scale. Based on 1,656 usable questionnaires, 13 subscales and 180 items were determined for Form A-1. Next, Form A-2 was created from selecting the 10 most representative items from each subscale of Form A-1. After conducting factor analysis using the Principal Component method with Oblimin rotation on Form A-1, 12 subscales and 99 items were obtained for Form B. Each subscale consists of five to nine items. The subscales on Form A and B are almost identical (11 subscales on Form B are the same as on Form A-1 and Form A-2), except for two subscales on Form A ("Recognition by Others" and "Desire for Achievement"), which are combined into one subscale on Form B.

The 12 subscales on the CCBI-B are: 1. Responsibility for Decision-Making, 2. Preparation for Occupation, 3. Finality of Decision, 4. Recognition by Others and Desire for Achievement, 5. Importance of Work, 6. Occupational Status, 7. Economic Reward,

8. Sex Role Stereotypes, 9. Interests, 10. Avoidance of Decision-Making, 11. Fate, and 12. Perfectionism. The following technical considerations on CCBI are reviewed for Form B because it is the instrument used in this study.

Normative Sample

The normative sample consisted of 2,210 senior high school and 1,750 university students. The student samples were drawn by means of stratified and cluster-sampling techniques based on the locations of the schools, the types of schools (public or private), and grade levels.

Reliability

The Cronbach α coefficient was .86 for the total scores and ranged from .48 to .83 for the subscales. The one-month test-retest reliability coefficients for the high school sample were .82 for the total score, and ranged from .47 to .80 for the subscales. For the university sample they were .77 for the total score, and ranged from .46 to .82 for the subscales. The one-month test-retest reliability coefficients were low, but they were higher than those in Krumboltz's Career Beliefs Inventory (.35 to .74, Krumboltz, 1991).

Construct Validity

1. The correlation between the subscales of the CCBI and the Marlowe-Crowne Social Desirability Inventory showed that most subscales did not relate to social desirability, except for subscales of Recognition by Other and Desire for Achievement, Economic Reward, Avoidance of Decision-Making, and Fate. Results are congruent with Woodrick's (1979) study.

2. The correlation with the State-Trait Anxiety Scale indicated that the more rational beliefs the respondents held, the less anxiety they had. This finding is similar to the CBI validity study (Krumboltz, 1991).
3. The correlation between the CCBI and the Rational Behavior Scale showed that the lower respondents scored in career beliefs, the more rational behaviors they had.
4. Correlation with the Lai's Personality Inventory revealed that respondents with more rational career beliefs were more likely to be better socially adapted and more emotionally stable.
5. In relation to the Occupational Decision-Making subscale, the results yielded that respondents with more rational career beliefs also showed better occupational decision-making behaviors.
6. The CCBI related weakly to the Occupational Interest Inventory, which is consistent with Krumboltz (1991) and Holland et al's (1993) studies on the CBI.
7. Inter-subscale correlation coefficients were .00 to .63, and subscale-total-scale correlation coefficients were .14 to .79. The results showed most subscales were independent of each other. The findings regarding the construct validity of the CCBI yielded expected results and unfolded supportive evidence for its construct validity.

Comparing the CCBI to the CBI, they both have low to moderate test-retest reliabilities. The reliabilities of internal consistency on the CCBI were higher than those

on the CBI—the reason might be that the CCBI has more items in each scale. Studies on validity seemed to demonstrate that both inventories had appropriate construct validity. Examining the career beliefs on the CCBI and the common career myths reviewed in the Western literature, similarity was found in both cultures: a career decision is singular and final; there is a perfect job for each individual; happiness is dependent upon vocational success; work is central to one's life; sex role stereotypes; it is no use to plan for a career in advance because the outcome is determined by luck, chance, or the environment; and the experts can determine a better decision. The irrational beliefs themselves may be similar in different cultures; however, they might vary in gender, age, or other demographic dimensions. Research on career beliefs in the West (mostly the United States) and in Taiwan is discussed in the following section.

Research on Career Beliefs

This section reviews research about the relationship among career beliefs and career decision-making, gender differences, sex-role stereotypes, and unemployed adults. Studies in both the United States and Taiwan are summarized and discussed for in-depth understanding.

Career Beliefs and Decision-Making and Career-Related Behaviors

Literature reviewed previously suggests that people generate self- and world-beliefs that serve as a cognition base to guide their behaviors. The focus has been how irrational career beliefs lead to a maladaptive career decision-making process. In Murry's (1989) study on undergraduates, decidedness was correlated positively with undecided stigma and negatively correlated with avoidance. Ryan-Jones (1990) found

that college students with low decidedness tended to assume that external forces were responsible for their career decisions, and they were comfortable with their levels of career indecision. Enright's (1996) study showed that college students with greater levels of self-doubt regarding career decision-making had higher levels of career indecision. Lunney's (1993) survey of Liberal Arts graduates revealed that decided students demonstrated stronger career beliefs about hard work, in their abilities to overcome obstacles, and in their own control over outcomes. On the other hand, undecided students expressed more willingness to rely on expert advice, but were much less willing to consider career choice involving flexibility and to take risks.

Luzzo (1997) examined Mexican American undergraduate students, and found that participants who perceived more career barriers were less likely to believe they had control over the barriers, or that they were responsible for their own career decision-making processes. Students with more confidence had more adaptive career beliefs.

Mitchell's (1993) investigation of adults considering midlife career changes found that negative career beliefs and perceived blocks hindered career exploration behavior. Her cognitive restructuring program, which assisted adults in exploring their beliefs and their perceived blocks, proved to have an impact on increasing career exploration behaviors.

Although proposing career beliefs was associated with the amount of time spent on the processing of vocational information, Maichrowicz's (1996) data failed to support his hypothesis. It only found that participants with lower scores on the Intrinsic Satisfaction Scale spent more time searching for information about salaries.

In sum, research portrays that career-undecided people tend to have beliefs on avoidance, have self-doubt, perceive more obstacles, feel less control over their problems, and rely on external forces or on experts for their career decision-making. Decided people are more confident and have more adaptive career beliefs. They believe in hard work, in their ability to overcome career barriers, and in their own control over outcomes.

Career Beliefs and Age, Gender Differences, and Sex Role Stereotypes

Murry (1989) investigated 424 undergraduates found the level of irrational beliefs decreased with age and work experience. Research findings conflict about career belief differences between females and males. Some studies obtained a few significant differences between male and female participants. Murry (1989) found male student tended to hold stronger beliefs on Inappropriate Striving and Avoidance than female students. Data from Holland et al's (1993) study showed gender difference only on the Negotiating/Searching Scale: women were more likely to negotiate work changes or seek a new job than men. In Ryan-Jones' (1990) study, female students were more likely to believe that a college education was a critical requirement for attaining a good job. Krumboltz (1991) reported male and female respondents only differed on scale 20 (Persisting While Uncertain). Females scored slightly higher than the male respondents did, indicating that women were more willing to work hard when their goals were uncertain. These findings did not present a pattern for gender difference.

Sex role occupational stereotypes are the images of the female and the male who are typically in particular occupations. It is believed that these images are socially-

learned by members within a society, and that they are infused into boys' and girls' career beliefs about their sex roles regarding occupations (Cronen, 1999). The sex-role stereotypes influence individuals' developments of interest, competence, and career choice.

Jackson's (1995) study revealed that women employed in traditional occupations yielded significantly lower scores on the scale of "Value of Hard Work" in the CBI than women in non-traditional occupations and in training programs. This scale includes Working hard, Negotiating/Searching, Persisting While Uuncertain, Overcoming Obstacles, Achievement, Occupation/College Variation, Taking Risks, Openness, and Intrinsic Satisfaction.

Stone (1996) reported a similar finding. She stated that women in non-traditional careers tended to believe success comes from hard work, and that obstacles can be overcome. They were willing to explore different jobs, were better able to tolerate uncertainty, and valued intrinsic satisfaction. These women were also less likely to hold occupational stereotypes, whereas their career beliefs tended to be more confident, open, and flexible. Additionally, Stone's data showed that younger women seemed to have greater control over their career decisions, valued intrinsic satisfaction, and held less stereotypical views about careers and college. Older women were more persistent even when the outcome was uncertain. Frome (1998) found that if women held more traditional occupation beliefs regarding sex role stereotypes, they tended to place less importance on their career, expected less responsibility for providing the family with

income, and preferred jobs that were flexible enough to meet their family responsibilities.

In summary, research has not come to an agreement on whether or not males and females hold different patterns of career beliefs. However, studies on women in traditional and non-traditional careers have shown discriminant beliefs. Women in non-traditional careers tended to believe in hard work, thought obstacles can be overcome, were better able to tolerate uncertainty, and valued intrinsic satisfaction. They were also less likely to hold occupational stereotypes.

Career Beliefs of Unemployed Adults

Comparing the career beliefs of dislocated workers with those of the employed norm sample presented in the CBI manual, Spor (1999) found significant differences in the following career beliefs: Openness, Intrinsic Satisfaction, Responsibility, Self-other Comparison, Occupation/College Variation, Career Path Flexibility, Negotiating/Searching, and Working Hard. However, the direction of the differences (i.e., which group yielded higher or lower scores) was not mentioned in the thesis. Porat, Marshall, and Howell (1997) conducted a study investigating the difference in career beliefs (using the CBI) among homeless veterans**,** employed adults, and unemployed adults. When combining their results with Spor's findings, common significantly different career beliefs held by unemployed versus employed adults emerged. The unemployed tended to believe that work is a means to other goals, and that expert help can determine career choices for them. They see similarities between colleges and workers within a given occupation, insist that certain steps must be

followed in order to attain a goal, right job is impossible to find, and hard work may not bring success.

Career Beliefs Research in Taiwan

Unlike the findings in the United States, research in Taiwan reported significant gender differences in career beliefs. For example, in Yang's (1996) student sample, significant gender differences were found in 8 of the 12 subscales. Male students had more irrational career beliefs than female students. One common difference was the belief concerning sex role stereotypes, but the results conflict. Some studies found that female students (high school, vocational school, and college) held stronger sex role stereotypes (Chang & Lin, 1996; Leu, 2000, Tien, 1998). Others reported that males held more sex role stereotypes (Chiou, 1999; Jin, Lin, & Tien, 1989; Liu, 1997; Yang, 1996). Men generally believed that work is very important (Liu, 1997; that their achievements at work represented their self-worth, and the higher positions they got, the more important they felt about themselves (Chi, 1994; Jin, Lin, & Tien, 1989); that economic reward is very important when choosing an occupation (Chiou, 1999; Yang, 1996); and that a career decision is final, it must not be altered (Jin, Lin, & Tien, 1989). Studies could not generate a profile for women about their career beliefs.

Some studies on career decidedness yielded similar findings to studies done in the United States. Chi (1994) reported that career undecided students seemed to agree more with avoidance, obedience, and face-orientation; whereas career-decided students tended to agree more with control and hard work. They also believed that decision-making should be cautious, that interest is equal to ability, and that the characteristics of

the individual and the environment should match. Leu's (2000) study showed that career-indecisive participants were more likely to avoid challenges, set lower goals, fear failure, and rely on experts to determine their career choices.

Using path analysis, Wu (1991) found career decision-making beliefs had strong and direct influences on career decision-making behaviors through the factors of trait anxiety and state anxiety. Leu (2000) found Perfectionism was the strongest factor impacting participants' indecision. Examining elementary school teachers' irrational career beliefs, Liu (1997) reported that the older the teachers were, the higher scores they got on the career beliefs scales, and the differences between age levels reached statistical significance. The author did not discuss this finding further; however, the results revealed that the older teachers tended to hold more irrational career beliefs. This conflicts with Murry's (1989) findings that irrational beliefs decrease with age and work experience. Concerning whether work experience influences career beliefs, Chi's (1994) data showed that students with work experience agreed more with hard work and held more flexible beliefs; while students without work experience showed lower self-confidence and more avoidant beliefs when making career decisions.

Summary

The literature review presented in this chapter focused on the two major areas: career resilience and career beliefs that provide the framework for studying the relationships between the two variables. London's career motivation theory provided a theoretical construct for career resilience (1983). He hypothesized that career resilience consisted of three sub-domains: self-efficacy, risk taking, and dependency. Waterman et

al. (1994) and Collard et al. (1996) emphasized that resilient workers should continue to learn, should maintain their employability, and should take responsible for their own career management. Comparatively little research has focused on career resilience. Among the studies, career resilience was found to be related to personal attributes, such as achievement, autonomy, creativity, persistency, self-efficacy, and self-esteem, which are congruent with theoretically proposed personality characteristics. Research findings also indicate that career resilience seems to increase as workers age. Yet, there is not sufficient evidence to conclude there is a gender or ethnicity difference. Some results revealed that positive support, feedback on performance, and empowerment in the workplace may enhance employees' career resilience, but the other did not agree with it. The conflicting results might be due to the different hypothesized constructs of career resilience and the different measurements used in the studies. Measures of career resilience have not been well developed or well validated. Further research is really needed since career resilience has been recognized as the key to overcome career barriers and to achieve career success in the accelerative changing workplace.

Review of the literature concerning career beliefs indicates that beliefs are formed through individuals' learning processes (personal observations and inferences) as well as through their interaction with the environment. Beliefs serve as a cognition base that influences an individual's attitudes and behaviors. Krumboltz's Social Learning Theory of Career Decision-Making (1979) provides a framework for understanding the relationship between career beliefs and career decision-making. He proposed that people generate beliefs about themselves and the world of work. These beliefs will

influence people's development of their career preferences and aspirations. Based on their career beliefs, people either make or avoid making their decisions. Vocational counselors have identified dozens of irrational career beliefs that may interfere with an individual's career decision-making and lead to anxiety and dissatisfaction.

Career self-efficacy was found to play a mediational role in the process of choosing and pursuing a career as well as in understanding and modifying women's career development. People low in self-efficacy are more likely to be career indecisive and to set lower goals for themselves. Since self-efficacy was also proposed as one sub-domain of career resilience (London, 1983), it will be an important variable in examining career decision-making and related behaviors. A review of the common career myths existing in the United States and in Taiwan did not find much variation. However, research in Taiwan showed greater gender differences in sex role stereotype career beliefs than those found in the United States.

Career resilience and career beliefs will be the salient factors in understanding individuals' career related behaviors. No prior study investigated the relationship between these two variables. This study attempts to examine their relationship and how they interact with participants' demographic variables (e.g., gender, age, education, number of years of paid work, career/organization change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months) that may contribute to future research.

CHAPTER III

METHODOLOGY

Chapter III is a description of the procedures and methods that were used to collect and analyze the data for both the pilot and the main studies. This chapter consists of two major sections under the headings of "The Pilot Study" and "The Main Study." The first section describes the purposes, instruments, samples, procedures, and methods and results of data analysis for the pilot study. The second section presents the purposes, instruments, samples, procedures, and methods of data analysis for the main study. A brief summary concludes this chapter.

The Pilot Study

Purpose

The purpose of this study was to explore the relationship between career resilience and career beliefs of employees in Taiwan, as well as to examine whether the individuals' demographic factors (e.g., gender, age, educational levels, number of years of work experience, etc.) have effects on these two variables. Through a review of literature, the researcher found no appropriate instruments that could be used to measure career resilience for the employees in Taiwan, and the Chinese Career Belief Inventory (CCBI) was developed using only student samples. The purpose of the pilot study was to adapt the existing measurements of career resilience and the CCBI-form B for the employee sample in the main study.

Instruments

The Measures of Career Resilience

In the review of the relevant research, there was found to be no well-developed and standardized instrument for measuring career resilience. London (1993b) developed five items of career resilience that concerned feeling and attitudes. Based on London's career motivation theory, Noe, R. A., Noe, A. W., and Bachhuber (1990) designed 13 items measuring career resilience that focused on behaviors. Combining London's and Noe et al's items, Grzeda and Prince (1997) proposed an integrated 14-item career resilience scale. Because the integrated items showed a clear 3-factor structure that was consistent with London's theoretical construct of career resilience, the 14 items were embraced as part of the Measures of Career Resilience in the pilot study.

In addition, Michigan's Career Resilience Scale (Bice, 1999, January 24-30) was included. This scale adopted Waterman et al's (1994) and Collard et al's (1996) advocacies of a resilient workforce, and it consisted of 14 items that emphasized employees' employability and willingness to change. However, the first item, "I can easily describe the value I bring to an employer," was not be retained because there was only one item dealing with value, and its meaning was ambiguous. The second item, "During an interview, I could list at least 10 skills that I possess," was a yes/no question, and using 10 skills as the criteria to measure whether a person was resilient or not was questionable. Hence, it was deleted. The fifth and sixth items were modified from "My skills have been upgraded in a significant way in the past year" and "I have upgraded my computer knowledge in the past year" to "My skills have been upgraded to keep pace

with current techniques" and "I have adequate computer knowledge and skills to do my job." Additionally, continuous learning was identified as one important characteristic of career resilience (Brown, 1996, Waterman et al., 1994), yet it did not appear in any of the mentioned scales. Therefore, two items concerning active learning were generated by the researcher: "If I identify what I need to learn, I will actively seek learning opportunities" and "I like to read or attend conferences and workshops to learn new knowledge or skills."

Combining the 14 integrated items suggested by Grzeda and Prince, 12 items from Michigan's Career Resilience Scale, and two items generated by the researcher, a total of 28 items were employed to measure career resilience in the pilot study (see Appendix D). In order to maintain consistency, all items were stated positively (the original items that Grzeda and Prince suggested were written as question sentences). The present Measures of Career Resilience was adopted from a 5-point Likert type scale. The scale ranged from 1 (strongly disagree) to 5 (strongly agree), and 3 was "uncertain." The 28 items were translated into Chinese and tested in the pilot study.

The Career Beliefs Scale

Although Krumboltz's Career Beliefs Inventory (CBI) is a formal, well-developed instrument for measuring career beliefs, Yang's Chinese Career Beliefs Inventory—Form B (CCBI-B) was selected for this study because it was designed for Taiwanese students and was also built on a relatively large sample. Comparing the subscales of the CCBI-B to the career myths discussed in Western literature, they did not differ much from each other. In addition, the CBI was criticized for its low internal

reliabilities in the subscales. One possible cause for this was that 10 out of the 25 subscales consisted of only two items. The CCBI-B included 12 subscales, in which most subscales contained 8 or 9 items, the least including 5 items. Therefore, the internal reliabilities of the CCBI-B (.48 to .83, Yang, 1996) were higher than those in the CBI (.35 to .74, Krumboltz, 1991).

The participants in the pilot study were current employees or adults with work experience. Some items in the CCBI-B were inadequate, such as items from subscale 2 "Preparation for College," and subscale 9 "Interest" (four questions focused on choice of a major). Subscale 2 and subscale 9 were not included in this study. Thus, 10 subscales consisting of 81 items from the CCBI-B were validated in the pilot study (see Appendix E). Minor changes were made in those items because some items in the original CCBI were written in a future context with the phrases like "my future job" or "after I graduate." All the inappropriate sentences were changed into a present context (i.e., rephrased as "my job" or removed the phrase "in the future."). Items referring to choosing a "major" were changed to choosing a "career/occupation."

The 10 career beliefs as measured by Yang's (1996) CCBI-B and their respective meanings are listed below:

1. Responsibility for Decision-Making
    - High score: Other's help can determine the best choice.
    - Low score: A career choice is a personal responsibility.
2. Finality of Decision
    - High score: Once a decision is made, one should not change it.

- Low score: A career decision can be changed whenever the individual needs or the environment is changed.

3. Recognition by Others and Desire for Achievement
    - High score: Other's recognition and approval are important.
    - Low score: Other's recognition and approval do not matter.
4. Importance of Work
    - High score: Work is very important in one's life; it brings one meaning and happiness.
    - Low score: A person can obtain satisfaction and happiness from other sources; one will not sacrifice family life for work.
5. Occupational Status
    - High score: Some occupations are more prestigious than others.
    - Low score: All occupations have an equal status.
6. Economic Reward
    - High score: Salary is the primary concern when making a career decision.
    - Low score: Salary is not the most important concern; interests and abilities are also important when considering a job.
7. Sex Role Stereotypes
    - High score: Some jobs are more suitable for men; some are more suitable for women.
    - Low score: Gender should not be a restriction when making career decisions.

8. Avoidance of Decision-Making
    - High score: Avoid making decisions.
    - Low score: Do not avoid making decisions.
9. Fate
    - High score: Leave decisions to fate.
    - Low score: Future is controlled in one's hand; one should plan for his/her future.
10. Perfectionism
    - High score: One should find the best-fit occupation.
    - Low score: A career choice does not have to be perfect for a person.

The Personal Data Sheet

A one-page personal data sheet was designed to collect information on each participant's (1) type of institution: public or private, (2) business activity of the organization, (3) the number of years in the current job, (4) supervisory experience and the length of time as a supervisor, (5) total years of paid work, (6) number of career changes, (7) number of organization changes, (8) gender, (9) age range, and (10) level of education (see Appendix F).

Sample

The proposal of this study has been reviewed and approved by the Institutional Review Board—Human Subjects in Research, Texas A&M University in May, 2002. Non-random volunteer samples were selected in Taiwan for the pilot study. Participants were employees in a government-owned company, and students of two colleges who

were enrolled in English and Business Administration classes and who had work experience. Of the 260 questionnaires distributed in June of 2002, 178 were returned. The total response rate was 68%. Almost all the employee sample returned the questionnaires. In examining the reason why some student participants did not return their questionnaires, it was discovered that they were busy preparing for final exams (in Taiwan, schools usually hold final exams in mid-June).

Among the 178 participants, 30 employees were selected from a government-owned company; and 148 college students who had work experiences were selected from one college and one university. Approximately 68% of the participants were female (N =120), and 32% were male (N = 57); 22% of participants worked at public institutions (N = 37), and 78% worked at private organizations (N = 129); 30% of the participants had been supervisors (N = 52); and 60% had changed careers before (N = 106). About 47% of participants had worked less than 5 years (N = 80), and 23% had worked between 6 to 10 years (N = 39). The mode of the age range was 21-to-25 year old (34.5%, N = 61). The second largest group was 26-to-30 year old (N = 27, 15.3%), and followed by 31- to-35 year old (N = 25, 14.1%). Most of the participants had bachelor degrees (41%, N = 73), and 35% had junior college degrees (N = 62). A summary of the participants' demographic data is presented in Appendix G.

Procedures

The pilot study was conducted in June of 2002. In May the researcher had called and obtained permission from three contact persons for distributing questionnaires to their colleagues and students. The researcher visited the classrooms and handed out the

questionnaires to potential participants. Some of the questionnaires were sent to the contact persons who then delivered them to their colleagues or students.

The questionnaire for pilot study included: a cover letter that described the purpose of this study and encouragement for participation (see Appendix A), a consent form (see Appendix B), instructions on how to respond to the questions (see Appendix C), the Measures of Career Resilience (see Appendix D), the Career Beliefs Scale (see Appendix E), and a Personal Data Sheet (see Appendix F). All materials were presented in Chinese. Voluntary participation and confidentiality of the individual's information were emphasized in the cover letter, the consent form, and the instructions, as well as during the researcher's/contact person's oral explanation. Participants were asked to complete the questionnaire after normal work hours or after class. The questionnaires were collected by the researcher or by the contact persons.

Data Analysis

Data including participants' personal information, responses to career resilience and career beliefs were coded and analyzed using the computer statistics program entitled Statistical Package for the Social Sciences, Version 10.0. Because items in the CCBI were either negatively or positively stated, the positive items were reversed when analyzing them. Rating as "1" was reversed to rating as "5," "2" to "4," "4" to "2," and "5" to "1." The higher score in career beliefs indicates the more irrational career beliefs a person has. Factor analyses and internal consistency reliabilities were applied to analyze the responses on the Measures of Career Resilience and the Career Beliefs

Scale. Items not showing clustering under a meaningful factor and/or contributing little to overall reliability were eliminated.

The primary procedure employed to select items was factor analysis. In behavioral science, the observed variables usually correlate with each other because they measure some things in common (McDonald, 1985). If the variables are highly correlated, it means that they are clustered into one common factor (Kachigan, 1991). Basically, the procedure of factor analysis is to simplify a correlation matrix. The goal of factor analysis is to achieve parsimony by identifying fewer common factors among a large set of observed variables, and thus represent a new construct while also maintaining reliable variances of the initial data pool. The new construct is usually more meaningful and interpretable. However, the determination of the number of factors has no single rule and is subjective to the researcher's decision. In the pilot study, the number of factors extracted was based on three criteria: Kaiser's eigenvalue-greater-than 1.0 rule, Cattell's scree test plot, and the percentage of variance explained.

The Means and Standard Deviations (*SD*s) of Items in the Measures of Career Resilience

The Measures of Career Resilience consisted of 28 items. The means of responses ranged from 3.27 to 4.19. The results showed that most participants chose option 4 (agree) and 5 (strongly agree). The *SD*s ranged from .49 (item 27) to 1.06 (item 18). Among the 28 items, 60.7% yielded *SD*s from .99 to .70, and 35.7% were less than .70. The results indicated that the participants' responses did not deviate much from each other (detailed information is presented in Appendix H)

Factor Analyses and Reliabilities for the Measures of Career Resilience

For the career resilience data, the Principal Axis Factoring method was utilized with Varimax, Direct Oblimin, and Promax rotation methods to see which result yielded a clear and meaningful factor structure. Principal Axis Factoring method basically extracts the first factor as a general factor that accounts for the maximum possible variance, the second factor then accounts a maximum variance in the residual space as the first factor removed, and so on (Harman, 1967). Varimax is an orthogonal (uncorrelated) rotation, and Direct Oblimin and Promax are non-orthogonal (correlated) rotations. The aim of rotation is to rotate the factor axes in order to maximize the variance of the squared loadings of a factor on all the variables in a factor matrix (Kline, 1994). An item was selected if (1) its factor loading on one factor was greater than .3, and (2) if this item loaded highly on more than one factor, this item would be retained when the difference(s) was/were greater than .1.

The results of factor analysis showed that 8 factors with eigenvalues greater than 1.0 accounted for 44.5 % of the total variance. The scree plot is presented in Figure 3-1. After extracting 3, 4, 5, 6, 7, and 8 factors, the result of extracting 6 factors with Promax rotation was more meaningful. The 6-factor solution accounted for 38.7% of the total variance. The first factor contained eight items that related to change (item 1), risk-taking (item 6), network building (item 7), achievement (item 8 and 13), self-awareness (item 15), and awareness of the demands/trends in the workplace (item 19 and 22). This factor seemed to measure a general characteristic of career resilience. The second factor consisted of four items that were related to adaptability (item 2, 4, 5, and 14). The third

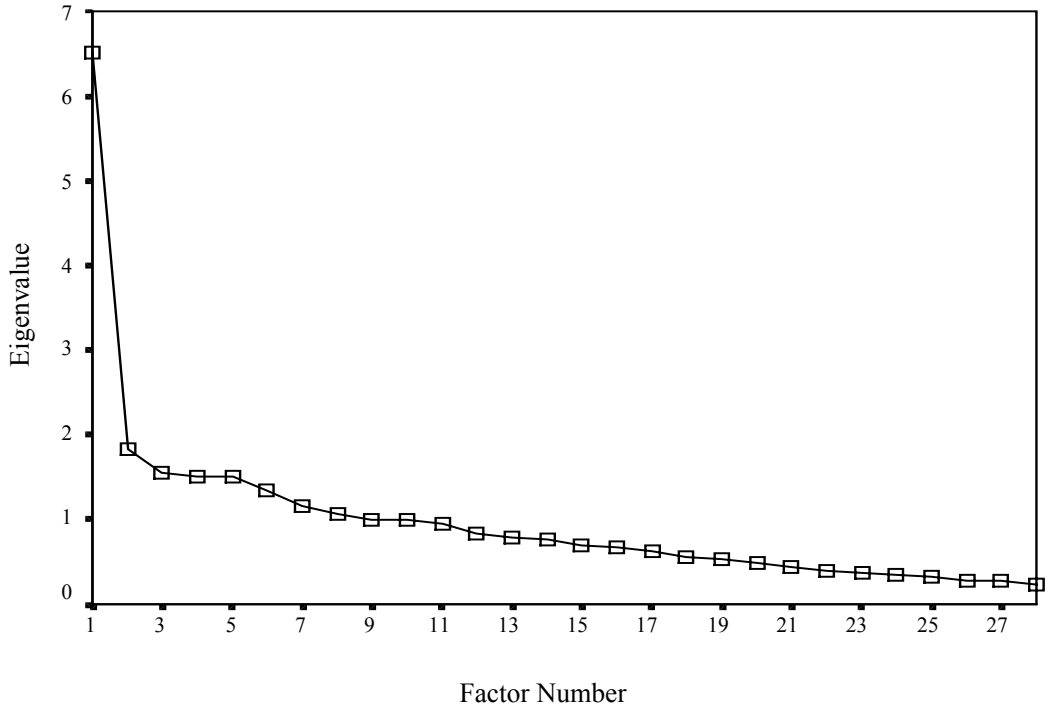

FIGURE 3-1 The Scree Plot for the Career Resilience Items

factor represented the characteristics of autonomy (item 24) and network building (item 23 and 25). The fourth factor indicated the employability and active learning (item 17, 18, and 27). The fifth factor dealt with self-confidence (item 10 and 11). The sixth factor seemed to measure independency (item 3 and 12).

The reliability (Cronbach's Alpha) for each factor was .75, .65, .63, .46, .50, and .19, respectively. The sixth factor was deleted due to its low reliability. Thus, five factors that consisted of 20 items were used as the Measures of Career Resilience in the main study. Among the retained items, four were from London's inventory, seven came from Noe et al's items, eight belonged to the Michigan's Career Resilience Scale, and

one was generated by the researcher. The 20 career resilience items' factor loadings and alpha values are presented in Table 3-1.

The Means and *SD*s of Items in the Career Beliefs Scale

There were 81 items included in the 10 subscales in the Career Beliefs Scale. The means of responses ranged from 2.17 to 4.41. The *SD*s ranged from .55 to 1.26. Among the 81 items, 35.8% yielded *SD*s greater than 1.0; 53% of the items ranged from .99 to .70; and only 11.1% yielded *SD*s less than .70 (detailed data are presented in Appendix I). The results of the means and *SD*s indicated that the responses in the Career Beliefs Scale showed more deviation than those in the Measures of Career Resilience.

Factor Analyses and Reliabilities for the Career Beliefs Scale

For the career beliefs data, the Principal Axis Factoring method was conducted for all the items as well as within each subscale (with one factor extracted by the researcher). The results of Principal Axis Factoring analysis showed that 25 factors had eigenvalues greater than 1.0, and they accounted for 57.4% of the total variance. Although items belonged to the same subscale tended to cluster together, however, the factor structures were not paralleled to the original CCBI-B subscales. In order to keep the same factors as in the original CCBI-B, factor analyses were conducted for each subscale. When conducting factor analysis within each subscale, the items were selected if they had factor loadings greater than .3; however, if there were more than five items with factor loadings greater than .3, only the highest five items were selected. Subscale 2 only had four items that yielded factor loadings greater than .3; therefore, four items

TABLE 3-1

Factor Loadings and Reliability Coefficients for the Career Resilience Items[a]

Item	Factor Loading
Factor 1	
8. I will design better ways of doing my work.	.73
15. My career goals are clear and I have a good idea of where I'm heading.	.53
22. The skills and abilities that I need to be employable are clear to me.	.52
19. I explore trends in my field/industry and have identified various changes that are occurring.	.51
6. I have made suggestions to others even though they may disagree.	.40
1. I welcome job and organizational changes.	.39
7. I make and maintain friendships with people in different departments.	.36
13. I will take the time to do the best possible job on a task.	.34
Percentage of variance accounted for: 21.2%	
Reliability coefficient: .75	
Factor 2	
5. I am able to adapt to changing circumstances.	.69
4. I look forward to working with new and different people.	.65
2. I am willing to take risks even when the outcome is uncertain.	.60
14. I look for opportunities to interact with influential people.	.39
Percentage of variance accounted for: 4.6%	
Reliability coefficient: .65	
Factor 3	
23. I have a network of people in and outside my field that can help my career.	.71
24. I have actively sought better assignments in my current or past jobs.	.59
25. Regularly, I try to identify the future direction of my field by making personal contacts, reading, or attending professional meetings.	.56
Percentage of variance accounted for: 3.5%	
Reliability coefficient: .63	
Factor 4	
17. My skills have been upgraded to keep pace with the current techniques.	.68
27. If I identify what I need to learn, I will actively seek the learning opportunity.	.46
18. I have adequate computer knowledge/skills to do my job.	.33
Percentage of variance accounted for: 3.3%	
Reliability coefficient: .46	
Factor 5	
11. I believe other people when they tell me that I have done a good job.	.75
10. I accept compliments rather than discount them.	.64
Percentage of variance accounted for: 3.3%	
Reliability coefficient: .50	
Factor 6	
12. I will evaluate my job performance against personal standards rather than comparing it with what others do.	.46
3. I can handle any work problem that comes my way.	.33
Percentage of variance accounted for: 2.9%	
Reliability coefficient: .19	

Note. [a]Adapted with permission from London, M, 1993b, Noe et al., 1990, and Operation ABLE of Michigan, 2001, March.

were retained in this subscale. Thus, 49 items consisting of 10 subscales from this instrument were retained for the main study. The Cronbach's alphas for the 10 subscales were .63, .56, .66, .72, .65, .73, .71, .72, .69, and .53, respectively. The 81 career beliefs items' factor loadings and alpha values are presented in Table 3-2.

Examining the remaining items, they seemed to adequately represent the content of their original subscales: 1. Responsibility for Decision-Making, 2. Finality of Decision, 3. Recognition by Others and Desire for Achievement, 4. Importance of Work, 5. Occupational Status, 6. Economic Reward, 7. Sex Role Stereotypes, 8. Avoidance of Decision-Making, 9. Fate, and 10. Perfectionism.

TABLE 3-2

Factor Loadings and Reliability Coefficients for the Career Beliefs Items[a]

Item	Factor Loading
Subscale 1: Responsibility for Decision-Making	
46. I don't want other people to plan my life. I should decide my occupation for myself.	.64
80. I have to choose an occupation that meets my parents' expectations; otherwise, I will not be a good son or daughter.	.51
65. Parents should not interfere with their children's choice of major or job.	.50
68. Schools and teachers should not affect their students' choice of major.	.48
42. Teachers know their students very well so they can decide a major for them.	.46
17. If my choice of career disappoints my parents, I will feel bad.	.35
39. I don't have to think about my future plans because I can follow the plan that my family has made for me.	.30
36. My occupation must have my parents' approval for me to be satisfied.	.22
Reliability coefficient: .63	
Subscale 2: Finality of Decision	
33. If a person changes jobs often, he or she cannot be successful in the future.	.71
26. If a person changes jobs often, he or she must have personality problems.	.55
16. In order to develop one's potential fully, he or she should do the same job all his or her life.	.46
45. Once one finds the best-fit job, he or she should not change it because there is only one best-fit job for him or her in the world.	.39
72. One may have several occupations that suit him or her.	.26
18. In order to adjust for personal and environmental needs, I can change my life plan.	.19

TABLE 3-2—Continued

Item	Factor Loading
38. If I find out my job is not suitable for me later, I can change it.	.17
Reliability coefficient: .56	
Subscale 3: Recognition by Others and Desire for Achievement	
3. I will try my best to do my job; it doesn't matter whether I am outstanding or not.	.55
6. I don't care whether my work will earn the recognition of my boss and colleagues or not.	.53
55. If my work performance does not make me preeminent in my field, I will feel terrible.	.48
63. I don't care whether I am highly regarded at work or not.	.44
50. I don't mind that my parents compare me with others.	.43
32. Even if I don't make any outstanding achievements in my job, that doesn't mean I am a failure.	.41
14. I will do the job that fits me; I don't care what other people say about my job.	.35
1. To win others' approval is not the reason I study.	.32
76. Even if my performance is not better than someone else's, I will be satisfied if it improves.	.22
Reliability coefficient: .66	
Subscale 4: Importance of Work	
74. Only work can make me feel that my life is meaningful.	.74
13. Only work can make me feel happy.	.64
35. Work is more important than family. I can sacrifice time with my family for work.	.60
37. I don't worry about working too much; the more work I do, the more I achieve.	.50
29. In order to concentrate on work, I am willing to be single.	.41
22. In order to do better, I have to come to work earlier and leave later.	.38
7. I don't like a job with long hours because it may affect my family life.	.36
71. In order to have better work performance, I have to sacrifice many things.	.35
Reliability coefficient: .72	
Subscale 5: Occupational Status	
56. All occupations are equal (no high status or low status jobs); the most important thing is to choose a job that is suitable for you.	.66
60. I am willing to do any jobs that fit my interest and ability.	.64
73. Today's hot majors may not be hot in the future; therefore, I should choose a major that fits me.	.51
70. If I want a promising future, I have to be a doctor, lawyer, …etc.	.41
44. Even though a person's job is viewed as low status, he/she still can serve society.	.39
Reliability coefficient: .65	
Subscale 6: Economic Reward	
28. I will give up a job that fits my interest and ability in order to pursue high salary.	.63
31. My job doesn't need to fit my major; only high salary is my concern.	.60
58. Salary is not the primary concern when I consider choosing a job.	.53
34. I am willing to do any jobs if its pay is good.	.50
61. Accomplishing the work is more important than earning more money.	.47
2. Earning a lot of money is the only purpose of life.	.46
40. High salary doesn't mean that the person has a successful career.	.43
21. It is more important that one develops his/her professional knowledge and skills than it is to earn more money.	.39
66. The ideal job is low work loading but high pay.	.38
Reliability coefficient: .73	

TABLE 3-2—Continued

Item	Factor Loading
Subscale7: Sex Role Stereotypes	
19. Men are more suitable to be supervisors.	.71
53. Boys should choose science and engineering as their majors and girls should choose literature, education, sociology, and business as their majors.	.62
59. Women should stay at home being a housewife but men should go out to work and bring back money.	.62
67. Girls will marry someday, so they don't need to consider career choice.	.55
64. Both males and females are suitable for being doctors.	.48
27. Girls will marry any way, so they don't need to receive higher education.	.42
10. Women can perform as well as men do in their jobs.	.38
5. There are certain jobs that are suitable for men, and some that are suitable for women.	.32
48. My job choice won't be limited by my gender.	.19
Reliability coefficient: .71	
Subscale 8: Avoidance of Decision-Making	
54. I will do whatever job I find, so I don't need to plan for my future now.	.65
47. The future is full of changes we can't predict or control, so it is no use to make any future plan right now.	.62
57. It won't be too late to think about my future plan until the time that I have to.	.60
49. If I have to make a future plan right now, I will be anxious and unable to face the problem.	.57
43. I try to avoid making career choices, because it is difficult to make a decision.	.51
20. I like to think about and plan for my future.	.50
81. I began to think about my future plan very early.	.38
78. I am afraid of making career choices, because if I make a wrong choice, all my life will be affected.	.35
11. I often hesitate whenever I am facing career decisions.	.18
Reliability coefficient: .72	
Subscale 9: Fate	
24. If we plan the future carefully, it will be easy to reach our goals.	.62
79. The primary factor of career success is due to luck.	.57
25. If you carefully plan and well prepare, you will have good results.	.55
51. The accomplishment of a job is due to one's competency and efforts instead of luck.	.54
8. My future is controlled in my hands.	.53
4. It is better to plan out the future actively rather than to passively obey the fate.	.36
77. If I study hard while I am a student, I will find a suitable job after graduation.	.36
9. It is no use to plan for the future because the future depends on luck.	.35
75. It is irresponsible if you hand your own future to fate.	.19
Reliability coefficient: .69	

TABLE 3-2—Continued

Item	Factor Loading
Subscale 10: Perfectionism	
52. In order to make the right job choice, I have to consider it carefully until I find a perfect answer.	.67
69. I will not be satisfied until I find a best-fit job.	.55
41. My job must be the one I am most interested in, or I don't want to do it.	.44
15. Unless I am absolutely sure what job is suitable for me, I will not make any decision.	.40
30. I will be very disappointed if I can't find my best-fit job.	.32
12. I must choose the best-fit job; otherwise, my future will be hopeless.	.29
62. Even though my job doesn't fit my major, I will still try my best to do the job.	-.18
23. My future job should fit my major; otherwise, the four years spent at college are wasted.	.04
Reliability coefficient: .53	

Note .[a]Adapted with permission from Yang, 1996.

The Main Study

Purpose

The purpose of the main study was to explore the relationship between career resilience and career beliefs of employees in Taiwan. Specifically, this study examined whether the career resilience and the career beliefs were related to demographic attributes, such as gender, age, educational level, number of years of paid work, supervisory experience, career change, organization change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months or not. Basically, this study was a correlational design: Two scales that measure career resilience and career beliefs served as the dependent variables, and various demographic information collected by the Personal Data Sheet served as independent variables.

Sample

The sample selected in the main study was non-random and voluntary. It consisted of organizationally diverse employees in banks, colleges (included one military college), hospitals, high-tech companies, traditional manufacturing factories, insurance companies, wholesale companies, government institutions, construction consultant firms, self-owned small businesses, and non-profit organizations, etc. All participants were adults who were currently employed. Detailed description regarding participants' demographic information is presented in Chapter IV.

Instruments

The Measures of Career Resilience

Based on the results of pilot study, 20 career resilience items were selected for use in the main study (see Appendix D items designated with an asterisk). These items seemed to measure willingness to change, risk-taking, network building, self-confidence, achievement, self-awareness, awareness of the demands/trend in the workplace, adaptability, autonomy, employability, and active learning. Since the factor analyses did not yielded a clear and theoretical structure, the researcher was not confident to interpret career resilience by its separate factors. Therefore, only the total score of the 20 items was used to indicate the degree of one's career resilience.

The Career Beliefs Scale

Forty-nine items comprised of 10 career belief subscales were selected for use in the main study (see Appendix E items designated with an asterisk). The subscales of the career beliefs were as the same as in the original CCBI-B: 1. Responsibility for Decision

Making, 2. Finality of Decision, 3. Recognition by Others and Desire for Achievement, 4. Importance of Work, 5. Occupational Status, 6. Economic Reward, 7. Sex Role Stereotypes, 8. Avoidance of Decision-Making, 9. Fate, and 10. Perfectionism. Each subscale contained five items, except for subscale 2 which had only four items. Scores for the 10 career belief subscales and the total scores (i.e., sum of the 10 subscales) were computed and used for further data analyses. The total career beliefs scores represent the general level of one's irrational career beliefs; that is, a higher score indicates a person possesses more irrational career beliefs, and vice versa.

The Personal Data Sheet

A minor change was made in the educational level. The "5-year junior college" level was changed to "junior college" because there are not only 5-year junior colleges, but also 2-year and 3-year junior colleges in Taiwan's education system.

One item was added: "In the most recent six months, have you ever attended any classes, workshops, or training programs for more than one week?" The options for this question were 1. No. 2. Yes. This item was included because continuous learning is one important factor in being a resilient worker. The researcher believes this item could be a valuable indicator in evaluating one's level of career resilience. A total of 11 items were included on the Personal Data Sheet (see Appendix F).

Procedures

In order to reduce the length of the questionnaire, the cover letter was simplified into a brief introduction. This was done because part of the letter's content overlapped with that in the consent form and the instructions. The introduction and the consent

form were printed on the first page; the second page contained the instructions; then followed by the Measures of Career Resilience, the Career Beliefs Scale, and the Personal Data Sheet.

During May and June of 2002, the researcher contacted approximately 20 individuals and asked for their assistance in this study. These contact persons were families, relatives, friends, ex-colleagues, and business associates of the researcher. In mid-July of 2002, questionnaires were sent to the contact persons. These contact persons distributed the questionnaires to their colleagues or students. Fewer than 20 questionnaires were disseminated to the families of the contact persons. All the contact persons were informed about the purpose of the study, the procedures for delivering the questionnaires, and the emphases on volunteer and confidentiality. Each questionnaire was numbered. To ensure confidentiality of responses, only the contact persons kept a record of the participants' names and their respective code number. The researcher could not identify any information about the participants' identity. The researcher provided participants a business reply envelope with only the researcher's address on it so that they could mail the questionnaire back to the researcher without paying postage. Most participants completed the questionnaire and gave it to the contact person who then sent them back to the researcher. Very few participants used the business reply envelope and mailed their responses to the researcher. At the end of August, telephone calls were made to remind the contact persons to encourage their colleagues to complete the questionnaires. A total of 750 questionnaires were distributed, and 578 valid

questionnaires were returned during August to October of 2002. The return rate was 77%.

Data Analysis

Data including participants' personal information, and responses on career resilience and career beliefs were analyzed using the computer statistics program entitled Statistical Package for the Social Sciences, Version 10.0. Descriptive statistics (frequencies, means, percentages, and standard deviations) portrayed a profile of the characteristics of the participants and their responses on the two major concerns—career resilience and career beliefs. Correlation, multiple regression, Analysis of Variance (ANOVA), Multivariate Analysis of Variance (MANOVA), trend analysis, and discriminant analysis were conducted to answer the following research questions:

Question 1. What are the relationships between career resilience and career beliefs of employees in Taiwan?

For this question, the Pearson Product Moment coefficients were computed and tested to see whether there were statistically significant correlations. The Pearson Product Moment coefficient is an appropriate statistic for measuring the linear relationship between two interval/ratio variables (Hinkle, Wiersma, & Jurs, 1998). Both scores in career resilience and career beliefs were considered as interval data. However, a significant correlation does not imply causation. Besides, the Pearson Product Moment coefficient cannot detect non-linear relationships.

The multiple regression was used to determine whether and to what extent career beliefs explain the variance of career resilience. The scores of the Measures of Career

Resilience was the criterion variable, and scores from 10 subscales of the Career Beliefs Scale were the independent variables. Using the linear combination of the scores from 10 subscales, multiple *R* was calculated as the correlation coefficient between the criterion variable and the independent variables (Hinkle et al., 1998). Multiple regression was computed to detect the correlation between career resilience and career beliefs as well as to determine which career belief subscale(s) explained career resilience better.

Question 2. Are there any differences in the career resilience scores of employees in Taiwan with regard to demographic characteristics such as gender, age, educational level, number of years of paid work, supervisory experience, career change, organization change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months?

ANOVA was employed to examine whether there were any main effects among these variables. ANOVA is a statistical technique to test the differences among multiple (more than two) groups or independent variables.

Question 3. Are there any two-way interaction effects between gender and the other demographic variables on the career resilience scores of employees in Taiwan?

To answer this question, ANOVA with a two-way interaction effect model (gender by the other eight demographic variables) was employed to analyze the interaction effect.

Question 4. What is the relationship (linear, quadratic, cubic, or quartic) between the number of years of paid work and the career resilience scores of employees in Taiwan?

A trend analysis was conducted to determine the relationship. Trend analysis is a special case of orthogonal comparisons. When the independent variable is an interval scaling, a special set of orthogonal contrasts can be used to examine possible trends as linear, cubic, quadratic, or quartic relationships between independent and dependent variables (Hinkle et al., 1998).

Question 5. Are there any differences in the career beliefs subscale scores of employees in Taiwan with regard to demographic characteristics such as gender, age, educational level, number of years of paid work, supervisory experience, career change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months?

For this question, MANOVA was applied to determine whether there were statistically significant differences among subgroups of the demographic variables. MANOVA is designed to test the significance of group differences, including multiple dependent variables. Since there were 10 scores from the 10 career belief subscales and

these subscales were somehow hypothetically correlated among each other, using MANOVA has three advantages: (1) Testing several dependent variables instead of one can cumulate the degrees of freedom across all outcomes and hence increase the power to detect smaller effects. (2) Conducting several univariate analyses leads to a greatly inflated overall Type I error rate. Using MANOVA can maintain the overall error rate at the pre-selected α level. (3) Since in behavioral science, the dependent variables are often correlated to each other, the use of MANOVA can incorporate the intercorrelations among dependent variables into the analysis (Mertler & Vannatta, 2002). To further identify how the subgroups of the demographic variables differed among the career belief subscales, discriminant analyses were applied to identify the dimensions along which the relevant subgroups differed most conspicuously (Tatsuoka, 1988). Because most of the career belief subscales were related to each other, using discriminant analysis was a better approach to analyze the differences while the inter-correlation among the subscales are being taken into account at the same time.

Summary

This chapter described the procedures and methods that were used to collect and analyze the data for both the pilot and the main studies. The participants were non-random volunteer samples obtained in Taiwan. Participants in the pilot study were current employees and students with work experience. The pilot study was conducted to adapt the measurements of career resilience and the CCBI-B for the employee sample in the main study. The primary principle employed to select items was factor analysis, and the next concern was the internal consistency reliabilities. Twenty-eight career

resilience items were tested in the pilot study. These included 14 integrated items suggested by Grzeda and Prince, 12 items from Michigan's Career Resilience Scale, and two researcher generated items. Ten subscales from the CCBI-B consisting of 81 items were used as the Career Beliefs Scale in the pilot study. The present measurements were adopted from a 5-point Likert type scale.

Finally, a 20-item Measures of Career Resilience and a 49-item Career Beliefs Scale were selected for use in the main study. Participants in the main study were all current employees. Correlation, multiple regression, Analysis of Variance (ANOVA), Multivariate Analysis of Variance (MANOVA), trend analysis, and discriminant analysis were conducted to answer the research questions.

CHAPTER IV

RESULTS

The purpose of this study was to explore the relationship between career resilience and career beliefs of employees in Taiwan. Additionally, the relationships between these two variables and participants' demographic characteristics were also examined. This chapter presents the descriptive statistics of the sample and the results of the analyses for each research question. The final section briefly summarizes the results obtained from this study.

Description of the Sample

A total of 750 questionnaires were distributed, and 578 participants completed and returned their responses. The return rate was 77%. The participants came from diverse work settings. Data regarding their demographic information are presented in Table 4-1. Most of the participants worked at private organizations (N = 440, 76%); but 24% (N = 138) worked for public institutions. Of the participants, 313 (54.2%) were male, and 264 (45.8%) were female. Fifty-two (9%) of the participants had high school diplomas, but 220 (38%) had junior college degrees, 190 (33%) had bachelor degrees, and 115 (20%) had post-bachelor (master or Ph.D.) degrees. The mode of the age range was 31 to 35 years old (N = 146, 25.3%). There were 129 participants aged between 26 and 30 (22.3%), and 120 aged between 36 and 40 (20.8%), 36 aged between 21 and 25 (6.2%), and 48 aged above 46 (8.5%). Compared to the statistics of the employee population in Taiwan (Directorate-General of Budget, 2003), this sample comprised more employees with higher education and who worked at public institutions (see Table

4-2). The ages in this sample mostly grouped around 26 to 40 (68.4%), but the population showed a more equal distribution among age 25 to 54. The ratios of gender in this sample were close to the population.

Approximately 35.4% of the participants had been supervisors (N = 204), 41.7% had changed careers before (N = 239), 73.6% had changed organizations (N = 415), and 46.4% indicated that they had attended class, workshops, or training program in the most recent six months (N = 268). The number of years of paid work ranged from 6 months to 45 years. The mode was 5.1 to 10 years (N = 154, 27.2%), and the next largest category was between 10.1 and 15 years (N = 124, 21.9%), followed by 5 years and below (N = 110, 19.4%).

TABLE 4-1

Demographic Characteristics of the Sample

Demographic Characteristics	Number	Valid Percentage[a]
Institution		
Public	138	23.9%
Private	440	76.1%
Gender		
Male	313	54.2%
Female	264	45.8%
Missing	1	
Age Range		
21 to 25	36	6.2%
26 to 30	129	22.3%
31 to 35	146	25.3%
36 to 40	120	20.8%
41 to 45	98	17.0%
46 to 50	30	5.2%
51 to 55	13	2.2%
56 to 60	5	0.9%
61 and above	1	0.2%

TABLE 4-1--Continued

Demographic Characteristics	Number	Valid Percentage
Education		
High School	52	9.0%
Junior College	220	38.1%
Bachelor	190	32.9%
Master or Ph.D.	115	19.9%
Missing	1	
Years of Paid Work		
5 years and below	110	19.4%
5.1 to 10 years	154	27.2%
10.1 to 15 years	124	21.9%
15.1 to 20 years	103	18.2%
20.1 and above	75	13.3%
Missing	7	
Supervisory Experience		
Never	373	64.6%
Yes	204	35.4%
5 years and below	56	9.7%
5.1 to 10 years	61	10.6%
10.1 to 15 years	55	9.6%
15.1 years and above	30	5.2%
Missing	3	
Participated in Training Activities		
No	310	53.6%
Yes	268	46.4%
Career Change		
Never	334	58.3%
Yes	239	41.7%
Once	139	24.8%
Twice	58	10.3%
Thrice and above	30	5.3%
Missing	17	
Organization Change		
Never	149	26.4%
Yes	415	73.6%
Once	156	28.6%
Twice	130	23.9%
Thrice	57	10.5%
Fourfold and above	53	9.7%
Missing	33	

Note. [a]Missing data were not included in computing the valid percentage.

Total $N = 578$

TABLE 4-2

Demographic Characteristics of Employees in Taiwan in 2002

Demographic Characteristics	Number[a]	Valid Percentage
Institution		
Public	946	10.8%
Private	7,813	89.2%
Non-paid work	695	
Gender		
Male	5,547	58.7%
Female	3,907	41.3%
Education		
Junior High School and below	3,197	33.6%
High School	3,424	36.2%
Junior College and above	2,851	30.2%
Age Range		
Under 24	1,069	11.3%
25 to 29	1,358	14.4%
30 to 34	1,407	14.9%
35 to 39	1,460	15.4%
40 to 44	1,391	14.7%
45 to 49	1,175	12.4%
50 to 54	790	8.4%
55 to 59	384	4.1%
60 and above	419	4.4%

Note. [a]In thousands.

Total N = 9,454,000

Results for Research Question 1

Research question 1 was: What are the relationships between career resilience and career beliefs of employees in Taiwan? To answer this question, Pearson Product Moment Correlation coefficients were calculated for each pair among career resilience scores, the 10 career belief subscale scores, and the total career beliefs scores. The correlation matrix is presented in Table 4-3. Fifty-five of the 66 correlations yielded statistical significance at least at the .05 level. Career resilience scores were statistically significant and negatively correlated with the total career beliefs scores ($r = –.22$, $p <$

.01). That is, participants with higher career resilience tended to possess less irrational career beliefs. Eight of the 10 career belief subscales yielded statistically significant correlations with career resilience scores (all $p < .01$). However, the magnitudes of coefficients were small (the absolute r values were all less than .40). Career resilience scores were statistically significant and negatively correlated with career belief subscale 9 (believe in fate, $r = –.39$), subscale 8 (avoid making decisions, $r = –.35$), subscale 5 (believe that some occupations are more prestigious, $r = –.24$), subscale 7 (possess sex role stereotypes, $r = –.17$), subscale 1 (assume other's help can determine the best choice, $r = –.16$), and subscale 6 (salary is the primary concern when making career choices, $r = –.15$). Subscale 10 (believe one should find the best-fit career) and 4 (work is very important in one's life) yielded statistically significant and positive correlations with career resilience scores ($r = .17$ and .16, respectively).

In order to determine which of the 10 career belief scores were more influential in predicting career resilience scores, multiple regression was conducted by entering all the 10 career beliefs as predictors. The results are presented in Table 4-4. They yielded a statistically significant multiple correlation (R) = .507, which is a Pearson correlation coefficient between predicted and actual scores on the dependent variable. The squared multiple correlation (R^2), which represents the degree of variance accounted for by the 10 career belief subscales, equaled to .257; that is, 25.7% of the total variance could be explained by the 10 predictors. Since the sample size in the main study was not small, the adjusted squared multiple correlation (R^2_{adj}) was .244, not much different from $R^2 = .257$.

TABLE 4-3

Correlation Matrix for Career Resilience and Career Beliefs Total and Subscale Scores

	Resilience Score	Belief 1	Belief 2	Belief 3	Belief 4	Belief 5	Belief 6	Belief 7	Belief 8	Belief 9	Belief 10
Belief 1	-.16**										
Belief 2	-.04	.24**									
Belief 3	.07	.04	-.09*								
Belief 4	.16**	.06	.23**	.03							
Belief 5	-.24**	.37**	.23**	.11**	.06						
Belief 6	-.15**	.12**	.08	.23**	.04	.31**					
Belief 7	-.17**	.26**	.44**	-.05	.12**	.40**	.16**				
Belief 8	-.35**	.15**	.20**	-.13**	.11**	.15**	.16**	.24**			
Belief 9	-.39**	.22**	-.04	.06	-.11**	.30**	.18**	.08*	.36**		
Belief 10	.17**	-.02	.16**	.12**	.32**	-.08*	.03	.09*	-.03	-.26**	
Belief Total	-.22**	.49**	.51**	.31**	.43**	.58**	.53**	.57**	.48**	.37**	.32**

Note. * indicates correlation is statistically significant at the .05 level (2-tailed).
**indicates correlation is statistically significant at the .01 level (2-tailed).

TABLE 4-4

Regressions of Career Beliefs Subscale Scores on Career Resilience Scores

Predictors	*R*	*R* Square	Adjusted *R* Square
Career Belief Subscale 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	.507	.257	.244
Career Belief Subscale 3, 4, 5, 8, 9	.502	.252	.245
Career Belief Subscale 4, 5, 8, 9	.496	.246	.241
Career Belief Subscale 5, 8, 9	.467	.218	.214

Note. Method: Enter

The test of beta weights showed that career belief subscale 3, 4, 5, 8, and 9 contributed significantly to predict career resilience scores (see Table 4-5). When entering these five predictors, they yielded $R = .502$, $R^2 = .252$, and $R^2_{adj} = .245$, which indicated that using the 5 predictors could obtain almost the same prediction effect (or percentage of the total variance explained) as using 10 predictors. That is, participants who expressed that they need recognition by others and desire for achievement, view work as very important part in one's life, believe all occupations have an equal status, do not avoid making career decisions, and believe that the future is controlled by one's own hands tended to score higher on the Measures of Career Resilience. Table 4-4 also presents the multiple correlations (R), squared multiple correlation (R^2), and adjusted squared multiple correlation (R^2_{adj}) when entered four subscales (4, 5, 8, and 9) and three

subscales (5, 8, and 9). The results showed that entering four subscales (4, 5, 8, and 9) yielded almost as much R^2 as entering five subscales.

TABLE 4-5

Structure Coefficients and Test Results of Standardized Beta Weights for the Career Belief Subscales

Predictors	Structure Coefficient	Standardized Beta Weight	*t*	*p*
Belief Subscale 1	-.31	-.027	-.668**	.504
Belief Subscale 2	-.09	.018	.422**	.673
Belief Subscale 3	.14	.077	1.984**	.048
Belief Subscale 4	.32	.166	4.217**	.000
Belief Subscale 5	-.48	-.110	-.485**	.013
Belief Subscale 6	-.29	-.044	-.122**	.262
Belief Subscale 7	-.33	-.057	-.307**	.192
Belief Subscale 8	-.69	-.235	-.666**	.000
Belief Subscale 9	-.77	-.232	-.392**	.000
Belief Subscale 10	.33	.032	.795**	.427

Note. * indicates statistical significance at the .05 level.
** indicates statistical significance at the .01 level.

However, since most of the predictors were correlated with each other, the beta weights no longer equaled to the correlation between a predictor and the dependent variable. Thus, a predictor may have high correlation with the dependent variable, but

due to the redundancy with other predictors, its beta weight is small. Contrarily, a predictor may have a near-zero correlation with a dependent variable but a sizeable beta weight. This predictor might be a "suppressor variable," such as subscale 3 in this study. Therefore, both beta weights and structure coefficients are suggested when interpreting the regression results (Courville &Thompson, 2001). A regression structure coefficient is "the bivariate correlation between a given predictor variable and the synthetic variable, predicted *Y*" (Courville &Thompson, 2001, p. 231). The structure coefficients for the 10 subscales are shown in Table 4-5. According to these structure coefficients, career belief subscale 9 (believe in fate), subscale 8 (avoid making decisions), subscale 5 (some occupations are more prestigious), subscale 10 (one should find the best-fit career), and subscale 7 (sex role stereotypes) yielded the five highest structure coefficients (subscale 5, 7, 8, and 9 were negatively correlated with career resilience score, but subscale 10 had a positive correlation). Examining the results of beta weights and structure coefficients, the three most important subscales for predicting career resilience scores were: Fate, Avoidance of Decision-Making, and Occupational Status. Thus, participants who believed that the future is controlled by one's own hands and that all occupations have equal status, and who do not avoid making decisions were more likely to score higher on the Measures of Career Resilience.

Results for Research Question 2

Research question 2 focused on investigating the main effects of participants' demographic characteristics (e.g., gender, age, educational level, number of years of paid work, supervisory experience, career change, organization change, type of institution,

and participation in training/educational activities for more than one week in the most recent six months) on the career resilience scores. To examine the main effects for these demographic variables, ANOVA was conducted combining both main effect and two-way interaction effect (gender by the other eight demographic variables) model (interaction effect was analyzed for question 3). All demographic variables were treated as fixed factors. The results of the main effects are presented in Table 4-6. Type III sum of squares indicates the unique main effect for a factor; it is the remaining sum of squares after the overlapped sum of squares with all other factors are removed.

TABLE 4-6

Main Effects of Demographic Variables on Career Resilience Scores

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Gender	384.464	1	384.464	6.950**	.009	.013
Age	401.406	5	80.281	1.451**	.204	.014
Education	922.093	3	307.364	5.556**	.001	.031
Years of Paid Work	304.696	4	76.174	1.377**	.241	.011
Institution	369.207	1	369.207	6.674**	.010	.013
Supervisory Experience	649.871	1	649.871	11.747**	.001	.022
Career Change	83.322	1	83.322	1.506**	.220	.003
Organization Change	90.758	1	90.758	1.641**	.201	.003
Participated in Training Activities	1933.698	1	1933.698	34.955**	.000	.064

Note. ** indicates statistical significance at the .01 level.

The ANOVA results showed that five factors—gender, type of institution, educational level, participation in training/educational activities, and supervisory experience—produced statistically significant main effects on career resilience scores. However, the effect sizes (partial eta squared) of the main effects were relatively small (ranging from .013 to .064). Examining the group means (see Table 4-7), the following differences were found: Female mean on the career resilience was significantly lower than males. Participants who worked at private institutions showed higher career resilience mean scores than those who worked at public institutions. Participants who had higher educational levels yielded higher scores in career resilience than those who had lower educational levels. Participants who indicated they had participated in training/educational activities more than one week in the most recent six months showed higher career resilience mean scores than those who did not engage in those activities. Participants who had been supervisors also scored higher in career resilience than those who had never been a supervisor.

On the other hand, age, number of years of paid work, and whether career and organization had changed or not did not yield a statistically significant main effect on career resilience scores. The results indicated that although participants who were older, with more years of work experience, and who had changed career or organizations before scored higher in career resilience, the differences did not achieve statistical significance.

TABLE 4-7

Means and *SD*s of Career Resilience Scores by Selected Demographic Variables

Demographic Characteristics	Number[a]	Mean	SD
Gender			
Male	313	76.24	7.59
Female	263	74.86	8.69
Education			
High School	52	75.48	10.28
Junior College	220	74.62	8.28
Bachelor	189	76.39	7.24
Master or Ph.D.	115	76.39	7.96
Age Range			
21 to 25	36	72.61	8.42
26 to 30	129	75.38	7.65
31 to 35	146	75.57	7.77
36 to 40	120	75.97	8.44
41 to 45	98	75.44	8.85
46 and above	48	78.04	7.48
Years of Paid Work			
5 years and below	110	75.05	7.75
5.1 to 10 years	154	75.06	7.97
10.1 to 15 years	124	75.84	8.29
15.1 to 20 years	103	75.95	8.10
20.1 and above	74	77.18	8.71
Institution			
Public	137	74.40	7.86
Private	440	75.98	8.18
Supervisory Experience			
Never	372	74.12	7.88
Yes	204	78.35	7.90
Career Change			
Never	333	74.65	7.58
Yes	239	76.93	8.74
Organization Change			
Never	148	74.22	7.50
Yes	415	76.08	8.34
Participated in Training Activities			
No	310	73.60	7.53
Yes	267	77.94	8.19

Note. [a]Due to the missing responses, some of the numbers in the demographic subgroups did not equal to the numbers listed on Table 4-1.

Results for Research Question 3

Question 3 focused on determining whether there were interaction effects between gender and the other eight demographic variables (e.g., age, education, number of years of paid work, type of institution, supervisory experience, career or organization change, and participation in training/educational activities more than one week in the most recent six months or not) on career resilience scores. To answer this question, ANOVA was employed to analyze the interaction effects (main effects were also conducted at the same time). The results indicated a statistically significant gender by education interaction effect (refer to Table 4-8). Figure 4-1 showed that males who had a high school degree scored the highest on career resilience, but the rest of the educational levels (junior college, bachelor, master and Ph.D.) did not show large variations. On the other hand, female scores increased as their educational levels became higher.

TABLE 4-8

Gender by the Other Demographic Variables Two-Way Interaction Effects on Career Resilience Scores

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Gender by Age	36.243	5	7.249	.131**	.985	.001
Gender by Education	1060.225	3	353.408	6.388**	.000	.036
Gender by Years of Paid Work	384.963	4	96.241	1.740**	.140	.013
Gender by Institution	96.727	1	96.727	1.748**	.187	.003
Gender by Supervisory Experience	13.989	1	13.989	.253**	.615	.000
Gender by Career Change	29.856	1	29.856	.540**	.463	.001
Gender by Organization Change	.365	1	.365	.007**	.935	.000
Gender by Participated in Training	27.766	1	27.766	.502**	.479	.001

Note. ** indicates statistical significance at the .01 level.

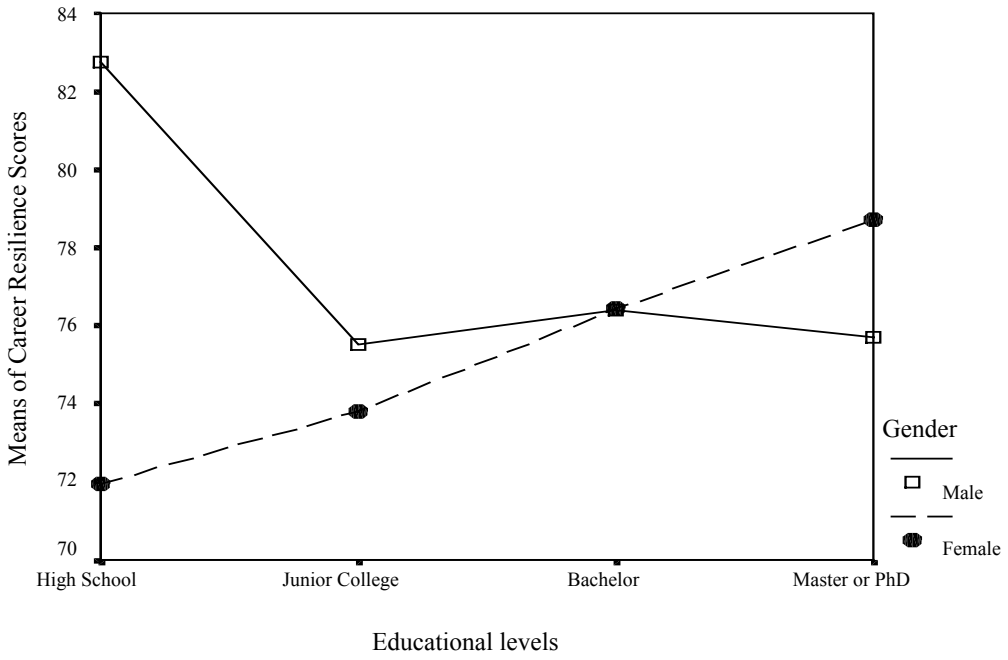

FIGURE 4-1. Gender by Education Interaction on Career Resilience Scores

Results for Research Question 4

Research question 4 investigated the relationships (linear, quadratic, cubic, or quartic) between the number of years of paid work and career resilience scores. Trend analyses were conducted to determine the relationship. Although the plot of the number of years of paid work and career resilience mean scores portrayed an ascending linear curve (see Figure 4-2), the results showed that none of the relationships yielded statistical significance. However, the linear term yielded $p = .053$ (see Table 4-9). Hence, the relationship between the number of years of paid work and career resilience scores seemed to have a linear tendency.

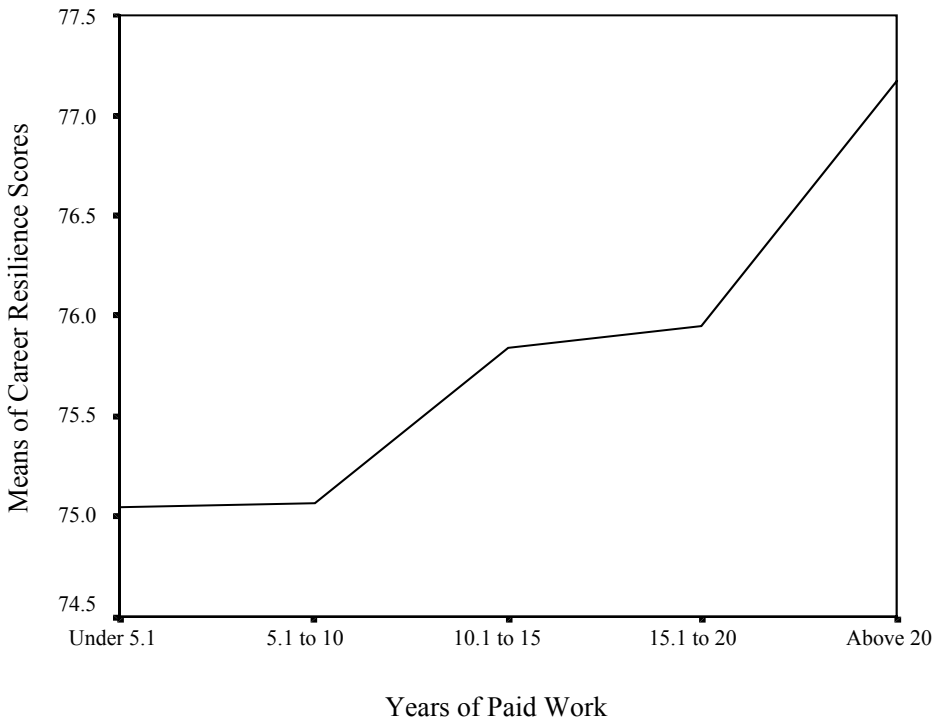

FIGURE 4-2. Means of Career Resilience Scores by Years of Paid Work

TABLE 4-9

Trend Analysis on Career Resilience Scores by Years of Paid Work

Source	*df*	*F*	*p*
Linear term	1	3.767	.053
Quadratic term	1	.334	.564
Cubic term	1	.022	.882
Quartic term	1	.269	.604

Results for Research Question 5

Research question 5 investigated the differences among the career belief subscales by the participants' demographic characteristics, including gender, age, educational level, type of institution, number of years of paid work, supervisory experience, career change, and participation in training/educational activities for more than one week in the most recent six months. MANOVA was employed to test whether there were statistically significant differences among demographic subgroups on career beliefs. The results showed that all demographic variables, except for the number of years of paid work variable, yielded statistically significant differences among career beliefs (see Table 4-10).

TABLE 4-10

Main Effects of Demographic Variables on Career Beliefs Subscales

Source	Hypothesis *df*	Error *df*	*F*	*p*	Partial Eta Squared
Gender	10	533	7.674	.000	.126
Institution	10	533	2.118	.022	.038
Education	30	1565.136	1.745	.008	.032
Age	50	2434.218	1.681	.002	.030
Supervisory Experience	10	533	1.856	.049	.034
Career Change	10	533	2.613	.004	.047
Participated in Training Activities	10	533	1.905	.042	.035
Years of Paid Work	40	2022.929	1.319	.088	.024

The means and *SD*s for each subgroup within the demographic variables, and the results of ANOVA (based on type III sum of square) on the total career beliefs scores are presented in Table 4-11. The results showed that the total career beliefs mean scores were significantly different between males and females, and also among the educational levels.

TABLE 4-11

Means, *SD*s, and ANOVA Results of Demographic Subgroups on Career Beliefs Total Scores

Demographic Characteristics	Number[a]	Mean	*SD*	*F*	*p*	Partial eta squared
Gender				5.806**	.016	.011
Male	313	121.70	12.74			
Female	263	118.90	11.42			
Education				5.544**	.001	.030
High School	52	119.44	11.43			
Junior College	220	122.39	11.50			
Bachelor	189	119.61	11.17			
Master or Ph.D.	115	118.60	15.02			
Age Range				1.821**	.107	.017
21 to 25	36	122.97	8.88			
26 to 30	129	120.43	12.82			
31 to 35	146	120.36	12.27			
36 to 40	119	122.44	11.95			
41 to 45	98	118.57	12.83			
46 and above	49	117.84	11.55			
Years of Paid Work				1.601**	.173	.012
5 years and below	110	122.28	11.58			
5.1 to 10 years	154	120.56	12.13			
10.1 to 15 years	123	120.54	13.73			
15.1 to 20 years	103	120.07	10.64			
20.1 and above	75	118.03	12.75			

TABLE 4-11--Continued

Demographic Characteristics	Number[a]	Mean	*SD*	*F*	*p*	Partial eta squared
Institution				.003	.955	.000
Public	138	119.95	12.53			
Private	439	120.61	12.15			
Supervisory Experience				.083	.774	.000
Never	372	120.72	12.06			
Yes	204	120.01	12.57			
Participated in Training				.030	.862	.000
No	309	120.28	11.73			
Yes	268	120.64	12.81			
Career Change				.626	.429	.001
Never	333	121.15	12.01			
Yea	239	119.44	12.42			
Organization Change				1.943	.164	.004
Never	149	121.99	11.98			
Yes	414	119.81	12.41			

Note. [a]Due to the missing responses, some of the numbers in the demographic subgroups did not equal to the numbers listed on Table 4-1.
* indicates statistical significance at the .05 level.
** indicates statistical significance at the .01 level.

To further determine how the career belief subscales differed, discriminant analyses were applied to identify the dimension among which the relevant subgroups differed most conspicuously. Results of discriminant analyses of the demographic variables on the 10 career belief subscales showed that only the first discriminant function yielded statistical significance. The following is the interpretation of the results for the significant demographic variables.

Differences of Career Beliefs by Gender

Examining the standardized discriminant function coefficients and the structure matrix (i.e., structure coefficients, which are the correlations between career belief subscales and discriminant functions), the discriminant function mainly correlated with subscale 7 (positively correlated with Sex Role Stereotypes), subscale 8 (negatively correlated with Avoidance of Decision-Making), and subscale 6 (positively correlated with Economic Reward) (see Table 4-12). Then, referring to the group centroids (subgroups' means on discriminant function), the differences of gender on the career beliefs can be interpreted as: Male participants tended to possess more sex role stereotypes than females, they were less likely to avoid making decisions, and they considered salary as the most important factor when choosing an occupation. The means of the total career beliefs scores revealed that male scores were statistically higher than females, which indicated that males seemed to possessed more irrational career beliefs than females (see Table 4-11).

Differences of Career Beliefs by Type of Institution

The results showed that subscale 4 (Importance of Work), subscale 6 (Economic Reward), subscale 3 (Recognition by Others and Desire for Achievement), 10 (Perfectionism), and subscale 2 (Finality of Decision) contributed mostly in discriminating participants who worked at public or private institutions (see Table 4-13). By contrast with those who worked at private organizations, participants who worked at public institutions were less likely to view work as the most important thing in their lives, or to assume that salary was their primary concern for considering career choices.

TABLE 4-12

Discriminant Analysis on Career Beliefs Subscales by Gender

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	-.165	.037
Belief Subscale 2	.038	.335
Belief Subscale 3	-.018	-.072
Belief Subscale 4	-.166	-.036
Belief Subscale 5	-.075	.223
Belief Subscale 6	.179	.187
Belief Subscale 7	1.031	.879
Belief Subscale 8	-.360	-.107
Belief Subscale 9	-.079	-.126
Belief Subscale 10	.065	.129

Functions at Group Centroids:	
Male	1.099
Female	.082

TABLE 4-13

Discriminant Analysis on Career Beliefs Subscales by Type of Institution

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	-.211	-.267
Belief Subscale 2	-.282	-.303
Belief Subscale 3	.338	.330
Belief Subscale 4	.805	.550
Belief Subscale 5	-.297	-.203
Belief Subscale 6	.435	.368
Belief Subscale 7	-.122	-.274
Belief Subscale 8	.052	.022
Belief Subscale 9	.024	.016
Belief Subscale 10	-.405	-.119

Functions at Group Centroids:	
Public Institution	-.4554
Private Institution	.143

They showed less desire for recognition and achievement. They believed that one should find the best-fit occupation, and that once a career decision has been made, one should not change it.

Differences of Career Beliefs by Educational Level

The discriminant function (Table 4-14) revealed that participants with different educational levels mainly varied on subscale 4 (Importance of Work), subscale 6

(Economic Reward), subscale 5 (Occupational Status), subscale 7 (Sex Role Stereotypes), and subscale 8 (Avoidance of Decision-Making). Comparing the group centroids, the discriminant function clearly separated participants with lower education from those with higher education. Generally, participants with higher education neither considered work as the most important part in one's life, nor salary as the primary concern when choosing an occupation; they tended to believe that some occupations have a more prestigious status, and posses more sex role stereotypes regarding career; but they were less likely to avoid making career decisions. Differences among the means of the total career beliefs scores for different educational levels achieved statistical significance (see Table 4-11).

Differences of Career Beliefs by Age Range

The results found that the differences among age ranges were mainly on subscales 2 (Finality of Decision), subscales 3 (Recognition by Others and Desire for Achievement), subscales 8 (Avoidance of Decision-Making), and subscales 1 (Responsibility for Decision-Making). Younger participants believed that a career decision could be changed whenever their needs or environment is changed. They were more likely to avoid making career decisions. They expressed the need for recognition and achievement. They assumed that a career choice is a personal responsibility. On the other hand, older participants believed that one should not change his/her career decisions. They were less likely to avoid making decisions as well as less concerned about other's recognition and approval. They believed that teachers and parents could help them make better decisions. The results are presented in Table 4-15.

TABLE 4-14

Discriminant Analysis on Career Beliefs Subscales by Educational Level

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	-.060	-.071
Belief Subscale 2	.215	.210
Belief Subscale 3	.046	.061
Belief Subscale 4	.699	.688
Belief Subscale 5	-.356	-.177
Belief Subscale 6	.595	.495
Belief Subscale 7	-.319	-.144
Belief Subscale 8	.261	.304
Belief Subscale 9	-.048	-.048
Belief Subscale 10	-.104	.177

Functions at Group Centroids:	
High school degrees	.302
Junior college degrees	.173
Bachelor degrees	-.020
Master or PhD degrees	-.434

TABLE 4-15

Discriminant Analysis on Career Beliefs Subscales by Age Range

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	-.334	-.320
Belief Subscale 2	-.608	-.545
Belief Subscale 3	.482	.427
Belief Subscale 4	.104	.078
Belief Subscale 5	.249	-.013
Belief Subscale 6	.052	.144
Belief Subscale 7	-.136	-.227
Belief Subscale 8	.695	.332
Belief Subscale 9	-.242	-.012
Belief Subscale 10	.203	.178

Functions at Group Centroids:	
21 to 25 years old	.828
26 to 30 years old	.497
31 to 35 years old	.013
36 to 40 years old	-.397
41 to 45 years old	-.440
46 years old and above	-.181

Differences of Career Beliefs by Supervisory Experience

Table 4-16 reveals that the differences were in subscales 2 (Finality of Decision), subscales 4 (Importance of Work), subscales 6 (Economic Reward), subscales 8 (Avoidance of Decision-Making), subscales 9 (Fate), subscales 10 (Perfectionism), and subscales 3 (Recognition by Other's and Desire for Achievement). Participants who had been supervisors tended to view work as the most important part of their lives, and showed stronger needs for recognition and achievement at work, but salary was not their primary concern for making a career choice. They believed that a career choice does not have to be perfect, but insisted that one should not change his/her decisions. They also believed the future is controlled by their own hands, and they will achieve their goals. Hence, they were less likely to avoid making career decisions.

Differences of Career Beliefs by Career Change

Table 4-17 indicates that the differences between whether participants had changed careers or not were in subscales 4 (Importance of Work), 6 (Economic Reward), 3 (Recognition by Others and Desire for Achievement), 10 (Perfectionism), and 7 (Sex Role Stereotypes). Career changers were more likely to need recognition by others and desired for achievement at work. Work was important to them, but salary was not their major concern when making a career choice. They did not insist on finding the best-fit jobs, and also possessed fewer sex role stereotypes.

TABLE 4-16

Discriminant Analysis on Career Beliefs Subscales by Supervisory Experience

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	-.098	-.076
Belief Subscale 2	-.446	-.376
Belief Subscale 3	-.301	-.113
Belief Subscale 4	-.468	-.374
Belief Subscale 5	-.001	.037
Belief Subscale 6	.472	.446
Belief Subscale 7	-.081	-.084
Belief Subscale 8	.435	.462
Belief Subscale 9	.330	.453
Belief Subscale 10	.462	.104

Functions at Group Centroids:	
Never been a supervisor	.194
Had been a supervisor	-.354

TABLE 4-17

Discriminant Analysis on Career Beliefs Subscales by Career Change

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	.199	.294
Belief Subscale 2	.029	.167
Belief Subscale 3	-.421	-.227
Belief Subscale 4	-.798	-.556
Belief Subscale 5	.039	.262
Belief Subscale 6	.439	.410
Belief Subscale 7	.304	.410
Belief Subscale 8	.023	.208
Belief Subscale 9	.143	.251
Belief Subscale 10	.427	.100

Functions at Group Centroids:	
Never changed career	.235
Had changed career	-.328

Differences of Career Beliefs by Participation in Training Activities

The results showed the major differences between participants who participated in training/educational activities for more than one week in the most recent six months and those who did not on subscales 4 (Importance of Work), 6 (Economic Reward), 9 (Fate), 8 (Avoidance of Decision-Making), 3 (Recognition by Others and Desire for Achievement), 5 (Occupational Status), and 1 (Responsibility for decision-making) (see Table 4-18). Participants who recently engaged in training/educational activities viewed work as very important in their life. All occupations have an equal status and salary is not the primary factor when choosing an occupation. They desired recognition and achievement. They assumed that a career decision was a personal responsibility, and they did not avoid making career decisions. They believed the future is in their own hands, and they would plan for it.

Summary

The results indicated that career resilience scores were correlated negatively with the total career beliefs scores and 6 of the 10 career belief subscales, and positively correlated with 2 career belief subscales. However, the magnitudes of coefficients were small. Statistically significant differences were found in the career resilience scores for gender, education, type of institution, participation in training/educational activities, and supervisory experience. Additionally, gender by education revealed a statistically significant interaction effect on career resilience scores. No statistically significant relationship was found between the number of years of paid work and career resilience scores.

TABLE 4-18

Discriminant Analysis on Career Beliefs Subscales by Participation in Training Activities

Predictor	Standardized Function Coefficient	Structure Coefficient
Belief Subscale 1	.334	.159
Belief Subscale 2	.010	.010
Belief Subscale 3	.371	.392
Belief Subscale 4	.563	.425
Belief Subscale 5	-.343	-.160
Belief Subscale 6	.426	.304
Belief Subscale 7	.004	-.090
Belief Subscale 8	-.407	-.449
Belief Subscale 9	-.419	-.440
Belief Subscale 10	-.408	-.029

Functions at Group Centroids:	
Did not Participated in Training	-.189
Participated in Training	.218

Most of the demographic variables (except number of years of paid work) yielded statistically significant differences among career belief subscales. Discriminant analyses were applied to further investigate the differences among the 10 career belief subscales for each significant demographic variable. The primary differences between males and females on career beliefs were subscale 7 (Sex Role Stereotypes) and subscale 8 (Avoidance of Decision-Making). Younger participants differed from older participants on subscale 2 (Finality of Decision), subscale 3 (Recognition by Others and Desire for Achievement), and subscale 8 (Avoidance of Decision-Making). For demographic variables (type of institution, educational level, supervisory experience, career change, and participation in training/educational activities), the major differences were on subscale 4 (Importance of Work) and subscale 6 (Economic Reward).

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This chapter presents a summary of this study. The first section includes the purpose, research questions, samples, instruments, and procedures of this study. The second section describes the results of the analyses of the data and further discusses the implications of the major findings and the limitations of this study. The last section provides recommendations for future research and practice in career-related areas.

Summary

Purpose of the Study

The workplace has undergone dramatic changes. Through rapid advances in technology, global competition, and restructuring within organizations, these changes, in turn, have great impacts on individuals' career development. Job security and linear upward career paths are less and less practical. Continued learning and managing one's own career have become important issues for today's workers. These phenomena do not exist only in the western countries, but also in Taiwan.

Career resilience has been identified as a required characteristic for workers in the face of a more turbulent and changing workplace. Therefore, the need for this study to explore the constructs of career resilience and how it relates to other important career variables, such as career beliefs was evident. Additionally, investigating the degree of career resilience among employees in Taiwan and the career beliefs patterns held by them provides further understanding about these two variables; thus, enhancing the effects of career education, counseling, and career development programs.

Research Questions

Five research questions were proposed in this study. They are stated as follows:

Question 1: What are the relationships between career resilience and career beliefs of employees in Taiwan?

Question 2: Are there any differences in the career resilience scores of employees in Taiwan with regard to demographic characteristics, such as gender, age, educational level, number of years of paid work, supervisory experience, career change, organization change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months?

Question 3: Are there any two-way interaction effects between gender and the other demographic variables on career resilience scores of employees in Taiwan?

Question 4: What is the relationship (linear, quadratic, cubic, or quartic) between the number of years of paid work and career resilience scores of employees in Taiwan?

Question 5: Are there any differences in the career belief scores of employees in Taiwan with regard to demographic characteristics, such as gender, age, educational level, number of years of paid work, supervisory experience, career change, employment at a public or a private

institution, and participation in the training/educational activities for more than one week in the most recent six months?

Instruments

The Measures of Career Resilience

Based on the analyses obtained from the pilot study, a total of 20 items were retained as Measures of Career Resilience in the main study. Among these 20 items, four were adopted from London's (1993b) Career Motivation Inventory, seven were taken from Noe et al's (1990) measures of career motivation, eight came from Michigan's Career Resilience Scale (Bice, 1999, January 24-30), and one was generated by the researcher. These 20 items related to the content of willingness to change, risk-taking, network building, desire for achievement, awareness of one's goals and the trends/demands in the workplace, adaptability, autonomy, self-confidence, employability, and active learning. The sum of the participants' responses on the 20 items was calculated as the score on career resilience. Participants with higher scores were considered to be higher on career resilience.

The Career Beliefs Scale

The Career Beliefs Scale was adopted from Yang's (1996) Chinese Career Beliefs Inventory—Form B (CCBI-B). According to the results of the pilot study, 49 items comprised the Career Beliefs Scale selected for use in this study. The 10 subscales represented 10 irrational career beliefs. They were: (1) Responsibility for Decision-Making, (2) Finality of Decision, (3) Recognition by Others and Desire for Achievement, (4) Importance of Work, (5) Occupational Status, (6) Economic Reward,

(7) Sex Role Stereotypes, (8) Avoidance of Decision-Making, (9) Fate, and (10) Perfectionism.

The Personal Data Sheet

The Personal Data Sheet was used to collect participants demographic variables. It included 11 items: (1) type of institution: public or private, (2) business activity of the organization, (3) number of years in the current job, (4) supervisory experience and the length of time as a supervisor, (5) total years of paid work, (6) number of career changes, (7) number of organization changes, (8) gender, (9) age range, (10) level of education, and (11) whether or not the participants had attended any class, workshop, or training program for more than one week in the most recent six months.

Sample

The sample was non-random and voluntary. Participants were from diverse work settings, such as banks, colleges (including one military college), hospitals, high-tech companies, traditional manufacturing factories, insurance companies, wholesale companies, government institutions, construction consultant firms, self-owned small businesses, and non-profit organizations. Seven hundred and fifty questionnaires were distributed, and 578 valid responses were received. The return rate was 77%. Most of the participants worked at private organizations (N = 440, 76%), but 24% (N = 138) worked for public institutions (see Table 4-1). The participants were 313 (54.2%) male and 264 (45.8%) female. Fifty-two (9%) of the participants had high school diplomas, 220 (38%) had junior college degrees, and 305 (53%) had bachelor and higher degrees. The ages in the sample mostly grouped around 26 to 40 (N = 395, 68.4%). Compared to

the statistics of employees in Taiwan (Directorate-General of Budget, 2003, see Table 4-2), the study sample comprised more employees with higher educations and who worked at public institutions. The ratios of gender in the study sample were close to the population. The mode of the years of paid work was 5.1 to 10 years (N = 154, 27.2%), and the second largest category was between 10.1 and 15 years (N = 124, 21.9%), followed by 5 years and below (N = 110,19.4%). Approximately 35.4% (N = 204) of the participants had been supervisors, 41.7% (N = 239) had changed careers before, 73.6% (N = 415) had changed organizations, and 46.4% (N = 268) indicated that they had participated in training/educational activities for more than one week in the most recent six months.

Procedures of Data Collection

The study was conducted in Taiwan from August to October in 2002. The researcher either visited the work sites and classrooms to distribute questionnaires, or sent the questionnaires to approximately 20 contact persons (families, friends, relatives) who then distributed the questionnaires to their colleagues, students, or families. Voluntary participation and the confidentiality of the individual's information were emphasized in the consent form, instructions, and the researcher's oral explanation.

Each questionnaire was numbered, but only the contact persons kept a record of the participants' names and their respective numbers. Business reply envelopes were provided for the participants. Most of participants completed the questionnaires and gave their responses to the contact persons, who then sent them back to the researcher.

Discussion

Results for Research Question 1

Question 1 focused on the relationships between career resilience and career beliefs. Career resilience scores were negatively correlated with the total career beliefs scores ($r = –.22$, $p < .01$), which indicated that participants who were higher on career resilience tended to possess fewer irrational career beliefs. Career resilience scores were negatively correlated with career belief subscale 9 (believe in fate, $r = –.39$), career belief subscale 8 (avoid making decisions, $r = –.35$), career belief subscale 5 (believe that some occupations are more prestigious, $r = –.24$), career belief subscale 7 (possess sex role stereotypes, $r = –.17$), career belief subscale 1 (assume other's help can determine the best choice, $r = –.16$), and career belief subscale 6 (salary is the primary concern when making career choices, $r = –.15$), and positively correlated with career belief subscale 10 (believe one should find the best-fit career, $r = .17$) and career belief subscale 4 (work is the most important part in one's life, $r = .16$). Although the correlations achieved statistical significance, the magnitudes of coefficients were small (the absolute r values were all less than .40). Generally speaking, these results implied that a career resilient individual possessed less irrational career beliefs, was more self-confident, liked to plan and prepare for the future, was flexible, but showed stronger concerns about work and career.

Multiple regressions analyses revealed that the 10 career belief subscales explained 25.7% of the total variance of career resilience scores. Considering both beta weights and structure coefficients, four career belief subscales (4, 5, 8, and 9) were

identified as better predictors of career resilience scores. That is, participants who viewed work as the most important part in one's life (subscale 4), believed all occupations have an equal status (subscale 5), did not avoid making decisions (subscale 8), and believed that the future is controlled by one's own hands (subscale 9), tended to score higher on career resilience.

These findings were both consistent and inconsistent with studies reviewed in chapter II. Gowan, Craft, and Zimmermann (2000) investigated Army personnel who were undergoing career transition, and found that participants who scored higher on career resilience tended to express a less stressful appraisal about their future, and anticipated the future more positively. This finding was congruent with this study that found that participants who scored higher on career resilience were more likely to believe they have control of their future and less likely to feel anxious about making decisions. Hall (1990) and London (1993a) found career resilience to be related to achievement and desire for recognition. However, in this study, career resilience resulted in a near zero correlation (r = .07) with career belief subscale 3 (Recognition by Others and Desire for Achievement). Although this subscale yielded a significant beta weight in predicting career resilience scores, its contribution to the total variance was very low, only .6% (see Table 4-3, 4-4, and 4-5). The incongruent findings from this study might be the result of the use of different measurements, or due to culture differences.

Results for Research Question 2

Question 2 examined the main effects of participants' demographic characteristics (including gender, age, education, number of years of paid work, type of institution, supervisory experience, career change, organization change, and participation in training/educational activities for more than one week in the most recent six months) on career resilience scores. The ANOVA results showed that gender, education, type of institution, participation in training/educational activities, and having been a supervisor yielded statistically significant main effects on career resilience scores.

Further examining the subgroups' means found the following differences: Male participants, who had higher education, who had worked at private organizations, who had been supervisors, and who had participated in training/educational activities for more than one week in the most recent six months scored higher on career resilience than their counterparts. On the other hand, age, years of paid work, and whether career or organization had changed or not did not yield statistically significant main effects on career resilience scores. Although participants who were older, with more years of work experience, and who had changed careers or organizations before scored higher on career resilience, the differences did not achieve statistical significance.

The finding that males scored higher on career resilience was consistent with Lin's (1997) study of college students in Taiwan. She argued that females were less willing to take risks, and risk-taking is one essential component of career resilience. Possible reasons might be found in London and Mone's (1987) perceptions about the disadvantages of women in developing career resilience. They described that women

tended to underestimate their potential, gave lower evaluations of their performances than men did, and had not been encouraged to take risks or to participate in team work. In fact, all these characteristics are important components of being career resilient.

The literature review found that career resilience positively correlated with age or tenure in career fields (Brainerd, 1992; Carson & Bedeian, 1994; Fu, 2001; London, 1993a; Noe et al., 1990). However, this study showed that career resilience scores increased with age and years of paid work, but the differences did not reach statistical significance. Although Fu's (2001) finding revealed that older Taiwanese female employees (32 to 34 years old) showed higher career resilience than younger female employees (25 to 27 years old), her sample contained only females and a very limited age range (only 25 to 34 years old). Hence, this limitation might not accurately represent the relationship between career resilience and age. One possible reason for the conflicting results might be that an individual's career resilience becomes stable after he/she reaches the late 20s. London and Mone (1987) posited that career resilience is personally driven and established during the adolescent years and the early 20s. Therefore, according to these authors, an individual's career resilience becomes stable in his/her adulthood. However, London (1983, 1993b) also postulated that individuals could learn and enhance their career resilience through positive reinforcement and empowerment provided by the work environment. In other words, if the supervisors or organizations do not provide necessary support, encouragement, and challenges, employees may not have the chance to improve their career resilience. The surveyed working environments in this study might not have provided enough support or

empowerment to facilitate employees' career resilience. Hence, the participants' career resilience did not significantly increase with age or years of paid work. Longitudinal studies may be needed to determine the causal relationships of age and work experience on career resilience.

The differences found between types of institution showed that participants who worked at private organizations scored higher on career resilience than those who worked at public institutions. This finding might indicate significant differences that exist in private and public institutions, such as organizational cultures, organizational structures, reward systems, and leadership style, which have different influences on the development of career resilience for employees in Taiwan. On the other hand, the differences might be due to the distinct attributes possessed by employees at the two types of organizations. For example, Leung and Clegg's (2001) study concluded that the participants (30 Hong Kong women) who had worked in government sectors were lower on career resilience. Those women considered themselves neither risk-taking nor aggressive. They chose to work at public institutions because the work environment was highly structured, had greater job security, involved less risk-taking, was less competitive, and allowed more flexible time for their private life. These were the characteristics that they considered the most suitable factors for their career choices. That is, participants who worked at public or private institutions basically possessed different personal characteristics.

This study found that individuals who had participated in training/educational activities for more than one week in the most recent six months yielded higher career

resilience scores than those who did not engage in training/educational activities in the recent six months. One possible explanation could be that dedication to continuous learning helps enhance employees' employability, and thus, increases their career resilience. This finding agrees with Waterman et al' (1994) and Collard et al's (1996) perception of a career resilient worker. A related finding was revealed in Lin's (1997) study: Students who showed high spontaneous learning behaviors scored higher on career resilience than the low spontaneous behavior students. Although this study could not determine the causal relationship between active learning and career resilience, it could be inferred that taking advantage of additional education opportunities had a strong correlation to career resilience.

This study also found that education and supervisory experience yielded a significant effect on career resilience. Participants who had been supervisors or had higher education tended to score higher on career resilience. Questions about whether it was the job content (e.g., challenging, greater responsibility, etc.) or the experience, skills, or confidence obtained from higher education that increased participants' career resilience; or whether individuals with higher career resilience were more likely to be promoted as a supervisor or to pursue higher education, remain unanswered in this study. In the review of literature, Noe et al. (1990) failed to obtain a statistically significant correlation between managerial positions and career resilience. Chang's (1995) study found no statistically significant difference on career resilience among the educational levels of 225 high-tech employees in Taiwan. This study revealed different findings that

require further studies to clarify the relationships between career resilience and education as well as supervisory experience.

Results for Research Question 3

Question 3 determined whether there was an interaction effect between gender and the other demographic variables (e.g., age, educational level, number of years of paid work, supervisory experience, career change, organization change, employment at a public or a private institution, and participation in training/educational activities for more than one week in the most recent six months). The results indicated a statistically significant gender by education interaction effect (see Table 4-8). Males who had a high school diploma scored the highest on career resilience, but males had higher degrees (e.g., junior college, bachelor, master, or PhD degrees) did not show large variation. On the other hand, female scores increased as their educational levels became higher. One possible explanation for this might be that men with lower educational levels were disadvantaged in the workplace—in order to compete with higher educated people, they needed to be more resilient. However, lower educated women might not view career as important as men did, or they may not be confident to take risk and challenge; hence, they had lower scores on career resilience. Contrarily, higher educated women might be more career-oriented, and have more competence to adapt to the changing workplace. It is worth noticing that there were only 17 males and 35 females in the high school subgroup. Because of the small sample size of this study, the results may not truly represent the target population.

Results for Research Question 4

Question 4 investigated the relationship (linear, quadratic, cubic, or quartic) between the number of years of paid work and career resilience scores. The result of trend analysis showed that none of the relationships yielded statistical significance. However, the linear term yielded $p = .053$, which approached significance at alpha =.05 (see Table 4-9). It implied that the relationship between the years of paid work and career resilience close to a linear tendency.

Results for Research Question 5

Question 5 detected the differences among the career belief subscales by the participants demographic characteristics, such as gender, age, educational level, type of institution, years of paid work, supervisory experience, career change, and participation in training/educational activities more than one week in the most recent six months. MANOVA results showed that all demographic variables, except for the years of paid work, yielded statistically significant differences on the career belief subscales. Discriminant analyses were performed to further identify the major differences among the career beliefs.

Differences of Career Beliefs by Gender

This study found male participants total career beliefs scores were statistically higher than females', which indicated that males seemed to possess more irrational career beliefs than females. Male participants were more likely to possess more sex role stereotypes than females, and considered salary the most important factor when choosing

an occupation. Females were more likely to avoid making decisions because they believed the future is full of change, hence, it is no use to make any future plan now.

These results were consistent with research reviewed in Taiwan's literature. For example, Yang (1996) found that male students held more irrational career beliefs than female students. But, she did not find that Taiwanese female students scored significantly higher on "Avoidance of Decision-Making." Several studies reported that males held more sex role stereotypes than females (Chiou, 1999; Jin, Lin, & Tien, 1989; Liu, 1997; Yang, 1996). It seemed that males' career behaviors were more restricted by the traditional, fixed sex-role images. Previous studies also found that salary was more important for males when making career decisions (Chiou, 1999; Yang, 1996). This might be due to the fact that males are still the major income earner in most families.

Differences of Career Beliefs by Type of Institution

The results showed that participants who worked at public institutions were less likely to sacrifice family life for work. This finding was congruent with Leung and Clegg's (2001) results. In addition, participants who worked at public institutions were also less likely to indicate that salary was their primary concern when considering career choices. They showed less desire for recognition and achievement, but they believed that one should find the best-fit job, and that a career decision is final, one should not change it.

These results seemed to agree with the common stereotypes about employees at public (i.e., government) institutions. For example, it is believed that working at a public institution is less competitive, and that employees do not need to spend extra

hours at work; therefore, they can have more time for their family life. The salary levels, it should be noted, for the middle to top positions in public sectors are comparatively lower than those in private companies. Therefore, individuals might not place salary as the major concern when they decide to work at public institutions. In addition, the reward system at public institutions depends more on seniority, and less on an individual's achievement. This might be a reason why participants who worked at public institutions showed less desire for recognition and achievement. Additionally, in Taiwan, people usually spend years to prepare for the qualifying examinations for working in the government sector; and once they pass the examination and are assigned a job, it is not easy to transfer to another job if they want to change. Therefore, these reasons might explain why participants who work for the government have to be very sure about what the "best-fit job" is for them and why they feel that once a career decision is made, the choice is final.

Differences of Career Beliefs by Educational Level

This study found that participants with lower education were more likely to state that work is the most important part in their life, and to indicate that salary was their primary concern when choosing an occupation. One possible reason might be that when there are limited opportunities to choose jobs, work and salary become the most important concerns for lower educated employees. They were also more likely to see no need to plan for the future (because life is full of changes) and, therefore, they tended to avoid making career decisions.

On the other hand, higher educated participants were more likely to believe that some occupations have a more prestigious status. This belief might be one of their motivations to pursue higher education in order to find "prestigious jobs." In addition, they also held more sex role stereotypes—for example, family is more important for women, and women are not suitable to be supervisors.

Differences of Career Beliefs by Age Range

Generally, older participants had lower total career beliefs scores; that is, they possessed fewer irrational career beliefs than younger participants. However, the differences did not reach statistical significance (see Table 4-11). This result did not agree with the results of Murry's (1989) study which stated that irrational career beliefs decreased as age and work experience increased.

The major differences among age ranges showed that younger participants (21 to 25 years old) tended to believe that a career decision could be changed whenever their needs or environment changed as well as that they should make career decisions by themselves. They expressed the need for recognition and achievement, but they were more likely to avoid making career decisions since the future is uncertain. On the other hand, older participants (mostly those between 41 to 45 years of age) believed that once a career decision was made, one should not change it. They also believed that teachers and parents could help them make better decisions. Older participants were less likely to avoid making decisions, and they showed less concern about other's recognition and approval. Thus, recognition and achievement seemed to be very important for employees at an early career stage. In addition, younger participants seemed to be more

independent when making their own career decisions even though they felt uncertain about the future and hence tended to avoid making decisions.

Differences of Career Beliefs by Supervisory Experience

Whether individuals had been supervisors or not yielded differences on many career belief subscales. Participants who had been supervisors tended to view work as the most important factor that brings the meaning and happiness to their lives, but salary was not their primary concern for making a career choice. They showed a stronger need for recognition and achievement at work. They believed that a career choice did not have to be perfect, but once a career decision is made, it must be adhered to. They also believed that a successful career depended on their efforts and not on luck. They were more likely to plan and prepare for the future. These results portrayed an individual who had supervisory experience as a person who was devoted to his/her work because he/she was motivated by recognition and achievement, but who did not care about the salary and whether the job was suitable for them or not. They believed in their effort and career plans, and persevered in his/her career decisions.

Differences of Career Beliefs by Career Change

The results indicated that participants who had changed careers before expressed a stronger need for recognition and achievement at work. Work was important to them, but salary was not their major concern when making a career choice. They believed that a career decision is not a final decision, and that it could be changed. Their career decisions were less likely to be restricted by sex role stereotypes. Generally, career

changers valued the importance of work, but they seemed to be more flexible regarding career decisions.

Differences of Career Beliefs by Participation in Training Activities

In this study, participants who had participated in training/educational activities for more than one week in the most recent six months had very different career beliefs on most of the subscales than those who did not participate in training/educational activities. They assumed that a career decision was a personal responsibility, and they did not avoid making career decisions. They viewed work as very important in their life, and they desired recognition and achievement at work, but salary was not the primary factor for choosing a career. They also assumed that all occupations have an equal status. They believed the future was in their own hands, and they should plan for it. Participants who engaged in additional training/educational activities seemed to be more active, and they valued economic reward, approval, and achievement at work.

Limitations of the Study

There are several limitations that should be considered in evaluating the generalizability of this study. First of all, causal relationships of the variables investigated cannot be established due to the nature of a correlational study. The findings of this study simply revealed the correlational relationships among the selected variables.

The second limitation relates to the representativeness of the sample. The sample used in this study was non-random and voluntary. Efforts were made to include participants from a variety of organizations. However, when compared to the statistics

on the employees in Taiwan in the year 2002 (Directorate-General of Budget, 2003, see Table 4-2), the sample was comprised of participants who had more higher-educated participants, who worked at public institutions, and whose age ranges were more clustered (from 21 to 40 years old). Since there was a relatively smaller number of participants with a high school degree ($N = 52$), any significant difference found in this lower education subgroup would reduce its statistical power because of the smaller sample size. On the other hand, the voluntary nature of the sample is another concern. Gall, Gall, and Borg (1999) addressed the problem that a voluntary sample could be a biased sample of the target population because the characteristics of volunteers have been found to differ from non-volunteers. Fortunately, the return rate was quite high for this study ($N = 578$, 77%).

The third concern is the survey method used for collecting the data. A survey study usually utilizes questionnaires, interviews, or paper-and-pencil tests to obtain participants' responses, including their attitudes, beliefs, interests, personalities, and abilities. This method could be questioned regarding whether the participants honestly answered the questions (i.e., truly revealed their feelings) or, how accurate their responses were. Moreover, it could be asked of they have enough self-awareness to evaluate their abilities.

Fourth, this study used only paper-and-pencil questionnaires to collect data. Relying on a mono-method approach to collect data might get a "common method variance," which refers to a potential bias that the variance measured is due to the measurement method rather than the variables of interest (Spector, 1987).

Fifth, the limitation is the restriction in standard deviations (*SD*) of the career resilience items. All of the 20 items in this study yielded *SD* less than 1.0 (see Appendices J). In the literature review, only Michigan's Career Resilience Scale showed that 12 of the 14 items' *SD* was greater than 1.0 (Operational ABLE of Michigan, 2001, March); London's (1993b) and Noe et al's (1990) items also obtained low *SD*s. The average *SD* in London's career resilience items was .58, and only 3 of the 13 items had *SD*s greater than 1.0 in Noe et al's items. The low *SD* implies a lower variability of these items to discriminate among participants' responses on career resilience.

Sixth, in this study, only the personal characteristics regarding career resilience were investigated. London's career motivation theory (1983) hypothesized that all individual characteristics, situational characteristics, and career decisions and behaviors linked and interacted with each other; and altogether they influenced individuals' career motivations. This study did not investigate situational characteristics which referred to a person's work environment, such as leadership style, group cohesiveness, job design, staffing policies, compensation system, and career development programs. London proposed that organizational strength and support could facilitate employees' career resilience. Therefore, this study could not provide information about how personal and situational characteristics interacted with each other, or how they together influenced individuals' career resilience.

Recommendations

The following recommendations for future research are derived from the findings and the limitations of this study:

1. To reduce and improve the mono-method bias and common method variance, three recommendations are proposed:
   (1) Use of negative and positive statements can vary the presentation of the career resilience items; thus, this might help to reduce common method variance.
   (2) Supervisors could be included in the measures of career resilience to enhance the accuracy regarding the participants' degree of career resilience. In London's (1993b) study, the correlation between employees' self-report and their supervisors' appraisal was as low as .36 on career resilience items.
   (3) The results of this study showed that the majority of participants selected option 4 (agree) and 5 (strongly agree) on the career resilience items. This suggests that a socially desirable effect may exist, which is a predominant source of common method variance. For further research, examining the correlation between the career resilience items and the social desirability inventory could help to find out if social desirability confounded participants' responses.
2. In this study, participants who worked at private organizations and who had been supervisors had significantly higher scores on career resilience than

their counterparts. These findings suggest that organizational cultures (e.g., more competitive, less structured, or less authority) and job content (e.g., challenging, need to be autonomous, more power) may have a significant influence on enhancing individuals' career resilience. Therefore, situational variables need to be investigated in later studies so that a comprehensive understanding of career resilience is evident.

3. This study found that career resilience did not increase as participants' age and years of paid work increased. London posited that career resilience is established during the adolescent years and early 20s. Does a person's career resilience remain stable after they reach their late 20s? How can situational factors facilitate individuals' career resilience? These questions require more efforts to disclose the answers. Longitudinal research might be needed to study the relationship between age and career resilience. Additionally, culture differences might exist. Hence, it might be necessary to develop a suitable measure of career resilience for employees in Taiwan and elsewhere.
4. This exploratory study actually revealed more questions, such as how gender, education, types of institutions, supervisory experience, and participation in educational activities influence individuals' career resilience. Due to the limitations of correlational studies like this one, further research that uses a carefully designed experimental study or a longitudinal study is needed to clarify the cause and effect among these variables.

The following recommendations are suggested for practice in career education, counseling, and human resource areas:

1. Individuals' beliefs about themselves and the world of work have a direct influence on their career-related behaviors. Examining the client's career beliefs not only helps to understand how irrational career beliefs may hinder his/her career decision making, but can be successful to obtain information about the degree of the client's career resilience since most of the career beliefs yielded significant correlations with career resilience in this study.
2. This study found different career belief patterns for demographic characteristics, including gender, age, education, supervisory experience, career changer, participation in additional education, and employment at private or public institutions. These patterns are believed to provide useful information for counselors or human resource professionals so they can better understand their clients and, therefore, provide more informed services.
3. This study found males had more sex role stereotypes than females. On the other hand, females were more likely to feel anxious when making career decisions, and hence avoid making decisions. Therefore, for career counseling or for the design of career development programs, considering the gender differences and placing different emphases could provide more suitable assistance for male and female students/clients.
4. In this study, younger participants showed a tendency to avoid making career related decisions. Hence, it is recommended that career courses, counseling,

and career development programs in organizations provide younger adults with more help in decision making as well as in how to deal with anxiety or uncertainty when making a decision. As for the older adults, they tended to believe that parents and teachers could make the best decisions for children/students. Since most of them were parents, this belief may cause conflict between them and their children when their children are faced with making career related decisions because the parents might insist on what they think is best for the children. Career counselors need to be aware of this situation if students/clients have problems with their parents regarding career decisions.

5. This study found that individuals who had recently participated in additional training/educational activities had higher scores on career resilience measures. Although it cannot be concluded that participation in these activities enhances career resilience, it could partially support the concept that learning has a strong relationship to higher career resilience. Since continued learning becomes a required characteristic for every employee in today's workplace, participation in educational activities can help to maintain their employability and keep pace with the advanced technology, which, in turn, might enhance their career resilience. Therefore, emphasizing continued learning, providing learning opportunities, and teaching employees how to learn will be essential tasks for human resource professionals.

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APPENDIX A

COVER LETTER

June 10, 2002

Dear Participants,

I, a graduate student in the Department of Educational Psychology at Texas A&M University, am completing my dissertation study on Relationships between Career Resilience and Career Beliefs of Employees in Taiwan. With your assistance, I hope to identify the patterns of Taiwan employees' career resilience and career beliefs and their correlations. In the year 2001, it was the first time in 67 years that the unemployment rate in Taiwan was higher than 5%. I am concerned with this problem and feel that the results of this study will provide more understanding about the career attitudes held by Taiwanese employees and will benefit developing career education programs. My research will be under the supervision of my advisor, Dr. Linda Parrish, of Texas A&M University.

Enclosed are two copies of a Consent Form requesting your signature. Also included are the questionnaires and a personal data sheet. Please answer all information on the personal data sheet and questionnaires as it represents your situation and attitude. This task should take you approximately 30-40 minutes to complete.

This study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, at Texas A&M University. All your responses will be kept confidential, and no name or any specific identities will be presented in the final dissertation report. If you have any questions, please contact me (for telephone numbers and e-mail addresses, please refer to the Consent Form).

Please return the completed questionnaire, personal data sheet, and one copy of the Consent Form no later than June 30, 2002. To this endeavor, again I offer my appreciation and sincerest thanks.

Sincerely,

_____

Yu-Ching Liu
Principle Investigator

Note. The cover letter was simplified into a brief introduction and printed with the consent form on the first page in the main study. All materials were translated into Chinese.

APPENDIX B

CONSENT FORM

- I agree to participate in the dissertation research study entitled "Relationships between Career Resilience and Career Beliefs of Employees in Taiwan."
- I understand that the purpose of this study is to explore the relationships between a person's career resilience and career beliefs.
- I understand that the study will include data from approximately 700 adult employees in Taiwan.
- I understand that my participation is strictly voluntary and that I may refuse to answer any of the questions on the questionnaire if I find it uncomfortable.
- I understand that it will take approximately 30-40 minutes to complete the questionnaire.
- I understand that there are no foreseeable risks or benefits from my participation.
- I understand that my responses will be kept confidentially and that my name will not be mentioned in any reports of the research.
- I understand that if I have any questions later regarding this study, I can contact the Principle investigator, Ms. Yu-Ching Liu, at 301 Ball St. Apt #1110, College Station, Texas 77840, phone (979) 862-9198. I can also contact Dr. Linda Parrish, at Mail Stop 4225, Texas A&M University, College Station, Texas 77843-4225, phone (979) 845-3447.

"I understand that this research study has been reviewed and approved by the Institutional Review Board – Human Subjects in Research. For research-related problems or questions regarding subjects' rights, the Institutional Review Board may be contacted through Dr. Michael W. Buckley, Director of Compliance and Administration at (979) 845-8585 (mwbuckley@tamu.edu)."

- I have read and understood the explanation provided to me.
- I have had all my questions answered to my satisfaction.
- I have been given a copy of this consent form.

_____ _____

Signature of Participant Date

_____ _____

Signature of Researcher Date

APPENDIX C

INSTRUCTIONS

1. This questionnaire is designed to study individuals' attitudes regarding work and career. Please read every statement carefully and choose the answer that most accurately describes the way you act or feel about work and career.
2. For example:

   If you strongly disagree with a statement, circle the number 1.

   If you disagree with a statement, circle the number 2.

   If you can't decide whether you agree or disagree, circle the number 3.

   If you agree with a statement, circle the number 4.

   If you strongly agree with a statement, circle the number 5.
3. There is no correct answer for these items. Please respond to each item according to your real feelings and reactions, and that would be the best answer. Your responses will be treated as confidential, so please give honest responses to all questions. This questionnaire contains two sections (a total of 109 items[a]). After you complete the questionnaire, please check if you have omitted any questions. Enclosed please find a business reply envelope (postage paid by the investigator), and mail your questionnaire as well as the signed Consent Form to the investigator no later than ——— (month) ——— (date). Thank you for your cooperation!

Note. [a]The total number of items in the main study was 69.

APPENDIX D

THE MEASURES OF CAREER RESILIENCE[a]

*1. I welcome job and organizational changes.

*2. I am willing to take risks (actions with uncertain outcome).

3. I can handle any work problem that comes my way.

*4. I look forward to working with new and different people.

*5. I am able to adapt to changing circumstances.

*6. I have made suggestions to others even though they may disagree.

*7. I make and maintain friendships with people in different departments.

*8. I will design better ways of doing my work.

9. I have outlined ways of accomplishing jobs without waiting for my boss.

*10. I accept compliments rather than discount them.

*11. I believe other people when they tell me that I have done a good job.

12. I will evaluate my job performance against personal standards rather than comparing it with what others do.

*13. I will take the time to do the best possible job on a task.

*14. I look for opportunities to interact with influential people.

*15. My career goals are clear and I have a good idea of where I'm heading.

16. I can identify three important accomplishments from my current/last job.

*17. My skills have been upgraded to keep pace with the current technique.

*18. I have adequate computer knowledge/skills to do my job.

*19. I explore trends in my field/industry and have identified various changes that are occurring.

20. I have sought opportunities to take on new responsibilities in my work.

21. I have sought opportunities to work with others or contribute to work teams.

*22. The skills and abilities that I need to be employable are clear to me.

*23. I have a network of people in and outside my field that can help my career.

*24. I have actively sought better assignments in my current or past jobs.

*25. Regularly, I try to identify the future direction of my field by making personal contacts, reading or attending professional meetings.

26. I'm more comfortable than ever with the constantly changing world of work.

*27. If I identify what I need to learn, I will actively seek the learning opportunity.

28. I like to read or attend conferences and workshops to learn new knowledge or skills.

Note. [a]Adapted with permission from London, M, 1993b, Noe et al., 1990, and Operation ABLE of Michigan, 2001, March.

* Indicates this item was retained in the main study.

APPENDIX E

THE CAREER BELIEFS SCALE[a]

1. To win others' approval is not the reason I study.
2. Earning a lot of money is the only purpose of life.
*3. I will try my best to do my job; it doesn't matter whether I am outstanding or not.
4. It is better to plan out the future actively rather than to passively obey the fate.
5. There are certain jobs that are suitable for men, and some that are suitable for women.
*6. I don't care whether my work will earn the recognition of my boss and colleagues or not.
7. I don't like a job with long hours because it may affect my family life.
*8. My future is controlled in my hands.
9. It is no use to plan for the future because the future depends on luck.
10. Women can perform as well as men do in their jobs.
11. I often hesitate whenever I am facing career decisions.
12. I must choose the best-fit job; otherwise, my future will be hopeless.
*13. Only work can make me feel happy.
14. I will do the job that fits me; I don't care what other people say about my job.
*15. Unless I am absolutely sure what job is suitable for me, I will not make any decision.
*16. In order to develop one's potential fully, he or she should do the same job all his or her life.
17. If my choice of career disappoints my parents, I will feel bad.

18. In order to adjust for personal and environmental needs, I can change my life plan.

*19. Men are more suitable to be supervisors.

20. I like to think about and plan for my future.

21. It is more important that one develops his/her professional knowledge and skills than it is to earn more money.

22. In order to do better, I have to come to work earlier and leave later.

23. My future job should fit my major; otherwise, the four years spent at college are wasted.

*24. If we plan the future carefully, it will be easy to reach our goals.

*25. If you carefully plan and well prepare, you will have good results.

*26. If a person changes jobs often, he or she must have personality problems.

27. Girls will marry any way, so they don't need to receive higher education.

*28. I will give up a job that fits my interest and ability in order to pursue high salary.

*29. In order to concentrate on work, I am willing to be single.

*30. I will be very disappointed if I can't find my best-fit job.

*31. My job doesn't need to fit my major; only high salary is my concern.

32. Even if I don't make any outstanding achievements in my job, that doesn't mean I am a failure.

*33. If a person changes jobs often, he or she cannot be successful in the future.

*34. I am willing to do any jobs if its pay is good.

*35. Work is more important than family. I can sacrifice time with my family for work.

36. My occupation must have my parents' approval for me to be satisfied.

*37. I don't worry about working too much; the more work I do, the more I achieve.

38. If I find out my job is not suitable for me later, I can change it.

39. I don't have to think about my future plans because I can follow the plan that my family has made for me.

40. High salary doesn't mean that the person has a successful career.

*41. My job must be the one I am most interested in, or I don't want to do it.

*42. Teachers know their students very well so they can decide a major for them.

*43. I try to avoid making career choices, because it is difficult to make a decision.

*44. Even though a person's job is viewed as low status, he/she still can serve society.

*45. Once one finds the best-fit job, he or she should not change it because there is only one best-fit job for him or her in the world.

*46. I don't want other people to plan my life. I should decide my occupation for myself.

*47. The future is full of changes we can't predict or control, so it is no use to make any future plan right now.

48. My job choice won't be limited by my gender.

*49. If I have to make a future plan right now, I will be anxious and unable to face the problem.

*50. I don't mind that my parents compare me with others.

*51. The accomplishment of a job is due to one's competency and efforts instead of luck.

*52. In order to make the right job choice, I have to consider it carefully until I find a perfect answer.

*53. Boys should choose science and engineering as their majors and girls should choose literature, education, sociology, and business as their majors.

*54. I will do whatever job I find, so I don't need to plan for my future now.

*55. If my work performance does not make me preeminent in my field, I will feel terrible.

*56. All occupations are equal (no high status or low status jobs); the most important thing is to choose a job that is suitable for you.

*57. It won't be too late to think about my future plan until the time that I have to.

*58. Salary is not the primary concern when I consider choosing a job.

*59. Women should stay at home being a housewife but men should go out to work and bring back money.

*60. I am willing to do any jobs that fit my interest and ability.

*61. Accomplishing the work is more important than earning more money.

62. Even though my job doesn't fit my major, I will still try my best to do the job.

*63. I don't care whether I am highly regarded at work or not.

*64. Both males and females are suitable for being doctors.

*65. Parents should not interfere with their children's choice of major or job.

66. The ideal job is low work loading but high pay.

*67. Girls will marry someday, so they don't need to consider career choice.

*68. Schools and teachers should not affect their students' choice of major.

*69. I will not be satisfied until I find a best-fit job.

*70. If I want a promising future, I have to be a doctor, lawyer, …etc.

71. In order to have better work performance, I have to sacrifice many things.

72. One may have several occupations that suit him or her.

*73. Today's hot majors may not be hot in the future; therefore, I should choose a major that fits me.

*74. Only work can make me feel that my life is meaningful.

75. It is irresponsible if you hand your own future to fate.

76. Even if my performance is not better than someone else's, I will be satisfied if it improves.

77. If I study hard while I am a student, I will find a suitable job after graduation.

78. I am afraid of making career choices, because if I make a wrong choice, all my life will be affected.

*79. The primary factor of career success is due to luck.

*80. I have to choose an occupation that meets my parents' expectations; otherwise, I will not be a good son or daughter.

81. I began to think about my future plan very early.

Note .[a]Adapted with permission from Yang, 1996.

* indicates this item was retained for use in the main study.

APPENDIX F

PERSONAL DATA SHEET

Directions: Please circle or provide your answer in the space provided.

1. Your current organization is: 1. Public
   2. Private
2. Business activity of your organization: _____
   (e.g., bank, department store, factory, government agency, high-tech company, hospital, insurance agency, school, trade company, etc.)
3. Number of years in the current job: _____(# of years)
4. Have you ever been a supervisor? 1. No
   2. Yes ==>For _____(# of years)
5. Total number of years of paid work: _____(# of years)
6. Have you ever changed your career (change to a different occupation, not changed jobs):
   1. No
   2. Yes ==>For _____(# of careers)

7 Have you worked for different organizations:
   1. No
   2. Yes ==>For _____(# of organizations)

8. Gender: 1. Male 2. Female
9. Age: 1. 20 or below
   2. 21 to 25
   3. 26 to 30
   4. 31 to 35
   5. 36 to 40
   6. 41 to 45
   7. 46 to 50
   8. 51 to 55
   9. 56 to 60
   10. 61 and above
10. Highest Educational Level completed: 1. Junior high school or below
    2. High School
    3. Junior college
    4. University
    5. Graduate School

*11. In the most recent six months, have you ever attended any class, workshop, or training program for more than one week: 1. No 2. Yes

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Note. * indicates this item was added in the main study.

APPENDIX G

DEMOGRAPHIC CHARACTERISTICS OF THE PILOT SAMPLE

Demographic Characteristics	Number	Valid Percentage
Gender		
Male	57	32.2%
Female	120	67.8%
Missing	1	
Education		
Junior High School and below	1	0.6%
High School	31	17.4%
Junior College	62	34.8%
Bachelor	73	41.0%
Master or Ph.D.	11	6.2%
Age Range		
20 or below	22	12.4%
21 to 25	61	34.5%
26 to 30	27	15.3%
31 to 35	25	14.1%
36 to 40	10	5.6%
41 to 45	11	6.2%
46 to 50	7	4.0%
51 to 55	10	5.6%
56 to 60	3	1.7%
61 and above	1	0.6%
Missing	1	
Years of Paid Work		
5 years and below	80	46.8%
6 to 10 years	39	22.8%
11 to 15 years	16	9.4%
16 to 20 years	9	5.3%
21 to 25 years	12	7.0%
26 years and above	15	8.8%
Missing	7	
Institution		
Public	37	22.3%
Private	129	77.7%
Missing	12	
Supervisory Experience		
Never	121	69.9%
Yes	52	30.1%
Missing	5	
Career Change		
Never	69	39.4%
Yes	106	60.6%
Missing	3	

Note. Total $N = 178$

APPENDIX H

MEANS AND STANDARD DEVIATIONS FOR SCORES ON THE MEASURES OF CAREER RESILIENCE IN THE PILOT STUDY

Item Number	Mean	Standard Deviation
1	3.83	.64
2	3.78	.74
3	3.88	.64
4	3.67	.85
5	3.80	.77
6	3.73	.79
7	4.06	.66
8	4.19	.54
9	3.79	.80
10	3.35	.86
11	3.37	.87
12	3.61	.93
13	4.10	.59
14	3.27	.97
15	3.58	.81
16	3.47	.88
17	3.64	.86
18	3.35	1.06
19	3.84	.70
20	3.98	.68
21	4.02	.69
22	4.10	.61
23	3.69	.88
24	3.40	.90
25	3.35	.97
26	3.89	.66
27	4.13	.49
28	3.73	.89

APPENDIX I

MEANS AND STANDARD DEVIATIONS FOR SCORES ON THE CAREER BELIEFS SCALE IN THE PILOT STUDY

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1	1.97	.93	42	1.91	.82
2	2.52	1.10	43	2.14	.85
3	2.91	1.21	44	1.76	.71
4	1.69	.75	45	2.20	.96
5	3.33	1.16	46	1.75	.65
6	3.66	1.03	47	2.12	.94
7	2.21	.99	48	2.11	.76
8	1.94	.91	49	2.48	.93
9	2.00	.85	50	3.38	1.10
10	2.34	.90	51	1.80	.76
11	3.27	1.01	52	3.55	.89
12	3.03	1,12	53	1.60	.63
13	2.50	1.02	54	2.02	.81
14	2.31	.93	55	3.20	1.08
15	3.83	.83	56	2.17	.93
16	1.83	.76	57	2.32	.95
17	2.58	.95	58	3.01	1.11
18	2.15	.67	59	1.81	.88
19	2.06	.98	60	1.91	.70
20	2.14	.78	61	2.56	1.00
21	2.22	1.02	62	1.81	.55
22	2.71	1.08	63	3.54	1.00
23	2.35	1.03	64	1.85	.88
24	2.25	.94	65	2.28	1.01
25	2.29	.99	66	2.83	1.26
26	2.37	1.01	67	1.46	.70
27	1.59	.67	68	2.17	.70
28	2.37	.97	69	3.42	.98
29	2.39	1.08	70	1.53	.67
30	3.60	1.02	71	2.97	1.07
31	2.93	1.06	72	1.81	.60
32	2.70	1.00	73	1.76	.64
33	2.10	.92	74	3.11	1.12
34	2.42	.90	75	1.93	.84
35	2.24	1.03	76	2.38	.94
36	2.53	.93	77	2.57	1.05
37	2.76	1.08	78	2.80	1.02
38	2.24	.76	79	2.06	.84
39	1.87	.71	80	1.78	.59
40	2.08	.87	81	2.54	.94
41	2.92	1.04			

APPENDIX J

MEANS AND STANDARD DEVIATIONS FOR SCORES ON THE MEASURES OF CAREER RESILIENCE IN THE MAIN STUDY

Item Number	Mean	Standard Deviation
1	3.82	.73
2	3.61	.84
3	3.67	.85
4	3.83	.72
5	3.73	.81
6	4.24	.60
7	4.28	.57
8	3.39	.76
9	3.59	.72
10	4.21	.62
11	3.30	.97
12	3.59	.80
13	3.71	.80
14	3.72	.91
15	3.92	.74
16	4.23	.65
17	3.63	.91
18	3.50	.83
19	3.50	.92
20	4.12	.63

APPENDIX K

MEANS AND STANDARD DEVIATIONS FOR SCORES ON THE CAREER BELIEFS SCALE IN THE MAIN STUDY

Item Number	Mean	Standard Deviation	Item Number	Mean	Standard Deviation
1	2.78	1.07	26	2.38	.84
2	3.16	1.03	27	3.10	1.00
3	2.07	.79	28	2.07	.82
4	2.70	.98	29	3.34	.87
5	3.67	.84	30	1.77	.66
6	2.04	.82	31	2.14	.68
7	2.30	.98	32	3.32	.95
8	2.22	.98	33	1.88	.66
9	2.26	.81	34	2.36	.86
10	2.65	.93	35	3.07	1.00
11	2.53	.90	36	1.98	.85
12	2.12	.91	37	2.03	.68
13	3.52	.90	38	2.87	.92
14	2.84	.93	39	3.57	.85
15	2.40	.87	40	1.81	.71
16	2.53	.84	41	2.65	.93
17	2.16	.84	42	1.56	.71
18	2.72	.94	43	2.52	.95
19	2.85	.69	44	3.16	.88
20	1.99	.91	45	1.67	.68
21	2.19	.78	46	1.92	.72
22	1.90	.78	47	3.07	1.04
23	2.20	.85	48	2.25	.81
24	1.98	.70	49	1.85	.70
25	2.29	.82			

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Specialist
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Thesis

V*oluntary control of attention in response to location cues, size cues, and their combination*