2015

A Pilot Study to Develop a Projective Method to Understand and Measure Resilience

Tina Chen
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Tina Chen

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. David Mohr, Committee Chairperson, Psychology Faculty
Dr. Reba Glidewell, Committee Member, Psychology Faculty
Dr. Neal McBride, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2015

Abstract

A Pilot Study to Develop a Projective Method to Understand and Measure Resilience

by

Tina T. Chen

D. Min, Gordon-Conwell Theological Seminary, 2008

MA, Biblical Theological Seminary, 2002

MS, Virginia Commonwealth University, 1980

BS, National Taiwan University, 1978

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

August 2015

Abstract

Many factors affect resilience, such as personality traits and environmental support. A projective assessment has many advantages to understand a person as a whole. Up to present, there is no projective assessment for resilience. This dissertation was a pilot study to develop a projective method. Sixty-five college students participated in this study. Participants used words to describe their feelings after hearing an open-ended story with a traumatic event; they also completed the story. In this study, the resilience ratio, defined as the ratio of the number of positive responses divided by the number of total responses, reflected the resilience level as well as cognitive and emotional flexibility. How participants completed the story revealed participants' interactions with the adversity. The resilience ratio has a slightly less than medium correlation with the CD-RISC-10 at a .05% level with $r^2 = .08$. Participants who completed the story positively demonstrated the ability to use their resilient personality traits and social resources. *t* Tests revealed that resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants providing positive endings and for those who providing negative endings were significantly different at a .05% level with Cohen's d values of .69, .65, and .62 respectively. The effect sizes for these three *t* tests were medium. Both the resilience ratio and how participants completed the story can be used to understand and measure resilience. The projective method presented in this pilot study may be used to develop prevention programs and intervention strategies to help individuals to gain resilience. As individuals become resilient, psychological disorder rate and mental health cost will decrease, and positive social change will result.

A Pilot Study to Develop a Projective Method to Understand and Measure Resilience

by

Tina Chen

D. Min, Gordon-Conwell Theological Seminary, 2008

MA, Biblical Theological Seminary, 2002

MS, Virginia Commonwealth University, 1980

BS, National Taiwan University, 1978

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

August 2015

Acknowledgement

Over the past 24 months in my dissertation process, my husband Steve has been the person providing all the emotional and spiritual support for me. Without his support, there was no way I would possibly engage in this process. Without him, my life would not be as rich or fruitful either.

Dr. David Mohr, my dissertation chair, has helped me greatly throughout my entire dissertation process. He has provided me with valuable advice not merely in the contents of the dissertation but also in the process of IRB and URR approval. He has also been very patient with my frustration and helped me to resume my work in a brief period of time. Without his help, the dissertation process would not have been as manageable.

There are a few individuals who were very generous and understanding in helping me in my data collection and analysis process. Tommy Waters in Campus Crusade Ministry allowed me to use the CRU house to do my interviews. Alix Ruggiero in Targum helped me multiple times to put advertisements on Targum and sent me the confirmation email for IRB approval promptly and gladly. A few of my friends have provided me with valuable advice in my participant recruitment process, data analysis, and formatting process. Without their help, my data collection and analysis process would not be as smooth; I would not be able to meet dissertation formatting criteria either.

Table of Contents

List of Tables

Chapter 1: Introduction

The study of resilience can be traced back to the work of Garmezy, Clark, and Stockner (1961) and has a history of about a half century; however, the volume of studies regarding resilience has increased in the past 2 decades because of the rise of positive psychology (Wagnild, 2009). Since the rise of positive psychology, researchers have been interested in seeking the elements of human wellbeing besides seeking answers to the adversities. Wong (2011) considered resilience as one of the four pillars of wellbeing.

Assessments help to understand a person (Campos, 2011). Wagnild and Collin (2009) developed the first assessment to understand resilience based upon their phenomenological observation of old women. Several other resilience assessments have been developed since then; however, they are all quantitative approaches. Up to the present time, there has been no projective approach in understanding resilience. Projective approaches have a unique value in understanding a person beyond a series of numbers (Sanyal, 2013). The purpose of this dissertation was to develop initial a projective method to measure resilience. In this chapter, I will briefly give a general background in the studies of resilience, a gap in the current available studies, the purpose of this study, my research questions and hypotheses, the theoretical framework of this study, the nature of this study, the definition of resilience used in this study, the assumption, the scope and delimitations, limitations, and significance of this study.

Background

Martin Seligman's American Psychological Association presidential address in 1998 commenced a paradigm shift in the field of psychology; psychology was not merely a science to correct negative features in human life, it was also a discipline to facilitate

positive elements. Instilling positive elements in human life was of the same importance as the removal of negative features. In fact, as Seligman observed, with the presence of strong positive elements in life during WWII, a person might overcome plenty of negative experiences and live a life with dignity, hope, purpose, and significance. Increased attention and countless arguments and concerns regarding positive psychology have been raised thereafter. The mere definition of happiness has brought up fervent debates; it varies from hedonic happiness to prudential happiness, eudaimonic happiness, and chaironic happiness (Wong, 2011).

With all the unsettled debates, positive psychology continues to grow with no sign of subsiding. Television broadcasts the healing power of laughter. Newspapers write about the benefits of smiling to oneself in the mirror. Magazines publish statistics of the happiest ethnic groups in the world (Painter, 2013). Therapists train their counselees with positive self-talk, regardless of who and what kind of individuals their counselees are (Walker, 2013). Researchers search for the power of faith in healing. Professors encourage students to post positive thoughts on class webpages. Schools demand teachers speak positively toward their students. A spring course at Harvard University attracted 855 students, a record enrollment; this course was a positive psychology course, *Happiness 101* (Goldberg, 2006). The 21st century becomes the century of happiness. After centuries in pursuit of survival, fundamental needs, liberty, and equity; humans want to advance their pursuit to happiness (Gable & Haidt, 2005). From the perspective of Gable et al., all the previous pursuitswere the beginning stages for humans to achieve happiness. Positive psychology emerged in the present era of happiness (Gable et al., 2005).

However, adversities take place at times, regardless of humanity's pursuit of happiness and in spite of human advancement in science, medicine, and technology. Seligman and Csikszentmihlayi (2000) noticed that there were individuals who lived significant lives of dignity, hope, love, and peace in the midst of adversity. Seligman et al. therefore raised an interesting research question: What makes life worth living with the presence of adversities in life? The flip side of this research question was: what makes humans resilient despite adversities?

In parallel with the emphases of positive psychology, the focus on resilience is not the correction of negative symptoms in human life, but the identification of positive traits to thrive with the presence of adversity in life (Moran & Nemec, 2013). Studies of resilience originated from studies of children with pathological disorders. Garmezy et al. (1961) found that children with pathological disorders had childhood trauma. However, they also noticed that there were children with experiences of childhood trauma who seemed to cope well without developing psychological disorders. Researchers like Garmezy et al. at first focused on the correction of the negative symptoms in those children with pathological disorders. Toward the end of the 20th century, about the time positive psychology emerged, researchers such as Rutter (1999) and Werner (1995) switched their interest from the children with pathological disorders to the children who thrived. Resilience studies focused on what made these children overcome adversities in life; these children were referred to as children with resilience (Rutter, 1999).

The concept of resilience can be traced back to the 19th century (Locke, 1890; Lubbock, 1894). However, clinical study of resilience did not take place until the 1960s (Garmezy et al., 1961). Clinical resilience research was first conducted by Garmezy

early in the 1970s on children at risk for psychopathology. Garmezy et al. were interested in finding what made some children adapt successfully while others failed. Block and Turula (1963) further developed a specific definition and a clear conceptual construct for ego-resilience. However, not until the rise of positive psychology has resilience research been extensively conducted and extended into many disciplines other than psychology such as military science, sociology, medicine, education, organization, and public policy (Kolar, 2011). The birth of positive psychology and the rise of resilience synchronized and reinforced each other (Wong, 2011).

Wong (2011) referred virtue, meaning, resilience, and well-being as the four pillars of positive psychology. Resilience is one of the positive elements which might dissolve negative experience in life (Songprakun & McCann, 2012). It has been found that resilience has a positive correlation with positive emotions. Individuals with high resilience were found to have fewer psychological disorders (Scali et al., 2012), lower levels of depressive symptoms after spinal cord injury, and higher levels of life satisfaction (White, Driver, & Warren, 2010). Resilience was also found to have a positive correlation with spirituality in African Americans (Coates, Phares, & Dedrick, 2013). Individuals with low resilience perceived negative life events seriously and had low capacity to tolerate or manage negative life events in life which might further generate unnecessary negative life events (Galatzer-Levy et al., 2013). Uji, Kitamura, and Nagata, (2011) did a longitudinal follow-up study on 642 Japanese college students and found that individuals with low resilience were more prone to suffer from the maladaptive effects of shame and internalization; those students also scaled highly for self-rated depression. Yet individuals with high resilience were more prone toward the

adaptive effect of detachment; these students also scaled lower for self-rated depression. Resilience has been found to prevent depression (Uji et al., 2011). Through their study, Uji et al. conceptualized that the relationship between low resilience and depression was through a cognitive style of shame and internalization. Individuals with high resilience were found to have guilt and detachment.

Theories and models of positive psychology identify elements that make life worth living in order to promote human wellbeing. This pursuit of significance in life synchronizes with the goal of rehabilitation science since it is imperative for individuals with traumatic injury to find life worth living (Catalano, Chan, Wilson, Chiu, & Muller, 2011). This pursuit of significance in life is also of importance to the elderly, especially when they suffer from illness (Windle, Woods, & Markland, 2010). Resilience is a significant element of positive psychology which explores individual incentives in the management of adversities in life. Therefore, resilience has attracted plenty of attention in the practice of rehabilitation (Bonanno, Kennedy, Galatzer-Levy, Lude, & Elfstrom, 2012; White et al., 2010) and the care of the elderly (Windle et al., 2010). To the practitioners of rehabilitation science and elderly care-takers, resilience is not an extraordinary personal character; instead, it is a common recovery phenomenon and coping ability among ordinary humans after traumatic incidences and in managing the challenges of daily living.

There has also been a major shift in the focus of research regarding post traumatic stress disorder (PTSD) after the rise of positive psychology. Researchers like Bonanno, Rennicke, and Dekel (2005) shifted their focus from correcting the negative PTSD symptoms after traumatic events to studying the factors protecting individuals in

overcoming traumatic events without developing PTSD symptoms. These factors were referred to as protective factors of resilience (Tran, Gluck, & Lueger-Schuster, 2013). By understanding resilience, researchers such as White et al. (2010) hoped to develop relevant preventive strategies and effective treatments. Therefore, researchers have studied resilience extensively in individuals who have experienced traumatic events such as childhood trauma, childhood abuse, and domestic violence (Gonzales, Chronister, Linville, & Knoble, 2012; Sirikantraporn, 2013); individuals with high risks in exposure to traumatic events such as deployed combat troops (Lee, Sudom, & Zamorski, 2013), medical personnel, and police officers (Galatzer-Levy et al., 2013); multiracial Americans (Salahuddin & O'Brien, 2011); and individuals with low socioeconomic status or racial discrimination (Coates et al., 2013).

College time has also been considered a significant turning point in a person's life (Mak, Ng, & Wong; 2011). There are countless challenges, stresses, fun, temptations, and opportunities; a person learns and gets in touch with the reality of life during this time. Resilience studies have been conducted extensively on college students. Some students learn and mature in their college years; yet others become frustrated and fractured (Mak et al., 2011). The stress during college time could be stimulating and challenging; it could also be damaging and overwhelming.

Mak et al. (2011) conducted a study on 1,417 college students in Hong Kong. In their study they identified the relationship among resilience, life satisfaction, and depression. They found that resilience had a statistically significant correlation with a positive view toward the positive triad: the self, the world, and the future. Mak et al. (2011) therefore considered the positive cognitive triad as the mediator between

resilience and well-being. In other words, they considered positive affect as the mechanism for an individual to rebound positively from negative stress. Positive affect is the precursor of resilience; those who perceived the self, the world, the future, and adversities with a positive view and a positive interpretation are resilient individuals. In contrast, individuals with depression demonstrate the negative cognitive triad; they perceived the self, the world, the future, and stress with a negative view and interpretation. Mak et al. confirmed the correlation between resilience and positive affect; however, it was not possible to draw the conclusion of a causal relationship from their study. In fact, the authors demonstrated both conceptualizations: resilience as the precursor and positive affect as the precursor. Galatzer-Levy et al. (2013) have also found that positive affect has a positive correlation with resilience yet negative affects of fear, anxiety, and depression have a negative correlation with resilience.

In summary, after pursuing survival, liberty, justice, and equity over the past centuries, humans have advanced their pursuit of happiness recently. Positive psychology and the extensive studies in resilience emerged at this time. Woodier (2011) attributed it to an experience of life transformation to identify a person's inner resilient strength in managing adversities instead of struggling to remove adversities. Lee et al. (2013) advocated the use of resilience models in the promotion of human wellbeing in the current era of happiness. However, it is worth pondering if the extensive study of resilience up to the present covers every aspect of resilience.

Problem Statement

Resilience is a common phenomenon in the general population instead of a special trait in particular individuals. Studying 2,752 victims of the 9/11 attacks,

Bonanno et al. (2005) found that less than one third of these victims presented with more than one PTSD symptoms in the first six months. The majority of adults in the United States have experienced at least one potential traumatic event in their lifetimes; however, only a small subset (6.6% to 17.8%, depending on the situation) present with psychological symptoms (Bonanno, 2004).

Bonanno (2004) also believed that resilience has multiple pathways and there is no single universal means in maintaining equilibrium after the perturbation of adversities. In other words, each person has his or her own unique style or pathway of resilience development. As Bonanno has noted, 38% of individuals receiving a grief intervention became worse. Bonanno doubted the effectiveness of debriefing after traumatic events; not all individuals showed beneficial outcomes, and some might become further overwhelmed by debriefing. Therefore, understanding each person's resilience construct and unique resilience pathway is important in providing beneficial intervention and preventing harm.

Quantitative assessments have the advantages of objectivity and relatively easy administration and scoring; however, they lose the essential qualities of subjectivity and wholeness at the same time (Campos, 2011). As Gestalt psychology maintains, the whole is greater than the sum of parts. There are several advantages of the projective approach. The projective method assesses a person as a whole; it may approach a person in a multidimensional manner as well (Campos, 2011). A projective method may also penetrate into a person's subconscious of which the person is unaware. In addition, it is not easy to fake a projective assessment because the person being assessed seldom has any idea what is being tested (Campos, 2011). The statements in a quantitative

assessment are often worded in a certain way that test-takers may easily pick up on hints and provide the desired answers.

Even though resilience does not have a long history, it has attracted plenty of researchers to conduct volumes of research on it. In the past 2 decades, a number of assessments have been developed. However, they are all quantitative assessments. At present, there are two types of quantitative resilience scales: the assessment of personality traits relevant to resilience (Connor & Davidson, 2003) and the assessment of the integration of dispositional traits and contextual factors (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003). These assessments are self-reported scores. Campos (2011) believed that the understanding of a person could not be complete without the presence of a projective assessment. Currently, with identifying positive elements deemed as significant as correcting negative elements in human life, the absence of a projective approach in resilience leaves a gap in the complete understanding of the personal construct of resilience.

Purpose of the study

Currently there is no projective assessment for resilience; a pilot study provided the first step in developing a projective method. The purpose of this study was to develop a projective approach to understand and measure resilience. I provided an open-ended story with a traumatic event to participants by giving a pre-recorded story. Besides the traumatic event, the story also contained positive environmental protecting factors. Participants responded with their feelings after listening to the story. They then provided endings to complete the open-ended story. The rationale of the methodology including

the development of the scenario will be discussed in detail in Instrumentation section of Chapter 3.

Individuals with high levels of resilience are able to perceive, acknowledge, experience, and make use of positive elements in life in the presence of adversity (Waugh, Thompson, & Gotlib, 2011). Individuals with low levels of resilience are often overwhelmed by the presence of adversity; they are not able to perceive positive elements in life or experience positive emotions when under stress (Zautra, Arewasikporn, & Davis, 2010). Positive or negative experience and emotions can be disclosed through positive or negative words a person uses. Positive words are words describing positive feelings such as *joy, interest, enthusiasm*, and *inspiration*. Negative words are words describing unpleasant emotions such as *failure, guilt, anger, disgust*, and *anxiety* (Watson, Clark, & Tellegen, 1988). Therefore, a participant who provided responses with positive words was expected to have positive emotion or positive experience. In contrast, a participant who provided responses with negative words was expected to have negative emotion or negative experience.

This study was a quantitative study. Participants described their feelings and completed the open-ended story through words. I recorded the positive words and negative words of their feelings, and how they completed the story. I used the ratio of the number of positive responses over the number of total responses provided by the participant to estimate the resilience level of the participant. This ratio is termed the resilience ratio. I hypothesized that a person with a high level of resilience would give many positive responses after listening to the traumatic scenario, a person with no resilience would give no positive response, and a person with a low level of resilience

would give few positive responses. A detailed theoretical foundation regarding the perception of positive elements in life in the presence of adversity will be reviewed in the Flexibility, Creativity, Perception, and Resilience section of Chapter 2. The resilience ratio measured in this study was expected to reflect the person's resilience level; it was compared with the scores of a well-established quantitative assessment, the CD-RISC-10, and a self-esteem scale, the Rosenberg Self-Esteem Scale. The resilience ratio and the scores of these two objective scales for participants who completed the story positively were also compared with the scores for those who completed the story negatively. Positive endings were referred to endings returning to or higher than the level prior to the adversity. Negative endings were referred to maladaptive endings or endings lower than the level prior to the adversity. I will further describe these ideas in Chapter 3.

Research Question and Hypothesis

Kelly (as cited in Sechrest, 2005) formulated the concept of validity in 1927; he deemed an assessment valid if it measured what it claimed to measure and did not measure something else. A valid assessment may provide useful information to the clinician (Groth-Marnat, 2009), which can be obtained only through a more expensive and time consuming process other wises (Sechrest, 2003). However, determining the validity of a test is no simple matter because it does not refer to the property of a test; it alludes to the meanings of the score (Sechrest, 2005). In this study, the resilience ratio indicated the ability of an individual to perceive and experience positive elements in life in the presence of adversity and how an individual completed the open-ended story reflected this person's ability to use the available family and social resources in the presence of adversity.

According to Groth-Marnat (2009), there are three approaches to establish validity of an assessment: content-related validity, construct-related validity, and criterion-related validity. Content validity concerns the appropriateness of contents (McLeod, 2013); it refers to the representativeness and relevance of the assessment instrument to the construct being measured. In this study, I followed the strategies for establishing content validity suggested by VanderStoep and Johnson (2009) to establish initial content validity. I will discuss the detailed strategies in Chapter 3. Construct validity was introduced by Cronbach and Meehl in 1955 (Sechrest, 2005); it refers to the extent to which variables accurately measure the constructs of interest. Sechrest (2005) suggested three steps to build construct validity, which I have followed in this study to establish initial construct validity of this projective method. I will discuss the detailed steps in Chapter 3.

Criterion validity concerns the relationship to other measurement (McLeod, 2013); it refers to the ability of a test or an instrument to make accurate prediction. In this study, I used the well-established objective assessment CD-RISC-10 and the Rosenberg Self-Esteem Scale as other measurements. The relationship of the resilience ratios measured by this projective method and the CD-RISC-10 scores was tested for correlation. The relationship of the resilience ratios and the Rosenberg Self-Esteem scores was also tested. A significant positive correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem scores would verify resilience ratios as valid in measuring resilience and confirm criterion validity of this projective method. The resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who provided positive endings to the open-ended

story and for those who provided negative endings were also compared to examine any significant difference. Significant differences of the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between participants who provided positive endings and those who provided negative endings would verify how participants complete the open-ended story as valid in understanding resilience. I will provide detailed description of different types of validity in Chapter 2 and details of the establishment of validity of this projective method in Chapter 3.

Sixty-seven college students of both sexes participated in this study, 35 males and 32 females. I provided the same open-ended story with a traumatic event to each participant. Two sets of data were collected in this study: the description of the feelings after listening to the story and how the story was completed. Each participant provided me with words and phrases describing his or her feelings. When all the words or phrases have been exhausted, I asked the participant to complete the open-ended story. Each participant also completed two quantitative assessments, the CD-RISC-10 and the Rosenberg Self-Esteem Scale; they were the external scales used in this study.

There were two research questions in this study.

Research Question #1: How well do the resilience ratios measured by the projective method correlate with the CD-RISC-10 scores and the Rosenberg Self-Esteem Scale?

The hypotheses were:

H_01: There is no significant correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem Scale.

$H_1 1$: There is a significant correlation between the resilience ratios and the CD-RISC-10 score or between the resilience ratios and the Rosenberg Self-Esteem Scale.

Research Question #2:

Are there significant differences in the resilience ratios, the CD-RISC-10 scores, and Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings? The hypotheses were:

$H_0 2$: There is no significant difference in the resilience ratios, the CD-RISC-10 scores, or the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings.

$H_1 2$: There are significant differences in the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings.

I used Pearson Correlation to answer Research Question #1. There were two correlation tests in this study: the correlation between the resilience ratios and the CD-RISC-10 scores and the correlation between the resilience ratios and the Rosenberg Self-Esteem scores. Pearson correlation tests were used to verify criterion validity of this projective method.

I used independent *t* tests to answer Research Question #2; there were three *t* tests in this study, a *t* test for the resilience ratios, for the CD-RISC-10 scores, and for the Rosenberg Self-Esteem scores respectively. Independent *t* tests were used to understand the resilience levels of participants who provided positive endings and those who provided negative endings.

Theoretical and Conceptual Framework of the Study

After decades of debates over the definition, conceptualization, and theories of resilience, a majority of researchers regard resilience as a dynamic multidimensional process that involves a person's cognition, emotion, and behavior (Casual, 2010). Cognitive and emotional flexibility are correlated with resilience (Galatzer-Levy, Burton, & Bonanno, 2012; Genet & Siemer, 2011). Regardless of unsettled debates, researchers have come to an agreement that intrapersonal personality traits, family cohesion, and social support are involved in resilience development (Tran et al., 2013).

The framework of resilience model (FRM) is a meta-theoretical model of resilience; it describes resilience as the interaction between an individual and the environmental/situational factors (Catalano et al., 2011). FRM describes adversity as a disturbance to the equilibrium of an individual's life when in homeostasis. The individual then engages in an interaction with this disturbance and the disequilibrium of life, with or without his or her awareness. There are four possible outcomes in this interaction: reaching a higher level of final homeostasis, returning to the original level of homeostasis, returning to homeostasis at a lower level, and failure to regain homeostasis (Connor et al., 2003). Resilience is the positive outcome of this interaction. In this study, it was possible to see different outcomes among all of the participants; even though the population is not large. I will discussion the theoretical framework in detail in Chapter 2.

Nature of the Study

This study was a quantitative study to develop a projective method to understand and measure resilience. The variables in the projective method were the resilience ratios and how the story was completed, positively or negatively. The resilience ratio measured

in the projective method is the ratio of the number of positive responses divided by the number of total responses. It is a continuous scale varying from 0 (*no positive response*) to 1 (*no negative response*). It represents the level of cognitive and emotional flexibility of the participant. High levels of cognitive and emotional flexibility have been found in individuals with resilience (Waugh et al., 2011). On the contrary, Zautra et al. (2010) reported that individuals with low levels of resilience were found with low levels of cognitive and emotional flexibility. Cognitive and emotional flexibility are recognized by the existence of positive emotion and positive experience in the presence of adversity, which the resilience ratio reflects in this projective method. The resilience ratios measured by the projective method were tested for correlations with the scores of the objective assessment, the CD-RISC-10, and the scores of the Rosenberg Self-Esteem Scale.

After listening to the open-ended story, the participants offered the responses, which I recorded descriptively to identify positive and negative responses. I used the principle of word-frequency count in content analysis as explained by Stemler (2001) to analyze the responses. This principle has been used successfully by many researchers. Mizuta et al. (2002) found that individuals with eating disorders used significantly more negative words in the Sentence Completion Test than individuals without eating disorders. Barton, Morley, Bloxham, Kitson, and Platts (2005) also found that depressed individuals finished sentences with significantly more negative words than non-depressed individuals. In this study, I counted the number of positive responses and total responses.

Each response a participant provided was categorized as a positive response or a negative response. Words and phrases categorized as negative responses were: "*sad*,"

"*hopeless*," "*injustice*," "*heart-breaking*", and "*angry*". Words and phrases categorized as positive responses were: "*hope*," "*love*," "*lucky*," and "*strength*". Vague words such as "*challenge*" and "*sympathetic*" were inquired for further elaboration and clarification after the collection of all the words. Individuals with a high level of resilience were expected to experience more positive emotions; they were able to give more positive words than individuals with a low level of resilience. The higher the resilience ratio a participant obtained, the higher the level of resilience this individual was expected to have.

Story-telling has been used by many researchers; it has been recognized as a valid method in personality assessment (Lunday, 1989). It has also been used to predict future teaching commitment in teacher candidates and in assessing borderline personality disorder (Dent-Brown, & Wang, 2004; Veldman, 1969). Therefore, participants completing the story positively in this study were considered as individuals with high levels of resilience; participants completing the story negatively were regarded as individuals with low levels of resilience. Completing the story positively means the outcome returns to the level of wellbeing prior to the traumatic event or reaches a higher level. Finishing the story negatively means the outcome declines to a lower level of wellbeing than the level prior to the traumatic event. In this study, the completion of the story with the major character resuming ordinary activities and ordinary interpersonal relationship is considered a positive ending; the outcome returns to the level prior to the traumatic event. However, the completion of the story with the major character not able to survive, becoming addictive to substances, or living a life miserable is considered a negative ending; the outcome declines to a lower level of wellbeing.

Definitions

In measuring the correlation between the resilience ratios and the CD-RISC-10 scores, the two variables were the resilience ratios and the CD-RISC-10 scores. For the correlation test between the resilience ratios and the Rosenberg Self-Esteem Scale, the two variables were the resilience ratios and the Rosenberg Self-Esteem scores. For the three *t* tests answering Research Question #2, the independent variable was how the participant completed the story, positively or negatively; and the dependent variables were the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores respectively.

Assumptions

Projective methods are powerful tools in assessing the unconscious world of an individual through imagination and story-telling in relation to thought-provoking pictures, ink images, partial sentences, or other materials (deTychey et al., 2012). A reasonable assumption in this study was that a person's resilience can be assessed by the language disclosed in communication. Galatzer-Levy et al. (2013) have found that positive emotion predicts resilience and negative emotions have a negative correlation with resilience. In the "Sentence Completion Test for Depression" study conducted by Barton et al. (2005) also found that depressed individuals finished sentences with significantly more negative words than non-depressed individuals.

Scope and Delimitation

Resilience is multidimensional, encompassing cognition, emotion, and behavior (Ghimbulut, Ratiu, & Opre; 2012). Some researchers consider resilience as an outcome. In this study, participants expressed their positive or negative emotions even though they

were not in control of the presence or absence of adversity. To respond to the projective approach explored in this study, participants needed to use their cognition, emotion, and presumed behaviors. Galatzer-Levy et al. (2013) found that positive emotion was the strongest factor in predicting resilience. In this study, positive emotion was assessed by the use of positive words.

Limitations

There are several limitations to this study. This study is a pilot study; the number of participant is limited to 65. With this small number of participants, it is not possible to draw definite conclusions without making the error of faulty generalization. Further studies will be needed to confirm any substantial conclusion.

Participants in this study were college students. College students are a special population; they may not represent the general population. Compared with older adults, college students can be more resilient in some areas such as self-confidence and self-reliance, yet they can be less resilient in other areas such as perseverance or mood stability (Gooding, Hurst, Johnson, & Tarrier, 2012; Li, Xu, He, & Wu, 2012).

Each participant was involved in this study on only one occasion; this study was not a longitudinal study. This study cannot measure the development of resilience over time. Some researchers consider resilience as a process developed over time (Neff & Broady, 2011; White et al,, 2010). This study was not able to measure resilience developed over time and it was not the purpose of this study to measure the development of resilience over time. It will require a longitudinal study to assess resilience development over time.

This study was not field research. The traumatic scenarios provided in this study served as simulations of the adversities experienced in life (in vitro); they did not represent the presence of genuine adversities in life (in vivo). It is possible to find discrepancies between the in vitro outcome and the in vivo outcome. Participants may respond with negative and positive words to the scenario provided; however, these responses can be theoretical responses from their objective knowledge. It is reasonable to question how these individuals would truly respond when life's adversities are experienced in vivo. They may respond more negatively in vivo, or their resilience may be developed over time.

Significance

Up to the present, there are a number of quantitative assessments measuring resilience; however, there is no projective approach to understand and measure resilience. A projective approach to resilience may fill in the gap that currently exists in resilience research. This study opens another avenue to understand and measure resilience in individuals.

Adversities are inevitable in human life, regardless of all the efforts made to advance human welfare. When adversities are inevitable, it is important to cultivate and build resilience so that humans may overcome these adversities. Many researchers believe that resilience traits can be trained (White et al., 2010). Therefore, resilience has been widely applied to the fields of medicine, rehabilitation, education, organization, sociology, military training, and personnel selection. Assessments of resilience also help in developing preventive and intervention strategies (Afifi & MacMillan, 2011). Besides helping the understanding of resilience, the projective method presented in this study can

also be used as an in vitro training exercise to build resilience traits. It has been found that lack of resilience is often associated with a number of psychological and psychiatric disorders such as PTSD, depression, and anxiety (Bonnano, 2004). Some researchers maintain the importance of assessing resilience in students in order to help the potentially vulnerable individuals and facilitate academic success (Mak et al., 2011). The projective method presented in this study may help understand individuals through another lens and identify individuals with low resilience levels. Prevention programs and intervention strategies can also be developed to help individuals with low resilience levels to gain resilience. Positive social change results as vulnerable individuals are trained to develop resilience. The significance of this projective method will be further discussed in Chapter 5.

Summary

In the 21st century when medicine, science, and technology are advancing rapidly, adversities are still inevitable and out of human control. Researchers have switched their focus from the correction of negative features in human life to the identification of positive elements in life that aid in overcoming adversities (Seligman et al., 2000). Positive psychology was born in this era (Seligman, 1998), and resilience is one of the four pillars of positive psychology (Wong, 2011).

Afifi et al. (2011) asserted that assessment of resilience help in the development of preventive programs and intervention strategies in addition to the understanding of resilience. At present, there are a number of quantitative assessments available; however, there is no subjective projective approach. Campos (2011) maintained that a projective approach is necessary in understanding a person as a whole. The purpose of this study

was to develop a projective method to understand and measure resilience. The next chapter is the review of previous studies of resilience, resilience assessments, projective assessments, and several types of validity.

Chapter 2: Literature Review

Clinical studies of resilience do not have a long history, existing only for the past few decades (Garmezy et al., 1961). The number of studies, however, has grown over the past 2 decades (Wagnild, 2009). In these few decades, there have been fervent debates over the definition, conceptualization, and theories of resilience (Fletcher & Sarkar, 2013). Despite all the unsettled debates, the interest of researchers on the study of resilience has not declined. In this chapter, I will first briefly review the debates over the definition, conceptualization, theories, and cultural issue of resilience. Then I will discuss the building of resilience, which includes flexibility, creativity, and perception, and the uses of building resilience. In the last section, I will discuss a few commonly used assessments, which are all quantitative assessments, and the significance of a subjective projective approach. The library data bases I used in the literature review include PsychINFO, PsychARTICLES, and PsychTESTS. The studies included in this chapter are from 2010 to the present as well as original research dating back as far as the library data bases support.

Resilience

Resilience studies originated from studies in child development. Werner (1995) studied 698 children growing up in environments with the presence of adversities, such as chronic poverty, parents with psychiatric issues, severe deficits in care-giving or family dissolution. Two thirds of these children presented with learning and behavior problems by age 10 and had issues with delinquency, social interaction, interpersonal relationships, pregnancy, and mental disorders by age 18. Nevertheless, one third of these children grew up to be competent, passionate, and confident adults; they were referred to as

children with resilience. Werner studied the role of early childhood on these children with resilience retrospectively; his study revealed that these children were alert, easy to soothe, and had easy tempers as babies. Their mothers were characterized as active, affectionate, cuddly, good natured, and easy to deal with. As these children with resilience grew, they were able to engage with other individuals, have good communication skills, build good interpersonal relationship, appraise stressful life events, use available resources, come up with strategies for coping with adversities, and overcome great odds. Two clusters of protective factors were identified in Werner's study, the intrapersonal factors and the tie with the environmental factors.

There have been fervent debates throughout the entire history of resilience studies. After decades of debates and research, a majority of researchers currently consider resilience to be a multidimensional construct that incorporates cognition, emotion, and behavior components (Simpson & Jones, 2013). The debates have been over the definition, conceptualization, and theory of resilience. Going through the spiral process of hypothesis, thesis, and antithesis, resilience research is approaching maturity, even though debates have not lessened. There have also been discrepancies in the description of the history of resilience studies even though this history is of a limited time span. The majority of researchers described this history as a three-wave history (Richardson, 2002); however, the categorization of the characteristics in these three waves differs slightly. I adopted Kolar's (2011) four-wave history of resilience studies because it is the most comprehensive description encompassing the last wave, the integration of the theories and conceptualizations. The literature review in this section is arranged according to the

history of resilience studies. Table 1 illustrates a brief review of the history of resilience studies.

Table 1

Four Waves of Resilience Studies

History	Representative Researchers	Research Focus	Research Findings
First Wave	Werner, Wagnild, Bonanno, Friborg, & Hjemdal	Personality traits and contextual factors as protective factors	Self-confidence, self-discipline, optimism, social confidence, self-enhancement, family cohesion, social support, etc.
Second Wave	Connor & Davidson; Tran, Gluck, & Lueger-Schuster	Mechanism and process of resilience development	Resilience as a dynamic process of a person interacting with the environment
Third Wave	White, Driver, & Warren; Songprakun &McCann	Application in policy, prevention, and intervention to individuals with risk	Resilience concepts used in military, rehabilitation, education, organization, and sociology besides psychology
Fourth Wave	Catalano, Chan, Wilson, Chiu, & Muller; Lee, Nam, Kim, Kim, Lee & Lee	Integration	Meta-analysis, meta-theories, and complicated resilience models incorporating intrapersonal, family, social, and political factors

In the first wave of resilience research, researchers engaged in phenomenological studies to answer the research question, "What made some children survive, or even thrill, after traumatic events in childhood without presenting with significant psychological disorders while other children failed to develop normally?" This movement of searching for positive personality traits of resilience paralleled the rise of positive psychology; both caused a paradigm shift in psychological research and each reinforced the other (Moran

et al., 2013). Several protective factors were identified, such as self-esteem, self-discipline, optimism, self-confidence, social confidence, and courage (Bonanno, 2004; Portzky, Wagnild, DeBacqyer, & Audenaert, 2010). Resilience appeared to be a static personality trait protecting an individual from perturbation by adversities. Environmental factors and other risk factors were also identified by some researchers during this period (Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). The personality traits of resilience significantly overlap with the happiness traits identified in positive psychology: the virtues of perseverance, modesty, forgiveness, hope, kindness, faith, wisdom, humility, patient, optimism, and love (Manzano-Garcia & Calvo, 2013; Richardson, 2002).

In the second wave of resilience research, researchers were interested in the development of resilience. Researchers switched their focus to the process and mechanism of the formation and development of intrapersonal protective factors. Resilience was explained as a disruption of the homeostatic condition and a reinstitution of a new homeostatic condition after the disruption (Connor et al., 2003). At this time, resilience appeared to be a process of human interaction with the environment. Coping strategies and learning processes were incorporated into the concept of resilience. Resilience was no longer a set of static personality traits but a dynamic process which could be taught and learned (White et al, 2010). This concept was confirmed by success in the building of resilience through cognitive transformation and personal growth practice (Grafton, Gillespie, & Henderson, 2010).

In the third wave, researchers focused their attention on the development of prevention, intervention, and social and school policies for individuals at high risk. The

inner process promoting self-actualization through transformation was emphasized (Corley, 2010). According to Corley, creative expression through art and writing was an effective transformational process of self-actualization. Corley considered creativity as a positive response to resilience. Through creativity, individuals may gain a sense of inspiration and perceive alternatives and possibilities in life. In addition to Corley's work on Holocaust survivors, concepts of resilience have been widely applied to many fields other than psychology, fields such as medicine, rehabilitation, education, organization, military training, and society (White et al., 2010). I will give further detail in the application section.

Regardless of the progress of these three waves, researchers still dispute the basic definition, conceptualization, and theory of resilience. Even the adversities under study vary greatly from major traumatic life events such as the loss of close relatives to daily hassles such as work-related stress and familial discord, to life's inevitable changes such as aging (Herrman et al., 2011). Therefore, in the fourth wave, researchers have focused on the integration of research across a wide range, from the study of personality traits to the study of culture and public policy. Several meta-studies and meta-analysis were conducted to compare, analyze, and synthesize studies based on different definitions, conceptualizations, and theorizations (Lee et al., 2013).

Definitions of Resilience

According to Fletcher et al. (2013), the definitions of resilience have been influenced by the historical and sociocultural context in which resilience studies took place and by the participants of the studies. The definitions of resilience are even influenced by the subjective assumptions of researchers (Kolar, 2011). At present,

agreement is yet to be reached as to the definition for resilience; its definition continued to evolve.

Some researchers consider resilience a set of innate personality traits that a person either has or does not have, regardless of environmental factors (Bonanno, Galea, Bucciarelli, & Vlahow, 2007; Fletcher et al., 2013; Galatzer-Levy et al., 2013; Philippe, Laventure, Beaulieu-Pelletier, Lecours, & Lekes, 2011). However, other researchers have argued that family coherence and social support also contributed to a person's resilience (Gonzales et al., 2012; Lee et al., 2013; Waaktaar & Torgersen, 2012). Some researchers regarded resilience as a protective factor, buffering individuals from adversities and protecting individuals from stress or the development of psychological disorders secondary to adversity (Catalano et al., 2011). To these researchers, individuals with resilience did not go through the process of adaptation; their resilient traits protected them completely from any twisting of their personality secondary to the adverse experience. However, other researchers have viewed resilience as a dynamic process of adaptation. While going through this process, individuals learn acceptance, coping skills, the appropriate responses for new demands, and the successful adaptation to new situations (Greene, 2010; Montpetit, Bergeman, Deboeck, Tiborio, & Boker, 2010; Neff et al., 2011; Seery, Holman, & Silver, 2010). No matter what the ultimate definition of resilience, most researchers do not simply equate resilience to the phenomenon of the absence of a maladaptive outcome after a traumatic event. This is despite the fact that the current available psychometric assessments often focus on the final outcome (Tran et al., 2013). Over the past few decades, the definition of resilience has also evolved from

passive resistance to the destruction caused by adversities to the active achievement of a higher level of wellbeing.

The word "*resilience*" originated from the Latin verb "*resilir*" which meant "*to leap back*." In this sense, resilience involves a process of recuperation after a period of bending caused by an adverse stress even though this bending might be temporary and pass unnoticed. Regardless of the many variations in the definitions of resilience, there are two common features found among all definitions: adversity and adaptation. With adaptation, the perturbation caused by the adversity leaves no lasting change in a person (Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011).

Furthermore, resilience can also vary based on the cultural context. Westerners often view resilience as the restoration of interpersonal relationships, but Easterners regard resilience as the restoration of the ability to perform. Therefore, Ungar (2010) maintained that the definition of resilience needs to be understood within the cultural context. It is "the capacity of individuals to access resources that enhance their wellbeing, and the capacity of their physical and social ecologies to make those resources available in meaningful ways" (p.6). In fact, Ungar also believed that the definition of resilience would inevitably change when epistemological innovation takes place. According to this concept, the evolution of the definition of resilience is inescapable and continues as human history proceeds. Nevertheless, the discrepancy in the definition and the conceptualization of resilience and adversity has caused difficulty in the evaluation and comparison of resilience studies and research findings. Regardless of the discrepancies present, many researchers have come to an agreement on the three major components associated with resilience: recovery, sustainability, and growth (Zaustra et al., 2010).

In conclusion, resilience is about coping responses toward new demands and successful adaptation towards new situations. The phenomenon of adaptation can vary in different cultures. In the following sections, I will further discuss the definition of resilience as a personality trait and as a dynamic process and an outcome. Table 2 briefly summarizes the different definitions of resilience.

Table 2

Definitions of Resilience

Framework	Definition
Personality traits	"the ability to maintain relatively stable, healthy levels of psychological and physical functioning…as well as the capacity for generative experiences and positive emotion" (Bonanno, 2004, pp. 20-21) "the ability to adapt or bounce back following adversity and challenge and connotes inner strength, competence, optimism, flexibility, and the ability to cope effectively when faced with adversities" (Wagnild & Collin, 2009, p. 29) "the individual's adaptation capacity when under the strain set by new environmental demands" (Block & Turula, 1963, p. 946) "the role of mental processes and behavior in promoting personal assets and protecting an individual from the potential negative effect of stressor" (Fletcher & Sarkar, 2013, p. 16)
Process	"the capacity of individuals to access resources that enhance their wellbeing, and the capacity of their physical and social ecologies to make those resources available in meaningful ways" (Ungar, Theron, & Dickowski, 2011, p. 6) "adaptation to extraordinary circumstances and achievement of positive and unexpected outcomes in the face of adversities" (Greene, 2010, pp. 413-414)
Outcome	"the phenomena of overcoming stress or adversities" (Rutter, 1999, p. 119)

Resilience as a Personality Trait

Resilience research developed from studies of children with childhood adversities (Garmezy et al., 1961). Researchers found that about 50% of children with childhood

adversities presented with psychological disorders when they grew up, yet the rest seemed to cope well (Afifi et al., 2012). Interestingly, the children who exhibited resilience remained resilient into adulthood. However, only 11% of the children who did not display resilience became resilient later in their adulthood. Researchers first focused on the remedy to the individuals presenting with psychological disorders. Later, researchers switched their interest to identifying the special personal characteristics present among individuals who seemed to cope well. To these researchers, resilience was a personality trait because researchers have successfully identified certain special characteristics common among resilient individuals (Bonanno, 2004; Fletcher et al., 2013; Wagnild et al., 2009). Resilience was therefore defined as a set of dispositional traits, a particular type of personality, or a relatively stable emotional character with which a person might withstand a single life traumatic event (Galatzer-Levy et al., 2013). Individuals with high levels of resilience often had high levels of self-esteem, self-discipline, optimism, self-confidence, social competence, and courage (Portzky et al., 2010); easy temperament and planning skills (Fletcher et al., 2013); purpose, perseverance, equanimity, self-reliance, and existential aloneness (Wagnild et al., 2009).

Bonanno et al., (2005) considered resilient characteristics as common personality traits that many individuals had. They maintained that the majority of adults have experienced at least one potentially traumatic event in their lifetime. However, only a small subset of adults subsequently developed PTSD. They found that only 10–15% of bereaved individuals who have lost a close relative presented with a psychological disturbance over time, and more than 50% of individuals maintained an undisturbed

quality of daily living. According to Bonanno (2004), the reason that researchers failed to make a distinction between resilience and recovery was because the major focus of resilience studies was individuals with psychological disorders. In fact, there were a significant number of individuals who did not present with any remarkable disturbance in their daily functioning after adversity; these were individuals with resilience. According to Wagnild and Collins' definition (2009), resilience is an intrapersonal trait. Their study on elderly women revealed that the presence of resilience was correlated with the presence of many other intrapersonal characteristics such as purpose, perseverance, equanimity, self-reliance, and existential aloneness.

Studying 2,752 victims of the 9/11 attacks, Bonanno (2004) found that only 5.3% of them had more than one PTSD symptom remaining after 6 months. He therefore attributed resilience to individuals presenting with less than or equal to one PTSD symptom during the first 6 months after the incidence. These individuals had lower rates in the development of psychological disorders and had a lower risk of substance dependence compared with the rest of the individuals under study. Bonanno et al. (2005) assigned resilience to individuals presenting with less than or equal to one PTSD symptom and recovery to individuals presenting with more than one PTSD symptom. Block et al. (1963) coined the term *ego resilience* to refer to individuals capable of responding to new demands in resourceful, tenacious, and elastic ways. Other individuals with low levels of adaptability responded to new demands in chaotic and rigid ways; they were referred as individuals possessing no or low ego resilience.

Galatzer-Levy et al. (2012) performed a 4-year longitudinal study on 157 college graduates. They found that flexible coping was correlated with adjustment; yet they failed to identify any correlation between flexible coping and previous exposure to traumatic events. In other words, flexible coping was not the result of learning from previous experience. Previous exposure to a traumatic event was not able to predict future resilience. In fact, these authors found similarities between how individuals responded to previous traumatic life events and how they responded to contemporary stressors. According to the study of Galatzer-Levy et al., humans were not able to learn from their experiences.

Resilience as a personality trait was also referred to as ego-resilience or psychological resilience. Philippe et al. (2011) studied 118 individuals who have experienced a childhood trauma; they found resilience present as ego-resilience and they failed to identify resilience as a process which developed over time. In other words, the authors found characteristics of ego-resilience in resilient individuals prior to their exposure to a childhood trauma rather than something which developed over time in response to the trauma. Nevertheless, the authors believed that ego-resiliency existed in every individual and could be enhanced by contextual factors, such as family coherence and social support. In order to maintain clarity and straightforwardness in the definition of resilience as a personality trait, Bonanno (2004) made a clear distinction between resilience and a gradual recovery from a traumatic event. To Bonanno, resilience was referred to as a personal trait and an ability which sustained a person from perturbation; yet gradual recovery was the restoration to equilibrium after a temporary period of

perturbation. Bonanno gave a typical illustration of recovery through the case of a bereaved person who underwent a period of depression lasting 2 years before this person recovered from bereavement. Yet individuals with resilience did not go through this bereavement period; they maintained stable emotions with no psychological symptoms, and their general daily activities and personal and social responsibilities were not significantly affected either. In other words, Bonanno made a clear distinction between sustainability and recovery. However, many other researchers considered resilience to include sustainability, recovery, and growth (Zautra et al., 2010).

Fletcher et al. (2013) also made a clear distinction between the presence of resilience and coping skills. They attributed resilient characters to the presence of "protective" factors rather than "coping" strategies. Protective factors shielded a person completely from any perversion, whether temporary or permanent; in contrast, coping strategies had to be learned and adapted. Another argument Fletcher et al. stressed in making a clear distinction between resilience and coping was that the protective resilient character let a person perceive adversities differently from a person with low resilience, yet coping strategies were adapted after the person had perceived the adversity in a certain way. In other words, individuals with high levels of resilience had different perspectives from individuals with low levels of resilience prior to exposure to adversities. Nevertheless, other researchers have noted that individuals who experienced childhood adversities might present with a resilient character in some areas, yet failed to present with a resilient character in other areas (Afifiet al., 2012). These resilient characteristics, which presented at one time, could be changed over time and varied according to

different stages of development; they were not static. Besides, some resilient individuals might become non-resilient after some time; likewise non-resilient individuals could become resilient later on. To these researchers, resilience was not a static state; it was a dynamic process. In addition, there were also researchers who objected to defining resilience as a personality trait because; in so doing, victims were being blamed for not being resilient (Kolar, 2012).

In summary, several personality traits have been identified in individuals with resilience; these include self-confidence, social confidence, self-enhancement, courage, optimism, and other traits. Bonanno (2004) has maintained that resilience traits are not special traits in particular individuals; instead, he asserted that resilience traits were common in the majority of individuals. There have also been further debates as to whether resilience was an inborn personality trait or a trait learned and developed over time. Bonanno stressed the clear distinction between resilience and recovery over time; Fletcher et al. (2013) emphasized the difference between resilience and a learned coping skill. Other researchers have also found resilience not as a static trait but as a dynamic process changing over time (Afifi et al., 2012).

Resilience as a Process and an Outcome

Since the 1990s, the focus of resilience studies has shifted to the process of resilience development (Fletcheret al., 2013). According to the definition of resilience by Rotter (1999) on Table 2, resilience was the phenomenon of an outcome. Nevertheless, overcoming a stress or adversity might involve a process. Ungar, Theron, and Didkowsky (2011) considered resilience to have two phases: a phase involving a

disruptive event(s) and a phase of successful resilience development using the available resources. By this definition, resilience was a process of development. Studies have shown that the presence of resilience had a positive correlation with coping ability, therapy compliance, and therapy outcome (Portzky et al., 2010). Nevertheless, not all therapies had positive outcomes. Throughout the years of debates over the definition of resilience, this definition has evolved into a process which could be taught, trained, tutored, and learned (Carr et al., 2013). It has also evolved into an outcome of a dynamic interaction between a person and his or her environment; this interaction was heavily situation-dependent; family, social support, and interpersonal relationships also played significant roles (Tran et al., 2013). The adversities studied have also evolved from a single traumatic life event to longer-term life experiences including daily hassles, lack of parental protection, inadequate family support, environmental stress, poverty, natural disasters, wars, physical illness, and the inevitable adjustments of life such as aging.

Fletcher et al. (2013) tended to confine resilience to a static inborn personality trait. However, many other researchers believed that resilience was both a personality trait and a process. For instance, Seery et al. (2010) found that individuals with moderate life adversities were the most resilient; they had better mental health and better wellbeing outcomes than those who experienced no adversity in life and those who experienced continuous or overwhelming adversities in life. They believed that "immunization" to future adversities could be developed as individuals were exposed to adversities of moderate severity. Consequently, shielding individuals from adversities completely did not benefit them in the long run; these individuals did not have the opportunity to develop

an immunization in resilience. Greene (2010) studied Holocaust survivors and found that the majority of victims used their innate and learned abilities to manage the traumatic situation. Greene believed that resilience was a process that evolved and developed over time. The majority of Holocaust victims were able to rebuild their lives, form families, establish careers, and engage in communities again; they were able to develop resilience over time. Only a minority of victims failed to overcome this trauma and developed PTSD. Greene therefore considered the presence of resilience a common phenomenon developed over time rather than a special static personality trait.

Montpetit et al. (2010) have found that the trait of resilience and the presence of protective factors were closely related to the process of resilience development. Therefore, it was not possible to make a distinction between resilience and recovery, especially for rehabilitation practitioners (White et al., 2010). A resilient character could be personality traits developed from the experience of adversity (Neff et al., 2011); this character did not have to be an inborn temperament. Resilience could also be adaptation skills learned from the experience of adversity (Greene, 2010). Therefore, before a resilient character was developed and learned, it was possible that a person went through a period of depression and presented some psychopathological symptoms. Bereavement was not a sign of a lack of resilience; it was a noble humane character of emotion. It was not possible for any normal and noble person to not undergo the process of bereavement following a major traumatic life event. In addition, Bonanno (2004) also found that not all bereaved individuals could fully recover after the period of bereavement. Nevertheless, Bonanno made a distinction between resilience and recovery based on the

difference in the course rather than the end point. If resilience was about adaptation and adjustment, resilience would inevitably encompass the process of learning and recovery (White et al., 2010). Therefore, the majority of researchers did not consider resilience as merely a static state of personality; they regarded it as a dynamic process and an outcome. Successful and complete recovery from a period of perturbation was considered a resilient outcome (Windel et al., 2010).

Bonanno et al. (2007) also identified coping strategies as distinctly different from resilience. On the other hand, other researchers deemed the ability to apply coping skills as one of the significant characteristics of resilience (Foran, Adler, McGurk, & Bliese, 2012). Individuals with high levels of resilience were found to be able to seek help from available social resources, come up with coping strategies, and apply these coping strategies to new situations. In addition, Fletcher et al. (2013) have also confined coping strategies to a narrow scope of physical adaptation. Using a wider scope, coping strategies may also incorporate the change of perspective and affect. In other words, a resilient perspective could be the outcome phenomenon of adaptation and coping skills. Seery et al. (2010) found that individuals with a history of experiencing adversity had better mental health than individuals with no history of adverse life experiences. In other words, individuals with a history of experiencing adversity developed a resilient character and learned coping skills from their past experiences; they were able to effectively apply what they had learned in the past to their future life.

According to Table 2, the definition of resilience by Fletcher et al. referred to psychological resilience as a set of inborn personality traits. However, Windel et al.

(2010) defined resilience as an ability to recover from or adjust to misfortune or change. To them, psychological resilience referred to both an internal process and an outcome. As a process, it might also encompass a period in which temporary psychopathological symptoms were present.

Even though current researchers tended to define resilience as a process and an outcome instead of a static personality trait, there have been further debates over defining resilience as a process or an outcome (Kolar, 2011). Kolar referred to this debate as the debate between the process-based approach and the outcome-based approach. The outcome-based approach often focused on the functionality of an individual after adversity. It was illustrated by a young person who presented with emotional distress as the result of adversity, yet this person demonstrated resilience through the undisturbed daily activities and the fulfillment of the usual responsibilities. The major criticism against the outcome-based approach, which defined resilience as an outcome rested upon the drawback of decontextualization. Researchers such as Kolar argued that it was not justifiable to view resilience as an outcome without looking at its process. Kolar therefore advocated the essence of the dynamic process of resilience. The process-based approach defined resilience as a dynamic process involving the interaction of a person with the environment and seemed to describe resilience the most comprehensively. It incorporated personality traits, family factors, and social supports as well as the intensity and duration of the adversities faced. It also encompassed the mechanism of resilience development and the course of its growth or weakening. In addition, Kolar (2011) argued that the outcome-based approach could be guided by the process-based approach; the

outcome automatically appeared towards the end of the process-based research. However, in the outcome-based approach, the process was completely absent. In process-based resilience research, contextual elements such as social, cultural, gender, religious, educational and many other factors could also be assessed. These factors were deemed to be significant factors in this multicultural world.

In summary, the definition of resilience has evolved over time. In the first wave of resilience studies, resilience was defined as a set of static personality traits (Wagnild, 2009). During this period, researchers argued whether resilience incorporated recovery and coping (Bonanno, 2004). In the second wave of resilience studies, researchers regarded resilience as a dynamic process that developed over time (White et al., 2010). During this period, researchers argued whether resilience was a process or an outcome (Kolar, 2011).

Conceptualization of Resilience

Derived from the definition, conceptualization discussed the abstract notions of how the subject was formed, how it functioned, and what its consequences might be (Fletcheret al., 2013). When the definition of a subject was clear, the conceptualization would be easy to grasp. However, when the definition of a subject was obscure, it was not possible to come up with a clear conceptualization. The definition of resilience did not have a clear boundary, it varied in a range; inevitably, the conceptualization of resilience has also resonated in a wide range. In the following section, I will discuss the conceptualization of resilience in three categories according to its definitions: personality

traits- the protective factors, and supportive elements- the contextual factors. The third category will be the integration of the first two categories.

Personality Traits: Protective Factors

Resilient personality and emotion as dispositional traits.

Resilience has been considered as one of the human adaptive attributes in the prevention of maladjustment towards unwanted situations since the 1970s (Huai et al., 2009). It was first studied on children growing up in an adverse environment; these environments included situations such as abusive parents, distant families, poverty, and other traumatic events (Aldwin, Cunningham, & Taylor, 2010). Despite all children being exposed to an adverse environment, some children grew up with psychological disorders, yet others survived and seemed to adapt well and live a normal life. Researchers later focused their attention to the study of the character of those individuals who survived childhood trauma (Werner, 1995). Resilience was regarded as a set of special personality traits which allowed those individuals to survive childhood traumas. Many characteristics have been found to associate with resilience; these characteristics include self-efficacy, self-esteem, self-confidence, social confidence, a sense of control, problem solving skills, curiosity, self-discipline, and intellectual functioning (Galatzer-Levy et al., 2013), hardness, and positive emotion (Bonanno, 2004). Individuals with high levels of resilience were also found to have high energy levels, an optimistic attitude, curiosity, openness, a sense of humor, and a high ability to detach and conceptualize problems (Fletcheret al., 2013). These characteristics have been considered the "protective factors" against life's adversities. If resilience was a dispositional trait, it was

a static status which a person either had or not. Furthermore, some researchers also considered resilience to be a human defense mechanism which enabled humans to thrive during times of adversary. Hardiness and toughness were the two major traits of the defense mechanism (Lee, Sudom, & McCreary, 2011).

Besides personality, intrapersonal and interpersonal emotions have also been found to be protective factors of resilience. Galatzer-Levy et al. (2013) found positive emotion to be a good indicator for predicting resilience. Since the depressed were found to hold negative views towards the self, the world, and the future (the negative cognitive triad), Mak et al. (2011) attributed the mechanism of resilience to the positive triad- the positive views toward the self, the world, and the future. The authors also believed that individuals with resilience used positive affect to bounce back; the positive affect was cultivated through the positive triad. Kinman and Grant (2011) studied 240 social worker trainees; they found that emotion was the strongest predictor for resilience; emotional and social competence explained 47% of the variance in resilience.

Resilient personality as a process.

Despite researchers such as Wagnild (2009) who considered resilience a personality trait, there were researchers who regarded resilience as a process developed over time (White et al., 2010). Even though the trait of resilience was considered part of a dispositional personality, this trait was the outcome of an interaction between a person and the environment. In adopting the concept of resilience as a dynamic process, many researchers have described resilience as flexible adaptability to changes in life (Howe, Smajdor, & Stockl, 2012). This dynamic flexible adaptability sets resilience apart from

mental toughness, psychological aloofness, and hardiness; and was believed to alter the course of trauma and bring about positive outcomes. Carson (2011) attributed resilience to be a positive adaptation rather than happiness. To these researchers, resilience was also a learning process for adopting coping strategies and skills to manage threats and troubles in life (Wong, 2011). In summary, resilience has been considered multidimensional; it was composed of dispositional attributes and psychological characteristics. It was also a complex multifaceted learning process in adaptation, which involved cognitive, behavioral, cultural, and social components. With this broad conceptualization, resilience encompassed a wide range of characteristics including intellectual functioning, cognitive flexibility, social attachment, positive self-concept, emotional regulation, positive emotions, spirituality, active coping, optimism, hope, resourcefulness, and adaptability (Herrman et al., 2011).

Furthermore, Ghimbulut et al. (2012) have successfully built resilience in individuals with unsteady emotions through cognitive and behavioral coping strategies, backed by family and social support. They therefore stressed resilience as a learning process of obtaining coping skills; they also advocated the differentiation of resilience from personality traits. The authors further categorized coping skills into three dimensions: cognitive coping, emotional coping, and behavioral coping. Cognition, emotion, and behavior were the three dimensions of resilience. According to Ghimbulut et al., resilience could be built in any person regardless of his or her personality traits since resilience could be built through cognitive, emotional, and behavioral coping strategies; and buttressed by family and social support.

Environmental Elements: Supporting Factors

Besides the intrapersonal characteristics mentioned in the previous section, interpersonal variables, such as attachment style, family relationships, and other interpersonal relationships, have also been found to play significant roles in resilience (Lee et al., 2013). In addition, contextual factors, such as family stability, school, community support, socioeconomic environment, government regulations, religion, and cultural factors; have been found to contribute to resilience. Studying Holocaust victims, Greene (2010) found that almost all individuals (97%) successfully overcame the trauma experience and retained good memories of their families. In Greene's study, a participant even related that his or her whole life was nurtured by his or her childhood. A qualitative study by Gonzales et al. (2012) on men who have experienced parental violence during childhood discovered that contextual factors of a safe relationship with caring adults outside the family, academic achievement, church activities, and participation in extracurricular sports had a positive influence in the development of resilience in males. However, contextual factors of religion, spiritual belief, and social support were important for resilience development in females with experiences of childhood violence. Nevertheless, Gonzales et al. also attributed the presence of personality traits of cognitive ability, easy temperament, a sense of humor, empathy, and compassion to the development of resilience. deTychey, Lighezzolo-Alnot, Claudon, Garnier, and Demogeot, (2012) found that children who grew up with a "resilient model" tended to become resilient regardless of their experiences with childhood adversity. Waaktaar et al. (2012) performed a study on 2,638 adolescent twins in 1,394 families; they identified the

relative impact of genetic and environmental causes on variation in resilience. They found that genetic factors accounted for 78% of resilience in male adolescents and 70% in female adolescents. The remaining 22% of resilience in male adolescents and 30% in female adolescents could be explained by environmental factors, including family, school, and social support.

In contrast to the majority of researchers, Afifi et al.(2011) considered contextual supportive factors to be protective factors as well; they categorized protective factors into three different levels: the individual level, the family level, and the community level. Similar to the majority of researchers, Afifi et al. attributed protective factors at the individual level to the trait of resilience. Protective factors at the family level included family cohesion, stable care-giving, parental relationships, and spousal support. Protective factors at the community level included peer relationships, non-family member relationships, non-family member social support, and religion. According to the authors, their study showed that protective factors at a family level were consistently linked to resilience building in children with a history of childhood maltreatment. The strongest two protective factors at the family level were the family environment and supportive relationships.

Generally speaking, there were three alternatives humans often adopted when they encountered adversities: problem solving, social support seeking, and avoidance (Li & Nishikawa, 2012). Individuals who adopted avoidance as a way to respond to adversities often ended up with alcohol and/or substance use and social withdrawal, which were considered maladaptive responses. Li et al. referred to the other two

alternatives as active coping. In their study, Li et al. found that trait resilience only accounted for 8.8 % of the variance in active coping for college students in Taiwan and 2.3% of the variance in active coping for US college students. The authors explained the rest of the variance by the presence of other factors, such as cognitive flexibility and social support.

Integration of Multidimensional Factors

While the definition of resilience was evolving, the conceptualization of resilience has become multidimensional and studies of resilience encompassed a wide range of disciplines including psychology, sociology, education, biology, genetics, epigenetics, neuroscience, and endocrinology (Herrman et al., 2011). Resilience is complicated. Generally speaking, three categories of factors have been identified as affecting resilience: protective factors, risk factors, and contextual factors. Protective factors were referred to as personality traits, the ability to adapt, the ability to use coping strategies, and demographic information, such as age, gender, intellectual level, and ethnic background. Simpson et al. (2013) failed to identify any correlation between resilience development and the severity of the impairment in their rehabilitation practice. In other words, the impairment could be a risk factor yet the severity of the impairment was not. Contextual factors included family relationships, personal relationships with others, socioeconomic background, and social support. Nevertheless, none of these three factors were independent of the others. A meta-analytic study of Lee et al. (2013) on these three factors found that the largest effects of resilience were derived from the protective factors- personality traits, the medium effects were derived from the risk factors- the

situation; and the smallest effects were derived from demographic factors- sex, age, and education level.

Different studies have reported different results with regards to the effect of demographic factors on resilience. Some studies reported males to be more resilient than females (Galligan, Barnett, Brennan, & Israel, 2010) yet others reported females to be more resilient (Romer, Ravitch, Tom, Merrell, & Wesley, 2011). Actually, males and females had different resilient characteristics (Galatzer-Levy et al., 2013); males had a stronger sense of control yet females had better interpersonal relationships and made better use of social resources. Some studies reported that the young were more resilient than the old (Li et al., 2012) yet others failed to identify any difference (Hjemdal, Friborg, & Stiles, 2012; Portzky et al., 2010). In fact, younger and older adults had different resilience traits (Gooding et al., 2012). Young adults had a stronger sense of control and social support yet older adults had better emotional regulation and problem solving skills. Therefore, the items in demographic studies of resilience affected results significantly. Lee et al. (2013) concluded that it was more important to develop positive resilience characteristics than to remove negative elements in life because these factors lasted over time. There were also researchers who believed that the contextual factors of social support and community resources were secondary to intrapersonal factors (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). Friborg et al. found that individuals with personalities that included openness, extroversion, agreeableness, low neuroticism, and conscientiousness often had a higher capacity for developing healthy social relationships, were willing to seek help, and were able to use social resources

effectively. Findings by these authors were all in agreement: building intrapersonal characteristics was most significant in the development of resilience.

Generally speaking, most researchers held the conceptualization that resilience was a dynamic, multidimensional, and integrative interaction of a person with their environment following a disruption (Connoret al., 2003). There were four possible outcomes of this interaction: resilience reintegration, homeostatic reintegration, reintegration with loss, and dysfunctional reintegration. Resilience reintegration meant that the disruption became an opportunity for growth and resilience building; the outcome of this disruption was a new and higher level of homeostasis. This process was an introspective experience. Individuals found meaning, purpose, and a better mastery of life during this process (Zautra et al., 2010). During the process, individuals appraised the situation, accessed their strengths to manage the situation, and anticipated growth and learning in understanding, maturity, and life experience. Resilient characteristics were built and nurtured and life progression could be the result of a number of disruptions. Bonanno et al. (2012) referred to this outcome as resilience.

Homeostatic reintegration referred to a return to the baseline homeostasis. Individuals engaged in this process sought for the return to homeostasis. In other words, individuals desired to "get it over with" rather than seeking to gain something positive from the experience. Connor et al. (2003) regarded that a stagnant life could be the result of individuals adhering to homeostasis. Bonanno et al. attributed homeostatic reintegration to recovery.

Reintegration with a loss denoted recovery with loss, an outcome that resulted in a lower level of homeostasis. In this process, individuals gave up some hope, motivation, expectation, or confidence in response to the demands placed by an adverse experience. Regression to an earlier stage in life could be the ultimate result after a number of disruptions. Bonanno et al. attributed reintegration with loss to delayed distress.

Dysfunctional reintegration indicated that maladaptive strategies and skills were used to cope with the disruption and the ultimate outcome was a dysfunctional state. Bonanno et al. attributed dysfunctional reintegration to chronic dysfunction. Individuals engaged in this process often used substances, partook in destructive behaviors, or used other chaotic means to respond to disruptions. It was believed that individuals adopting destructive or chaotic means to respond to life's prompts were individuals incapable of introspection. Psychological intervention might be needed to train them in introspection skills (Richardson, 2002).

Theories of Resilience

With the definition and concepts of resilience determined, theories regarding resilience explained and predicted the interrelationship between and among concepts (Fletcheret al., 2013). There have been many discrepancies in the definition and conceptualization of resilience; therefore, theories of resilience had to cover a large area.

In the first wave of resilience research, researchers examined the characteristics of individuals who overcame adversities successfully; they studied the presence of protective factors (Bonanno, 2004). At this time, resilience was considered a static personal trait and resilience theories at this time appeared to be lineal (Wagnildet al.,

2009). In the second wave of resilience studies, some researchers also sought to integrate successful coping skills in the context of adversity into resilience. Resilience was therefore studied within the social context (Gonzales et al., 2012). In the third wave of resilience studies, researchers looked for the motivational force within each individual which drove that individual to self-actualization in life. Resilience became a learning process and could be developed over time (White et al., 2010). Currently, the majority of theories maintained that resilience was a dynamic process which changed over time (Kolar, 2011). In the fourth wave of resilience studies, researchers integrated all of the definitions and concepts; complicated theoretical models were constructed as the result.

Resilience as a Personality Trait

Researchers who upheld the theory of resilience as a personality trait examined resilient characteristics in comparison with the Big Five personality theory (Lee et al., 2013; Waaktaaret al., 2010). Lee et al. successfully developed resilience theory as a personality trait by identifying the correlation of resilience traits with the personality traits of openness, extroversion, agreeableness, steady mood (low neuroticism), and conscientiousness. Waaktaar et al. even considered the Big Five Personality Scale a better predictor of resilience than the Resilience Scale. Hjemdal et al. (2012) have also successfully correlated the resilience assessment, the Resilience Scale for Adult (RSA), with the personality trait assessment NEO-PI-R. They found a strong correlation between the RSA score and personality traits of openness, extraversion, conscientiousness, and low neuroticism as assessed by NEO-PI-R. However, Ghimbulut et al., (2012) found it possible to build resilience in adolescents with unsteady emotions

through the cognitive adaptation of coping strategies. Steady mood (low in neuroticism) has been identified as the personality trait with the strongest correlation with resilience (Kinman et al., 2011). If it was possible to build resilience in individuals with neuroticism personality trait, it would be even more likely that resilience could be built in individuals with personality traits low in openness, extroversion, agreeableness, or conscientiousness. Therefore, the building of resilience could be accomplished in individuals with any personality traits. In contrast, when considering resilience as an adaptation developed over a process (White et al., 2010), the personality traits of an individual would not be a determining factor for resilience development.

Resilience as an Interaction of a Person with the Environment

The concept of humans as active contributors to their life circumstances rather than the passive powerless products dictated by their environments was first coined by Bandura (2006). Social cognitive theory rejected the dichotomous dualism between humans and their environment. Humans actively created social systems; in turn, social systems organized and influenced humans. Bandura's Agentic Theory of Human Development (2006) further maintained that humans could create their future through cognitive self-regulation focused on the present. By constructing, evaluating, modifying, and re-evaluating alternative courses humans were able to override environmental influences. Humans were agents of their experiences, not merely undergoers of those experiences.

During the second wave of resilience research, which started in the early 1990s, researchers focused on the mechanism and process of the formation of protective factors.

The framework of resilience model (FRM) was a metatheoretical model of resilience; it described the interaction between individuals and environmental/situational factors (Catalano et al., 2011). Resilience was the positive outcome of this interaction. In this model, environmental stressors disrupted an individual's state of homeostasis and created a state of disequilibrium. This disrupted state could cause either a brief disorganization or a prolonged disorganization expressed on a psychological level, a behavioral level, or a somatic level. The individual then engaged in the process of resilience in order to find a new equilibrium. According to FRM, this process of resilience included perception, cognitive appraisal, interpretation of the stressors, cognitive construct of coping strategies, and behaviors in coping with the environment/situation. According to Catalano et al. (2011) there were two categories of coping strategies: problem-focused strategies and emotion-focused strategies. Problem-focused strategies could be used when the stressors were removable. However, emotion-focused strategies were considered better strategies when the stressors could not be removed. The goal of emotion-focused strategies was to lessen the emotional distress associated with life's adversities. This process of resilience was a dynamic multidimensional evaluation and reevaluation of the adjustment to the new environment/situation. The success of this process resulted in adaptation to the new environment/situation without the presence of disruptive emotions, such as a depressive disorder or an anxiety disorder.

FRM did not consider resilience to be a particularly extraordinary personality trait, but to be the result of ordinary human interaction with environmental stressors. Catalano et al. (2011) found that the presence of coping strategies predicted outcomes better than

particular personality traits in patients with a spinal cord injury. They also failed to identify any correlation between stressors and resilience; instead, they found a correlation between the perception of a stressor and resilience. In other words, stressors had to be internally perceived as threats before they became stressors. Encountering the same stressor, some individuals might perceive it as a stressor, some might perceive it as a natural incidence, yet others might perceive it as a challenge. With different perception, individuals reacted differently. deTychey et al. (2012) found that a set of twin girls experiencing the same multiple cumulative traumatic events exhibited opposite adaptations. From the psychoanalytic view point, trauma was linked to a person's internal world, his or her sexuality, and his or her subconscious fantasy. deTychey et al. therefore advocated that only the psychoanalytic approach was able to disclose a person's internalization of the trauma and the process of resilience.

Yeung, Arewasikporn, and Zautra, (2012) used a two-factor model to describe resilience in individuals with chronic pain: the stable resources and the modifiable state which varied over time. There was a dynamic interaction between these two factors: the stable resources might affect the modifiable state; and vice versa the modifiable state might also affect the stable resources when the modifiable state lasted overtime. This two-factor model was parallel to the model describing intrapersonal factors and interpersonal factors. The intrapersonal factors were expressed as the stable resources in this two factor model and the interpersonal factors were the modifiable state. Intrapersonal factors might affect the interpersonal factors and the interpersonal factors

could also affect the intrapersonal factors especially when the interpersonal factors lasted over a period of time.

In the fourth wave of resilience studies, researchers integrated all of the definitions and concepts of resilience; resilience models became complicated and multidimensional. Maring, Malik, and Wallen (2012) developed a complicated model of resilience in drug abusers. Their model included five subsystems: individual, microsystem, mesosystem, exosystem, and macrosystem. The individual subsystem included genotype, development, personality traits, education, and personal choices in seeking help. The microsystem included family, school, and friends with which an individual had frequent contact and interaction with on a daily basis. The mesosystem included community, health system, social service and others. The exosystem included socioeconomic structure and religious environment which affected a person in a non-perceivable way. The macrosystem included cultural and political orientation which affected a person inescapably and heavily. Humans were complicated and human societies were even more complicated. However, it was worth pondering if it was possible or imperative to incorporate every element directly or indirectly affecting a person in order to assess resilience or to build resilience in a person. According to quantum mechanics, everything was connected to everything else. In order to access a person's resilience, the whole world had to become involved.

Keenan (2010) developed a comprehensive pathway for understanding resilience based on the principle of the dynamic system theory (DST). DST viewed resilience as a process and an overall outcome in an individual with a history of interaction with the

current internal and external processes, the positive and negative responses, and the circular causality. In this model, complicated issues such as a person's unique internal process, cultural, a person's cognitive and emotional rigidity or flexibility, and continual evaluation of response and feedback were all taken into account.

In summary, the definition, conceptualization, and theories of resilience have evolved from static personality traits to the dynamic process of human interaction with their environment to a complicated multidimensional interaction involving intrapersonal cognition, affect, and behavior as well as contextual elements including family, school, community, socioeconomic, political, and governmental policies and situation. As the definition, conceptualization, and theory of resilience are constantly evolving, the assessment of resilience also needs to evolve; it must evolve from the measurement of static personality traits to the assessment of the dynamic process of resilience development which includes intrapersonal characteristics and contextual factors.

Culture and Resilience

Besides the debates over the definition, conceptualization, and theory of resilience; the phenomenon of resilience has also raised debates. Ungar (2010) argued that the signs of resilience have been Western-oriented. The phenomenon of resilience has never been culture-free. To assess resilience in students, school performance was a significant item under evaluation; and to assess military personnel, regaining the courage to return to war was a significant item (Fletcheret al., 2013). As early as the mid 20th century, Beilin and Werner (1957) noted that male high school teachers and female teachers used different criteria to measure students' adjustment. Male teachers tended to value maturity, good

judgment, dependability, and trustworthiness; they were more inclined to rate the students with secure personalities and a lack of self-consciousness as the best-adjusted students. They focused on personality and emotional adjustment. However, female high school teachers were more inclined to value good characteristics, such as modesty and humility, as signs of healthy adjustment; they perceived hostility, disrespect for authority, negativism, and a lack of discipline as signs of maladjustment. Female teachers emphasized characteristics as signs of good or poor adjustment.

Pain is subjective and personal; so are resilience and the building of resilience. After decades of debates over the definition and conceptualization of resilience, it has been generally accepted that contextual factors play a significant role in resilience and the building of resilience. However, the weight lent by contextual factors might be different in individuals of different cultural, educational, and historical backgrounds, in individuals of different sexes, and in individuals of different ages. Contextual factors weighed more heavily in females than in males in the development of resilience (Friborg et al., 2003; Jowkar, Friborg, & Hjemdal, 2010), more in adolescents than in the elderly, and more in individuals of collective cultures than in individuals of individualistic cultures (Li et al., 2012). Males tended to be high in trait resilience, yet females tended to use social resources better (Galatzer-Levy et al., 2013). Li et al. (2012) found that college students in Taiwan had a greater tendency to use social support in comparison to college students in the US. The authors attributed this difference to the influence of a collective culture versus an individualistic culture. In an individualistic culture, individuals tend to resolve their problems independently. Individual resilience might also take the form of, and be

subject to, cultural resilience in times when the indigenous people were colonized and subjugated by other peoples (Kirmayer et al., 2011). In this situation, individual resilience could not be independent of culture validation. In addition, resilience could not be independent of value either; yet value was greatly affected and determined by culture. Therefore, Woodier (2011) argued that building resilience was the building of a person's value. When a person's value was built, this person might exert his or her inner strength and became resilient. Value was culturally sensitive and dependent; so was resilience.

Even though pain and resilience were subjective and culturally sensitive, the leading cross-cultural resilience studies (Gonzales et al., 2012; Hjemdal et al., 2011; Lee et al., 2013) have reached a consensus and identified three overarching characteristics of resilience: individual positive traits, family support and cohesion, and contextual support systems outside of the family.

Building of Resilience

In the third wave of resilience studies, researchers focused on the application of resilience to individuals at risk or who had experienced traumatic events. Researchers who believed that resilience could be built did not consider resilience to be merely a particular set of static dispositional characteristics. Instead, they regarded resilience to be a process which could be learned and taught and could bring about positive outcomes (White et al., 2010). Similar to exercise building a stronger muscle, Neff et al. (2011) found that success in marriage had no correlation with an excellent relationship prior to marriage; it was correlated with the presence of resilience, characterized by cognitive flexibility. They also found that exercising self-regulation under stress could build

stronger resilience. Similar to the production of antibodies through inoculation by exposure to a weakened form of illness, they believed that resilience could also be built through practice by exposure to moderate stress. Nevertheless, resources for the building of resilience had to be provided. Even though Grafton et al. (2010) considered resilience to be intrapersonal traits, they believed that these traits could be developed and enhanced through cognitive transformational practice, education, and environmental support. Building resilience was not a matter of methodology; it was the outcome of understanding resilience (Woodier, 2010). However, just as the definition, theory, and conceptualization of resilience have varied in a range, the building of resilience has also encompassed a large area, from government policy, social support, community services, in-job training, predeployment training, and school-based prevention and intervention to individual counseling and therapy (Herrman et al., 2011).

Cognitive behavior therapy (CBT) has been found to be effective in treating many psychological disorders, such as depression, anxiety disorders, chronic pain, and sleep disorders, by identifying and correcting negative thoughts and cognitive distortion (Gould, Coulson, & Howard, 2012). Since the rise of positive psychology, researchers have been excited to extend the use of CBT from correcting negative cognition to building positive human traits such as happiness, courage, and resilience (Padesky & Mooney, 2012). Padesky et al. advocated the use of CBT not merely for the removal of the distorted cognition blocking resilience but also for the construct of resilient beliefs and cognition. The authors referred to this positive focus of CBT as strength-based CBT. Padesky et al. used a four-step strength-based CBT to help clients build resilience. Their four steps

were: identifying personal strengths, constructing a personal model of resilience (PMR) through the use of imagery and client-generated metaphors, developing a plan by using this PMR in the area of difficulty, and practicing resilience. The authors believed that these four steps could be used to develop other positive traits as well.

Resilience could be built through CBT by changing the perception of adversity and adapting coping strategies. Many psychological problems have been referred to as results of "poor coping"; CBT has been proven as an effective psychological intervention to transform poor coping into effective coping. Songprakun et al. (2012) have shown that the CBT intervention of bibliotherapy[1] increased resilience scores by increasing scores in protective factors and coping abilities. Ghimbulut et al. (2012) have also shown that compensatory coping strategies including cognitive strategies, emotional strategies, and behavioral strategies helped build resilience in emotionally unstable adolescents and in individuals with dependent personality disorders. In addition to intrapersonal compensatory coping strategies, family and social support have been found to be helpful in building resilience (Maring et al., 2012).

Besides CBT, other psychological interventions have also been proven to be as effective in building resilience. Acceptance, mindfulness, contact with the present moment, cognitive defusion, self-as context, value, committed action, and an ability to engage in purpose-oriented actions were considered markers of psychological flexibility

[1] Bibliotherapy was an active self-help material for the purpose to provide information, generate insight, stimulate discussion, create awareness of others' problems, provide solution to others' problems, and trouble shoot problems in everyday life. Regarding depression, bibliotherapy provides a basic framework including exercises to help readers to overcome negative feelings.

(McCracken, Vowles, & Zhao-O'Brien, 2010). Acceptance and Commitment Therapy (ACT) focused on some of these aspects of psychological flexibility including acceptance, contact with the present moment, committed action, and the ability to engage in purpose-oriented actions. Therefore, McCracken et al. found that ACT could be used to build resilience through building psychological flexibility. Mindfulness focused on the aspects of acceptance, mindfulness, contact with the present moment, and cognitive diffusion. Therefore, mindfulness-based CBT has also been used successfully by Semple, Lee, Rosa, and Miller (2010) in children to enhance social emotional resilience, which in time builds up general resilience.

Casual (2010) used metaphors to "reawaken" resiliency in patients with a history of trauma. The author believed that metaphors induced mental elasticity and loosened cognitive and emotional rigidity by opening a new path beyond enigma. Metaphors also provided exercises in mental creativity and vitality. The metaphors Casual used were meant to communicate the essence of acceptance of reality, control of emotion, a sense of responsibility, self-determination, confidence, compassion, and altruism. These essences were the essential characteristics of resilience.

Flexibility, Creativity, Perception, and Resilience

Positive psychology has emphasized the "positive" domain in life which was neglected in the past (Park, 2005). However, positive domain and negative domain were not distinctly separate domains in human life; they often had great overlapping and interconnected areas in life (Zautra et al., 2010). Guilt and regret were regarded as negative emotions; however, they often brought about positive outcomes (Mak et al., 2011). Arrogance and self-centeredness felt good; nevertheless, they often led to

negative human relationships. Natural disasters caused material loss yet sparked the human virtue of compassion. Wealth provided a luxurious life style yet often nullified motivation in the pursuit of betterment; individuals with wealth may also become prey for crime. In addition, the absence of positive elements in life could become a negative experience even without the presence of negative events. However, the presence of a strong positive element in life might override plenty of negative experiences. Most of all, the best human virtues often emerged during the most catastrophic times. "It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair." (Dickens, 1859). Light appeared to be the brightest when placed in the context of complete darkness. Love exerted its greatest radiance when great sacrifice was rendered. The dichotomous thoughts of black-or-white, right-or-wrong, and good-or-bad have been considered superficial, ignorant, rigid, and problematic. Furthermore, cognitive inflexibility was found to be associated with rumination and depression, this maladaptive cognitive pattern focused on and was absorbed by the negative aspects of events or life (Genet & Siemer, 2011).

Often times, human life was inevitably interwoven with both positive experiences and negative experiences (Waugh et al., 2011). In other words, negative experience and positive experience could coexist. A life with struggle could be a life of hope and excitement; yet a smooth and easy life could be a life of boredom and with no challenge. Therefore, cognitive flexibility in appraising situations with intertwined positive and negative features and in processing this intertwined information was significant in

approaching the reality of life. Waugh et al. (2011) found that individuals with higher level of psychological flexibility were capable of applying coping strategies in various situations better and experienced less stress in unexpected situations. These individuals were also able to process intertwined information even under stress. They were able to perceive both positive and negative events when under stress. They were also able to acknowledge both positive and negative experiences when both were present; they responded positively to positive events and negatively to negative events. In other words, resilient individuals with cognitive flexibility were not ignorantly optimistic; nor were they staggered by negative events. However, individuals with low levels of resilience were not able to process intertwined information when under stress; they were not able to perceive the positive domain when under stress. As the result, they become overwhelmed by the presence of a stressor or a negative event (Zautra et al., 2010).

Studies have shown that positive affect increased cognitive flexibility and broadened cognitive attention, which led to resilience (Genet et al., 2011). Ego-resilience referred to individuals with cognitive flexibility; these individuals were capable of flexibly deploying cognitive, social, and emotional resources in response to the change in environmental demands. Genet et al. theorized that two processes were involved in cognitive flexibility: inhibition and shifting. In the process of inhibition, the individual was able to override the preeminent powerful thoughts or emotions brought about by adversity. In the process of shifting, the individual was able to switch and disengage focus, thought, perspective, and attention from adversity. Individuals unable to engage in the process of inhibition and shifting, individuals often resulted in rumination and became overwhelmed by adversities.

Galatzer-Levy et al. (2012) defined cognitive flexibility as the ability to both focus on, and focus away, from life's adversities. In other words, individuals with cognitive flexibility were able to attach and detach. Cognitive flexibility was considered one of the resilience traits which enabled a person to view adversities from a different perspective (Li et al., 2012). When viewing adversity from a different perspective, a person is often able to see alternatives, hope, opportunities, and positive possibilities. Genet et al. (2012) have found that cognitive flexibility and flexible affective processing were unique factors in determining trait resilience. Cognitive flexibility was found to be linked to emotional regulation. Inversely, cognitive inflexibility was found to be associated with depression and rumination- the result of emotion dysregulation. With cognitive flexibility, an individual was able to learn strategies for managing new situations and to adapt to new situations (Yadav, Alreja, Sengar, & Singh, 2011). "Even though I walk through the valley of the shadow of death, I will fear no evil, for you are with me; your rod and your staff, they comfort me. You prepare a table before me in the presence of my enemies." (Psalm 23:4-5a, New International Version) Taking a different perspective, the Psalmist was able to see comfort, protection, guidance, and provision in the midst of danger. With comfort, protection, guidance, and provision in view, the Psalmist was able to overcome his fear regardless of the presence of danger.

Resilience was about adaptation and adjustment. According to Waugh et al. (2011), psychological flexibility was expressed in the form of emotional flexibility. Cognitive flexibility resulted in emotional flexibility. With cognitive flexibility, individuals with high resilience were able to experience and express both positive emotions and negative emotions in a time of adversity with the presence of positive

events. Waugh et al. illustrated this through an example in which hurricane victims with cognitive flexibility and high resilience were able to experience and express both positive emotions of love, care, hope, and appreciation as well as negative emotions of sadness, worry, and fear while receiving social help. However, Waugh et al. also found that individuals with cognitive rigidity and low resilience were not able to experience or express positive emotions at a time of adversity even with the presence of plenty positive events. Depressive individuals were not able to experience or express positive emotions even with the presence of many positive events; they appeared to be emotionally blunt.

Westphal, Seivert, and Bonanno (2010) attributed adaptation to the flexible regulation of emotions according to different situational demands, rather than to any particular expressive regulation strategy. They found that flexibility in emotional regulation had a positive correlation with adaptation; and emotional flexibility predicted adaptation better. Flexibility in emotional expression referred to flexibility in the expression and the inhibition of emotional expression depending on the situation, rather than simply expression or inhibition of emotion. In other words, individuals with emotional flexibility were able to express their emotions, or not to express their emotions, depending on the appropriateness of the situations. They were capable of managing their emotions, rather than being driven by their emotions.

Psychological flexibility referred to six characteristics: acceptance, contact with the present moment, cognitive defusion, self-as context, value, and committed action (McCracken et al., 2010). Even though mindfulness was not one of the characteristics of psychological flexibility, it was the outcome of the first four characteristics of psychological flexibility. Individuals with psychological flexibility could easily engage

in behaviors of acceptance and mindfulness, and had the ability to take purpose-oriented actions. Javors (2010) trained clients experiencing financial difficulty to view life from a different perspective which helped her clients to gain resilience through psychological flexibility.

Resilience was not merely the ability of a person to passively cope with adversities and respond to new demands in life; a person with resilience was also able to make use of the available resources to actively create a new environment (Jowkar et al., 2010). Creativity was the ability to envision new possibilities, inspiration, and transformation in the face of adversity. It has been found that creativity in expression played a significant role in the resilience of Holocaust survivors (Corley, 2010). Obviously, individuals with creativity were often individuals with resilience.

Researchers believed that cognitive appraisal systems assessing adversity played an important role in influencing the coping process of an individual (Li et al., 2012). This cognitive appraisal system was related to perception. Therefore, perception-related traits such as trait resilience, self-efficacy, and secure attachment could be used to predict an individual's active coping style. Self-efficacy was the positive perception that oneself was able to manage adversity. According to Li et al.'s study on college students in the US and in Taiwan (2012), self-efficacy accounted for the majority of trait resilience (more than 50%); and was independent of cultural background. Secure attachment was a positive perception of others' acceptance towards oneself and others' responsiveness. Individuals with secure attachments tended to seek help from others when in need. Individuals with high resilience levels tended to have a positive view of stressful situations, take on challenges in life, and adapt active coping strategies. Positive

perceptions of oneself, others, others acceptance towards oneself, and stressful situations played significant roles in resilience. Individuals with positive perceptions tended to cope with adversities actively; they were the resilient individuals.

Application of Resilience

The third wave of resilience research focused on the development of prevention and intervention strategies, and social policies for individuals at high risk. In other words, the third wave of resilience research focused on the application of the concept and theories of resilience. Resilience had a positive correlation with life satisfaction and a negative correlation with many psychological disorders, such as depression, anxiety, and somatization (Scali et al., 2012). Negative feelings of fear, anger, and despair were also inversely correlated with resilience (Galatzer-levy et al., 2013). Resilience explained why some individuals were able to cope and adapt well following traumatic events, yet others collapsed (White et al., 2010). In other words, resilience could be applied to all the psychological disorders it had negative correlations with and could be used to facilitate all of the positive features in human life which it had positive correlations with. Resilience, of course, was beneficial to individuals with depression (Songprakun et al., 2012) and to individuals going through life traumatic events.

Concepts of resilience have been widely used in positive psychology and salutogenesis (health seeking behavior). They have also been used in coaching stress management and human wellbeing. Howe et al. (2012) advocated the use of resilience in training medical professionals because they believed that resilience characteristics were important for clinical leaders who were constantly managing stressful situations. They also advocated further research and study in the application of resilience to education and

the development of resilience characteristics during adulthood. White et al. (2010) found that resilience was positively correlated with satisfaction with life and spirituality; and negatively correlated with depressive symptoms after spinal cord injury. The authors believed that resilience could be learned and developed by almost everyone. White et al. therefore advocated that future studies focusing on the factors which predict resilience would help build resilience and would further help with improving rehabilitation outcome.

West, Stewart, Foster, and Usher (2012) have applied the concept of resilience to individuals experiencing chronic pain. To this population, resilience meant accepting the reality of pain, recognizing personal strength, identifying positive elements in life, and learning to accept help from others. Neff et al. (2011) also applied the theory of resilience to marriage. They found that a good relationship prior to marriage did not guarantee satisfaction in marriage; however, resilience characteristics of flexibility, adaptation, adjustment, and the ability to manage stress had a positive correlation with satisfaction in marriage. Nevertheless, Carr et al., (2013) found that the resilience scales for troops deployed to Afghanistan declined after their return to the US, regardless of the prophylactic resilience training used prior to their deployment. However, it was possible that the decline was less prominent in those deployed troops who received the training as compared to those who did not. Combat experience was an intensified traumatic experience. It was not possible for prophylactic resilience training to prevent combat traumatization completely; nevertheless, these results did not imply that the prophylactic resilience training was of no value. Foran et al. (2012) have found resilience training to be effective in the reduction of postdeployment adjustment among military personnel.

They also found that both the contents of training and the perceived training process were important in obtaining a positive outcome from training.

Positive psychology commenced a paradigm shift in psychological research and intervention as the world marched towards the new millennium. Researchers and clinicians switched their focus from the correction of the negative features in life to the instillation of positive elements. This new paradigm could be referred to as positive psychology, strength-based therapy, human wellness, or resilience-focused treatment. Clinically, there have been resilience-oriented treatments for posttraumatic stress disorders (Kent, Davis, Stark, & Stewart, 2011) and resilient-focused brief family therapy (Nicoll, 2011). Both treatments focused on instilling positive resilience traits and activities rather than focusing on the correction of the negative symptoms. Both treatments have demonstrated positive results. The purpose of intervention was to bring about a positive outcome. Obviously, building positive and resilience characteristics in a person would bring about a positive outcome, which achieved a higher purpose than the mere therapeutic outcome. A person with positive and resilient characteristics would be able to manage future traumatic events in life; merely achieving the therapeutic outcome does not guarantee any individual would be able to manage future traumatic events in life. In addition, Zautra et al. (2010) further advocated a resilience-based approach in social science research to promote human wellbeing. If this 21st century is a century of positive psychology; one of the major avenues in the promotion of human wellbeing is through building resilience.

Assessments of Resilience

Assessments of resilience did not merely measure intrapersonal and interpersonal protective factors and contextual factors, but also explained and predicted resilience in individuals. Assessment of resilience may help in the development of preventive and intervention programs as well (Afifi et al., 2012). However, as the definition, conceptualization, and theory of resilience varied in a wide range; the assessment of resilience, inevitably, also varied and had to cover a large area with multiple dimensions.

To researchers who considered resilience to be a personality trait, resilience had to be assessed by certain personality characteristics. Since resilient characteristics were in accordance with the Big Five Personality traits, Waaktaar et al. (2010) promoted the use of the Five Factor Model in personality in order to predict resilience. To researchers who considered external supportive factors as protective against stressors, contextual factors must be measured in the assessment. Yet to researchers who believed resilience was an outcome then performance, behavior, emotion, and academic achievement had to be assessed. Resilient children who have been exposed to maltreatment demonstrated academic competency, emotional competency, social competency, and behavioral competency (Afifi et al., 2012). These criteria of competency have become the basis of resilience assessment for children with experience of maltreatment. Some individuals showed resilience in certain domains, yet failed to demonstrate resilience in other domains. Therefore, resilience assessment in multiple domains (such as social, academic, physical, cognitive, emotional, and behavioral domains) was necessary. There were also researchers who believed resilience had multidimensional features; it was an interaction of an individual with the environment (Hjemdal et al., 2011). To these researchers,

resilience had to be assessed by a combination of personality traits, contextual factors, and performance. Nevertheless, there were also researchers who did not believe resilience could be measured directly; they considered that resilience could only be inferred by evaluating the risk factors present and the positive adaptation which occurred following a traumatic event (Scali et al., 2012).

According to the original Latin verb *resilir*, resilience had two phases: the stressed phase and the bounce-back phase. Therefore, Boker, Montpetit, Hunter, and Bergeman (2010) maintained that theoretical models for resilience had to incorporate the assessment of the bending course due to adversity as well as the bounce-back course prompted by resilience. The authors suggested two assessment sets: a short term assessment after an adversity experience measuring the bending, or the disequilibrium state, and a long term assessment measuring the bounce-back phase of resilience. However, there is yet to be assessment available which measures these two phases. Currently, the majority of researchers tended to consider resilience to be a dynamic process of elasticity and bouncing back from stress, or the reinstitution of equilibrium. However, there has been no assessment which measures the dynamic nature of resilience either. At present, there are two types of quantitative resilience scales used: the assessment of personality traits relevant to resilience (Connor et al., 2003), and the integration of dispositional traits and contextual factors (Friborg et al., 2003). These assessments are self-reported scores.

Quantitative Objective Assessments

Currently there are a number of resilience assessments. The commonly used assessments include the five-factor Connor-Davidson Resilience Scale (Connor et al.,

2003), the two-factor Resilience Scale (Wagnild & Young, 1993), the six-factor Resilience Scale for Adults (Friborg et al., 2003), and the five-factor Resilience Scale for Adolescents (Hjemdal et al., 2006). Among these assessments, none of them has proved a better standard than the others (Jowkar et al., 2012). These assessments are all quantitative measurements; to date, there is no subjective projective assessment for resilience. Table 3 provides a brief overview of the commonly used quantitative resilience assessments.

Table 3

A Brief Review of Commonly Used Quantitative Resilience Assessments

Assessment	Factor(s) assessed	Developers
Connor-Davidson Resilience Scale- 10	Adaptability	Connor and Davidson
Resilience Scale	Acceptance of self and life, and self-competence	Wagnild and Young
Resilience Scale for Adult	Perception of self, social competence, structured style, family cohesion, social resources, and future planning	Friborg, Hjemdal, Rosenvinge, and Martinussen
Resilience Scale for Adolescent	Personal competence, social competence, structured style, family cohesion, and social resources	Hjemdal, Friborg, Stiles, Rosenvinge, and Martinussen

The Connor-Davidson Resilience Scale.

Connor et al. (2003) developed the Connor-Davidson Resilience Scale (CD-RISC) by collecting the resilience characteristics of Sir Edward Shackleton, Kobasa's work on hardiness, Rutter's work on self-competence, and Lyon's resilient patients. Among the several measurements of resilience currently available, the CD-RISC is the most well validated measurement of resilience. It is a self-administered scale, a self-evaluation of

prior experience. The original CD-RISC has 25 items with a Likert scale from zero (*not true at all*) to four (*true nearly all time*) points assigned for each item. The total score falls in the range of zero to 100. The higher point a person scores, the more resilient this person is. The psychometric properties of the CD-RISC are high in internal consistency, test-retest reliability, and convergent and divergent validity in the general population, primary care outpatients, psychiatric inpatients, and clinical trial patients in the U.S. as well as in many other countries. .

The CD-RISC was first designed as a multidimentional assessment with five factors corresponding to personal competency, high standards, and tenacity; confidence in one's instincts, tolerance of the negative elements in life, and the strengthening effect of stress; a positive attitude in accepting changes and secure relationships; control, and spirituality (Scali et al., 2012). Later studies in other groups of individuals with different ages and cultures found instability in this multidimensional structure (Jowkar et al., 2010). Manzano-Garcia et al. (2013) found that when the CD-RISC included three dimensions, good psychometric properties were obtained in a sample of Spanish population, yet when the CD-RISC included all five dimensions, good psychometric properties could not be obtained. The three dimensions which produced good psychometric properties were hardiness, resourcefulness, and optimism. The CD-RISC was therefore abridged from the five-factor model to the four-factor model, the three-factor model, the two-factor model, and finally the unidimensional model (Campbell-Sills & Stein, 2007). The final unidimensional CD-RISC-10 removed the 15 items with low consistency or low factor loadings. The unidimension of the CD-RISC-10 reflects the bouncing back capacity- the ability to tolerate change, illness, personal problems, stress, failure, and painful feelings.

The CD-RISC-10 was used as a valid instrument to establish criterion validity of the projective method. The psychometric property of the CD-RISC-10 will be provided in the Instrumentation section of Chapter 3.

The five-factor CD-RISC has been found to be negatively correlated with the presence of major depressive symptoms ($r = -.34$, $p < .001$), anxiety symptoms ($r = -.22$, $p < .001$), and symptoms of other psychiatric disorders ($r = -.54$ to $-.18$, $p < .001$) (Robinson, Larson, & Cahill, 2013). The results also correlate with many well established psychological assessments such as the Mini International Neuropsychiatric Interview, General Health Questionnaire 28 (Scali et al., 2012), and Los Angeles Symptom Checklist for PTSD (Wang, Zhan, Zhang, & Zhang, 2010). The CD-RISC can be used in both psychiatric and non-psychiatric populations; it can also be used in individuals of younger ages including adolescents (Wang et al., 2010). In recent years, the presence of psychological disorders in college students has been on the upswing; the estimated prevalence of psychological disorders in colleges can be as high as 30% (Hartley, 2012). Among college students with psychological problems, 86% drop out of college. Hartley has used the ten-item CD-RISC in college students and found it to have a stable factor structure, and high validity and reliability when assessing resilience among students with and without psychological problems. However, he failed to find stability for the 25-item CD-RISC among students in either group. Hartley also found that students with high resilience scores tended to seek help from the school counseling center yet those who scored low did not. Hartley therefore advocates the use of the CD-RISC-10 as an interview assessment for college students and the development of an early

intervention program to prevent the deterioration of mental status in students with low resilience.

Besides estimating the resilience of an individual, the CD-RISC can also be used for discriminating the psychiatric from the non-psychiatric status and to assess the effectiveness of psychopharmacological and psychological interventions (Connor et al., 2003). However, in a study by Tran et al. (2013) on 293 WWII survivors, results failed to conclude the CD-RISC was sensitive enough to distinguish between individuals with PTSD and those without or between individuals with depression and those without, despite its excellent psychometric properties in reliability, consistency, and validity. Tran, et al. therefore stress the importance in the development of a multidimensional resilience assessment that reflects the multidimensional nature of resilience. The major criticism of the CD-RISC is that it does not cover resilient personality traits, which are considered the essence of resilience; such traits include forgiveness, creativity, or perseverance (Scali et al., 2012). In addition, Jowkar et al. (2010) also criticized that the CD-RISC has missed contextual factors completely.

Regardless of all of the criticism, the CD-RISC is still a commonly used assessment. It has been translated into several languages and has been successfully used in several populations who have experienced variety of adversities (Gucciardi, Jackson, Coulter, & Mallett, 2011). However, other cross-cultural studies have failed to demonstrate that the CD-RISC is culturally sensitive; it failed to show sufficient construct validity through its low effect size in some cultures other than those found in the U.S., such as in Chinese, Norwegian, and Iranian cultures (Jowkar et al., 2010). Jowkar et al. attribute the lack of cultural sensitivity of the CD-RISC to it being confined to assessing

items of dispositional traits only. In cultures found outside of the U.S., environmental factors can be weighty in resilience. Therefore, the authors advocate the incorporation of environmental factors in the assessment of resilience.

The Resilience Scale.

The Resilience Scale (RS) was the first published instrument that quantitatively measured resilience with multidimensional aspects. The RS was developed by Wagnild et al. (1993) for adults based on a 1987 qualitative study of 24 resilient elderly women who adapted successfully and positively following major traumatic life events and on a thorough review of the resilience literature up to that time. Even though the RS was developed based on 24 resilient elderly women, it has been used in younger men and women including adolescents (Wagnild, 2009). The original RS had 50 items which reflected the statements of the 24 resilient elderly women. The RS was reduced to 25 items with five personality characteristics after further analysis (Wagnild, 2009). The RS used the Likert scoring system; the scale for each item ranges from one to seven with a total score ranging from 25 to 175. The distribution curve of the scores for the general non-psychiatric population is negatively skewed with an average score of 140 and a standard deviation of 15. Scores greater than 145 indicate moderately high to high levels of resilience. Scores of 125 to 145 indicate moderately low to moderate levels of resilience. Scores lower than 125 indicate low levels of resilience. Reliability and test-retest stability over time are sufficient. Following revision of the RS, Wagnild (2009) reviewed 12 completed studies on the RS. Cronbach's alpha coefficients in these 12 studies ranged from .72 to .94, which supported the original internal consistency and reliability. Correlation between resilience and the variables of test items (forgiveness,

purpose in life, sense of coherence, morale, health promoting activities, and others) was also verified, which confirmed the construct validity of the RS. The RS has been used on individuals of different genders, different educational, socioeconomic, and ethnic backgrounds, and different ages, including adolescents. Lundman, Strandberg, Eisemann, Gustafson, and Brulin, (2007) did a study on the Swedish version of the RS using 1719 participants; they found that resilience had a positive correlation with age. However, gender failed to demonstrate any significant effect on the respondent's RS scale when age was below 50.

Later on the 25-item version of the RS was further shortened to 15 items by eliminating the ten items with the lowest factor loadings. However, the new version failed to demonstrate any psychometric advantage over the original version (Portzky et al., 2010). The advantage in time consumption for the shortened version over the original version was not significant either. Therefore, the version with 25 test items is still the test of choice for many researchers. The RS has been used in the U.S., Canada, Germany, Australia, and Sweden (Wagnild, 2009). It has also been translated into many other languages. Reliability, construct validity, test-retest stability, and internal consistency have also been established with the Russian, Spanish, Dutch, and Swedish versions (Lundman et al., 2007).

The two factors for the RS construct are acceptance of self and life and individual competence, which explained 44% of variance (Lundman et al., 2007). The five personality characteristics are equanimity (a balanced perspective toward life), meaningfulness (the sense of purpose in life), perseverance (the ability to keep going despite the presence of setbacks), self-reliance (the belief in one's self and one's

capabilities), and existential aloneness (the recognition of one's unique path and the acceptance of one's life). No correlation has been found between the RS score and demographic factors such as sex, age, or education (Portzky et al., 2010).

The Resilience Scale for Adult.

Basically speaking, the RS measures personality disposition only; contextual factors are not measured at all. To include contextual factors, Friborg et al., (2003) developed the Resilience Scale for Adult (RSA). The RSA is a self-reported scale; it covers three overarching domains agreed upon by the majority of researchers: personality traits, family cohesion, and social resources outside of the family. The original five factors of the RSA were perception of self, social competence, structured style, family cohesion, and social resources. The sixth factor, future planning, was adjoined later on because Hjemdal et al. (2012) found that future planning had significant factor loading in predicting hopelessness. According to Hjemdal et al., the six-factor RSA could successfully predict individuals with future depression and anxiety, it moderated the subjective experience of stress and pain, and it differentiated the psychopathological from the non-psychopathological individuals. The RSA has been found to correlate with other well-established scales such as Stress Life Events measuring social adjustment, the Hopkins Symptom Checklist-25 measuring depression, anxiety, and somatization; Beck Hopelessness Scale measuring hopelessness; Sense of Coherence Score measuring overall ability to adapt and find life meaningful and purposeful (Hjemdal et al., 2011); and the personality scale NEO-PI-R (Jowkar et al., 2010). In addition, the RSA items which correspond to the intrapersonal factor are found to have a high correlation with the CD-RISC items.

The preliminary version of the RSA consisted of 45 items. Among the six factors, contextual factors of social support and family coherence were expected to contribute less variance than the other factors. The other four factors: self competency, social competency, structure style, and future planning were intrapersonal resilience traits. The Likert scale of the RSA ranged from one (*totally disagree*) to five (*totally agree*). The internal consistency, measured by Cronbach's alpha was satisfactory; it ranged from .74 to .92. Later on Friborg et al. (2005) confirmed a high correlation between the RSA scores and the Big Five personality profile and social competency. High RSA scores were positively correlated with personalities of extroversion, agreeableness, conscientiousness, openness, and emotional stability (low neuroticism). Among the five personality traits, emotional stability contributed the most to resilience. However, the authors failed to identify any correlation between the RSA scores and cognitive intelligence. To reduce the chance of error due to acquiescence bias, the authors replaced the Likert scale with a semantic differential-type response format (Hjemdal et al., 2012). The scale became a seven-point scale later on. High scores indicate individuals with high resilience.

In order to make the RSA a transcultural assessment, researchers worked on the cross-cultural validation of the RSA. Hjemdal et al., (2011) translated the RSA into French and used it in Belgium. They found the RSA to hold satisfactory cross-culture construct validity and reliability in a French-speaking Belgian sample. The RSA has also been found to have validity and reliability in a Norwegian sample. The Belgian sample represented Western European culture and the Norwegian sample represented

northernmost Scandinavian culture. Nevertheless, the RSA has a generalization problem, it can be used in a non-psychiatric population only (Lee et al., 2013).

The Resilience Scale for Adolescents.

The Resilience Scale for Adolescents (READ) was the first assessment of resilience designed for adolescents which encompassed all three dimensions of resilience: personality traits, family cohesion, and social support. The READ was derived from the RSA (Hjemdal et al., 2006). Similar to the RSA, the READ also had five factors: personal competence, social competence, structured style, family coherence, and social resources. To accommodate its audience in a more effective way, the READ was designed as a three-factorial model: positive characteristics and resources of the individual; stable, supportive, and coherent family environment; and contextual social network which supports and reinforces coping strategies. To make the items understandable to its audience, the READ adapted the response format of the Likert scale rather than the semantic differential-type used in the RSA. The READ has 28 items; each item has a scale from one (*totally disagree*) to five (*totally agree*). The READ has demonstrated satisfactory content and construct validity, reliability, and interpretability (Hjemdal et al., 2006). The READ scores have a negative correlation with symptoms of depression. The READ scores have a negative correlation with experiences of being bullied, slandered, and excluded in school. The READ also correlates negatively with an inventory of psychiatric symptoms of depression, Shot Mood and Feelings Questionnaire (Hjemdal et al., 2006).

Besides English, the READ has also been translated into other languages, such as Spanish, French, Portuguese, Italian, and Lithuanian. Soest, Mossige, Stefansen, and

Hjemdal (2010) tested the READ in Norwegian high school students. They found good internal consistency, construct and convergent validity, and reliability with the modified five-factor 23-item READ. However, the authors believe that there is room for improvement because of the low factor loading of a few items.

Subjective Projective Assessments

Each person is a unique individual. There is no way to understand a person without looking at the subjective and individual aspects of that person (Campos, 2011). Campos therefore advocates the use of a subjective projective method in understanding a person as a holistic and integrative whole. According to Campos, the projective method should be designed in such a way that a person can respond by projecting and interpreting his or her personal traits. The personal fantasy and inner world can also be evoked in responses which do not bear any right or wrong status. There are several criteria for a projective assessment. The projective technique is sensitive to the subconscious, or latent, aspect of a person which cannot be revealed by a questionnaire. The person taking the projective assessment has little idea of the purpose of the assessment. Compared with a questionnaire, the projective technique offers a person a relatively larger amount of room to give multiple responses. The responses of a projective assessment are often multidimensional. In other words, a person's cognitive process, emotional regulation, and self-concept can be assessed simultaneously. The responses to a projective assessment often offer profuse and rich contents.

Analytic theory of the projective assessment is based on the Freudian theory of unconsciousness, which is believed to be suppressed, depressed, and not accessible through the means of cognitive responses (deTychey et al., 2012). However, the deep

and unconscious feelings and motives can be disclosed through other means of self expression. Projective methods have been considered powerful tools in assessing the inner conscious and unconscious world of an individual through imagination and story-telling by providing imagination and thought-provoking pictures, ink images, partial sentences, or other materials to this individual. Currently, personality assessments are the area that uses projective tests the most. Projective materials are everywhere (Sanyal, Dasgupta, & Agawal, 2011) and can be anything. The individual often discloses his or her projective feelings, emotions, thoughts, conflicts, fear, and wishes while telling his or her imagination or story. Some of the projective assessments are semi-structured, such as the Somatic Inkblot Series Test (SIS). The SIS test is fueled by the spontaneous and individually generated responses which ultimately elicit the individual's intra psychic condition.

There are several advantages to using a projective method (Campos, 2011). Projective methods are believed to be able to penetrate into the unconscious world of an individual; this world is so undercover that it cannot be approached through cognitive assessments. Projective methods also provide free space for an individual to express him or herself. In other words, the expression of an individual is not limited or hindered by the items and numbers provided by quantitative tests. At times, the answers given to projective methods can be multidimensional. In other words, the interpretation of an answer obtained using a projective methods can reveal multiple aspects of an individual. While taking a projective test, an individual often has little idea of what can be elicited. On the contrary, an individual might easily pick up an acquiescence hint from items on a quantitative test. Fake and acquaintance error might take place as a result. In addition, it

is more feasible to assess the individual as a whole by projective methods rather than through quantitative tests. Basically speaking, quantitative tests are so rigidly structured that there is no leeway for anything else. Currently, the difficulty with using projective methods is the scoring system, which has been receiving ceaseless criticism. However, Campos (2011) maintains that projective assessments are methods to understand a person rather than tests to score a person. In other words, Campos rejects the idea of making projective assessments quantitative and objective; projective assessments have to remain subjective and projective. Dissecting the answers to projective assessments in order to give an objective interpretation and a quantitative score often results in the loss of the integrative and holistic advantages to projective assessments. It is worth pondering if it is meritorious to trade the integrative and holistic advantages of a projective assessment for the debatable quantitative qualities of validity, reliability and stability in the dissecting, interpretation, and scoring process of projective methods.

Several techniques have been involved in the development of projective assessments (Campos, 2011), such as construction technique in Thematic Apperception Test, associative technique in Rorschach Test, expression technique in Drawing a Person, choice or ordering technique in Picture Arrangement Test, and completion technique in Sentence Completion Test. With the associative technique, the test-taker responds to the stimuli with what he or she sees. With the construction technique, the test-taker needs to construct his or her story basing on the theme provided (Campos, 2011). Yadav et al., (2011) found that the projective method used in the Comprehensive Trail Making Test required attention, concentration, resistance to distraction, and cognitive flexibility which are greatly disturbed in individuals with maniac depression. Therefore, the authors

advocate that this projective method is effective in assessing the existence of maniac depression. Williams, French, Picthall-French, and Flagg-Williams (2011) perceive projective methods, especially draw-yourself and draw-your-family, as culture-free assessment tools; yet quantitative assessments are inevitably culturally biased. Therefore, they deem projective assessment to be valuable in assessing aboriginal children. However, the understanding and interpretation of the projective assessment are still culturally biased. The absolutely culture-free assessment does not exist.

With regards to resilience, a great majority of the assessments created thus far have been quantitative studies; many of them have been confirmed to hold sufficient construct validity, internal consistency, and test-retest stability. However, these assessments have often failed to identify the duration and intensity of the adversity faced (Herrman et al., 2011). Qualitative studies have the advantage of focusing on the person under study (Gonzales et al., 2012), understanding the meaning and significance of a traumatic experience to this person, approaching the complex interaction between this person and the environment, perceiving the person as a whole rather than as a set of numbers, and generating hypothesis and theory. The whole is greater than the sum of parts. In contrast to the majority of quantitative studies, deTychey et al., (2012) approached resilience from the psychoanalytic route. Individuals going through the same traumatic event can have completely different outcomes, even in twins. They stress the tie between traumatic events and a person's internal world, sexuality, and subconscious excitement. Therefore, they advocate the significance of projective assessments in understanding the unique resilience of a person.

The only projective assessment that has been used in resilience study is the Rorschach Comprehensive Assessment. Odendaal, Brink, and Theron (2011) used Exner's Rorschach Comprehensive System to assess resilience. They consider this projective assessment a schema-processing task in understanding the personal construct of resilience. In this schema-processing task, the participating individual positions him or herself in the image, adds self emotion to the image, and verbalizes complete or partial identification with the percept. The advantage of this projective assessment is that a person's unconscious and nonverbal emotions and memories can be disclosed. In addition, the disclosure of self is not limited by the prearranged questions. In their six case studies on South African adolescents, the authors identified four personal constructs in the formation of resilience: emotional stoicism, frequent introspection, honoring the past, and adopting a new identity. With a culturally sensitive interpretation of the Rorschach assessment, the authors consider this projective assessment a culturally sensitive assessment in understanding a person's resilience construct.

Development of a Projective Assessment.

There is no projective assessment for resilience at present. Therefore, I will review the development of two projective assessments of personality in this section, the Rorschach Assessment and the Sentence Completion Test. Unlike the develop0ment of quantitative assessments, the development of a projective assessment often took a long time and with many practitioners involved. However, many of these projective assessments have demonstrated good content validity, internal consistency, and inter-rater reliability.

The development of the Rorschach Assessment has a long history, from its initial use by Hermann Rorschach in the early 1900s to its maturation into a comprehensive system by Extner in 1974. Many practitioners were involved in this process**,** including Rorschach, Beck, Hertz, and Klopfer (Handler, 1994). Even though the validity of the Rorschach Assessment remains controversial, its value is undeniable. Ross, Kaser-Boyd, and Maloney (2001) rated the Rorschach Assessment as the fourth most commonly used personality assessment. It is only less commonly used than the Wechsler Adult Intelligence Scale (WAIS), the Minnesota Multiphasic Personality Inventory (MMPI), and the Sentence Completion Test (SCT). Other than the U.S., the Rorschach Assessment has been used in many countries including Turkey, Finland, Brazil, and Peru. The Rorschach assessment was developed by Hermann Rorschach between 1909 and 1913; he believed that how a person structured and organized what he or she saw was related to his or her psyche, it was a process of association (Constantino, Flanagan, & Malgady, 1995). Clinical practice has demonstrated benefits from the integration of Rorschach technique with other personality tests (Weiner, 1999).

The Sentence Completion Test (SCT) provides incomplete sentences as stimuli for test takers to respond to with feelings or thoughts. It was initially developed by Herman Ebbinghause in 1897; it then became widely used by Trabue and Kelly (Symonds, 1947). However, the development of its test forms, scoring system, and validity in personality and clinical assessment continued for decades (Picano, Roland, Rollins, & Williams, 2002). Currently, there are several forms of the SCT such as the Tendler Sentence Completion Test, the Sentence Completion Test for Depression (SCD) (Barton et al., 2005) and the SCT for verbal defensiveness (Picano, Roland, Williams, &

Rollins, 2006). Many of these tests have demonstrated good content validity, internal consistency, inter-rater reliability, sensitivity, and specificity (Picano et al., 2006). The Tendler Sentence Completion Test was developed in 1930; it was based on psychodynamic theory in order to help psychologists gain an understanding of the test emotional state of test-takers (Holaday, Smith, & Sherry, 2000). Mizuta et al. (2002) found that individuals with an eating disorders used significantly more negative words in the SCT than individuals without an eating disorder. The authors therefore advocated the use of the SCT in the clinical assessment of eating disorders. A study by Barton et al., (2005) on 25 non-depressed individuals and 25 individuals with a clinical diagnosis of depression found that depressed individuals finished sentences with significantly more negative words than non-depressed individuals. They compared the results of the SCT with the results of the Beck Depression Inventory for these individuals and found a strong correlation between the two. Barton et al. therefore advocated use of the SCT as a projective assessment for depression. The SCT has good psychometric properties. Picano et al. (2006) also found that military personnel who scored highly on the SCT for verbal defensiveness were less able to carry out highly demanding missions and had less motivation. The authors therefore advocated use of the SCT for assessment of verbal defensiveness in military personnel selection.

In conclusion, projective assessments offer a unique access to understand a person as a whole, rather than as a set of numbers. It is less probable to fake on a projective test because test-takers have little idea of what is being tested (Campos, 2011). It is also possible to establish psychometric properties for a projective assessment. Nevertheless,

the development of a projective assessment often takes a longer period of time than the development of an objective quantitative assessment.

Validity of an Assessment

The purpose of an assessment, as Stickle and Weems (2006) suggested, is to provide more effective prediction of future behaviors in a certain situation than clinical observation through a structured or semi-structured procedure. Besides the traditional validity, Sechrest has introduced the concept of incremental validity in 1963. An assessment with incremental validity means that the assessment is able to provide the information which can only be obtained through a more expensive or more time consuming process other wises (Sechrest, 2003). In other words, an assessment with incremental validity is able to provide clinicians with desired information in a short period of time.

Traditionally, there are three approaches to establish validity of a test: the content-related validity, the construct-related validity, and the criterion-related validity (Groth-Marnat, 2003). In the past, content validity has been conceptualized and operationalized as being based on the test developers (Groth-Marnat, 2009). Content validity is often logically judged by experts instead of being statistically proved (VanderStoep et al., 2009). Content validity is often related to face validity (Groth-Marnat, 2009). However, face validity and content validity are not synonymous; content validity is judged by the test developer and face validity is judged by test-takers. In addition, face validity concerns the assessment measuring what it is supposed to measure yet content validity concerns more than merely measuring what it is supposed to measure. A test with high content validity must cover all aspects of the content area in breadth and in depth (Kirk,

2012). It is often questioned if the instrument is broad enough to cover all aspects of the construct of interest. It is easier to judge content invalidity than to judge content validity (Vogt, 2005).

Construct validity of an assessment can be established only for the construct with some depth of elaboration in the empirical and theoretical literature (Kirk, 2012). Construct are hypothetical factors underlying the trait being tested. Acceptance of the construct validity of a test requires the acceptance of the construct itself (Sechrest, 2005). To build construct validity, according to Sechrest (2005), three steps have to be involved. First, the test developer has to make a careful analysis of the construct of interest. Then the test developer finds factors related to the construct of interest. Finally the test developer examines if the relationship between the factors and the construct of interest indeed exists.

There is no single best method to determine construct validity. Stickle et al. (2006) asserted that construct validity had to be built over time and repeatedly re-evaluated because the nature of a construct can be changed over time. The construct has to be changed when the nature of the construct is changed over time. Factor analysis is often used to identify the relative strength of various factors affecting the construct of interest (Stickle et al., 2006). It can be used to reduce unnecessary factors which have insignificant affect on the construct of interest. Internal consistency can also be used to verify construct validity (Stickle et al., 2006). Internal consistency refers to the correlation between two factors measured in the same test. It assures the factors measured in the same tests are measuring the same construct of interest. In addition, convergent validity and discriminant validity can be used to verify construct validity as

well. Convergent validity refers to two different tests or instruments which measure the same construct. Discriminant validity refers to the specificity of an assessment in measuring what it is supposed to measure and not be influenced by other construct. However, discriminant validity is not easy to obtain even though it can be critical (Kirk, 2012).

Criterion validity is also called empirical validity or predictive validity; it can be established by concurrent validity and predictive validity (Groth-Marnat, 2009). Predictive validity refers to an external measurement taken some time after the test; it can be time consuming to verify predictive validity. Therefore, it is often substituted by concurrent validity (Groth-Marnat, 2009). Concurrent validity refers to a way to determine the validity of a test or an instrument by the correlation with a valid measurement (Vogt, 2005). The strength of criterion validity often depends on the type of variable being measured. As the number of variables affecting the test trait increases, it is less likely to expect a high validity coefficient. Another consideration regarding criterion validity is the extent that the factors being measured can account for.

Currently, there is no projective assessment of resilience. The establishment of validity of the existing quantitative assessments is as follows. Validity of the CD-RISC was established by comparing with measures of hardiness, perceived stress, and stress vulnerability (Connor et al., 2003). Construct validity of the RS was established by statistically significant relationships with morale, life satisfaction, self-esteem, depression, and perceived stress (Wagnild, 2009). Rosenberg Self-Esteem Scale has been used as a measure of self-esteem (Nygren, Randstrom, Lejonklou, & Lundman, 2004). Construct validity of the RSA was established by correlation with the Sense of Coherence Scale and

another well-establish resilience scale the CD-RISC-10 (Hjemdal et al., 2006; Hjemdal et al., 2011). In summary, two categories of scales have been used to establish the existing objective assessments of resilience: another well-established resilience scale and scales of factors related to resilience such as self-esteem, perceived stress, and others.

Summary

Clinical resilience studies can be traced back to the early 1960s, when Garmezy et al. (1961) studied children who had experienced a childhood adversity. There have been fervent debates over the definition, conceptualization, and theory behind resilience (Fletcheret al., 2013). At present, the majority of researchers regard resilience to be a dynamic process of human interaction with the environment, which can be both learned and built (White et al., 2010). Application of the concept and theory of resilience has been used to build resilience in individuals at risk or who have experienced trauma. This has taken place in the areas of rehabilitation, military, school, sociology, organization, and marriage (Foran et al., 2012; Neff et al., 2011; Nicoll, 2011; West et al., 2012).

Assessment of resilience can help in predicting resilience and developing preventive strategies and intervention plans (Afifi et al., 2012). At present, there are several quantitative resilience assessments (Connor et al., 2003; Friborg et al., 2003; Hjemdal et al., 2006; Wagnild et al., 1993). Projective assessments have several advantages over objective assessments (Campos, 2011). Projective assessments assess an individual as a whole rather than as a set of numbers, the test-taker has no idea what is being tested, and projective assessment responses are often multidimensional. However, a projective assessment for resilience is yet to be created. The purpose of this study was

to develop a projective method to understand and measure resilience. The methodology of this projective approach is discussed in the following chapter.

Chapter 3: Methodology

Introduction

This study was a pilot study to develop a projective method to understand and measure resilience; it was a quantitative study. The method of this study was to measure resilience through feelings and emotions expressed by words and phrases; and to understand resilience through how participants completed the open-ended story. Word-frequency count technique in content analysis (Stemler, 2001) was applied in analyzing responses provided by participants. The resilience level was indicated by the resilience ratio which was the ratio of the number of positive responses divided by the number of total responses. Resilience ratios were tested for correlation with the scores of a well-established quantitative assessment the CD-RISC-10 and the Rosenberg Self-Esteem Scale. In this chapter, I will give a detailed account of the research design and rationale of the study, the methodology which includes the targeted population and the sampling procedure, the sample size, the interview, instrumentation, coding, descriptive statistics, and quantitative analyses; validity development, the validity threats, and the ethical concerns.

Research Design and Rationale

This study was a quantitative study to develop a projective method to understand and measure resilience. The rationale of the study was based on current research findings. Currently, a majority of researchers regard resilience as multidimensional; it is the outcome of a person's interaction with the environment (Catalano et al., 2011). Both the personality trait and environmental factors contribute to the outcome (Lee et al., 2013). Therefore, I designed this study by providing an open-ended story with a scenario of an

environment with the presence of both adversity and supporting factors. I will give further details regarding the development of the story in the Instrumentation section of this chapter. It is believed that personal disclosure is captured in language (Graesser, 2011). After listening to the story, participants used words and phrases to express their feelings. I recorded the words and phrases each participant provided; these words and phrases reflected how participants interacted with the environment where both adversity and supporting factors were present.

The study of Waugh et al. (2011) found that cognitive and emotional flexibility was related to resilience. Individuals with high levels of resilience were able to perceive hope and utilize the supporting factors available in the environment at the presence of adversity. They were able to experience and express positive emotion at the presence of adversity. On the contrary, Zautra et al. (2010) found that individuals with low levels of resilience were often overwhelmed by the adversity. They were not able to perceive hope or use the supporting factors available in the environment; nor were they able to experience or express positive emotions at the presence of adversity. Therefore, in this study, the resilience ratio, the ratio of the number of positive responses divided by the number of total responses, was used to represent a person's resilience level. Individuals able to experience and express positive emotions at the presence of adversity would have high resilience ratios. I therefore hypothesized that individuals with high resilience ratios would have high levels of resilience.

Story-telling has been identified as a valid method in personality assessments. Veldman (1969) found that the story telling method was able to predict future teaching commitment. The teacher candidates who wrote positive stories about teaching

experiences had better commitment in their teaching careers than those who wrote negative stories about teaching experiences. Dent-Brown et al. (2004) found that the Six-part Story Method was valid in assessing Borderline Personality Disorder. Alvarado (1994) found that emotional words used in the Thematic Apperception Test correlated well with clinical reports and could be used to predict behavior. Lunday (1989) also found that the story telling in a semi-structured projective test like the Thematic Apperception Test was valid to predict personality. In this study, I used the story-telling technique by asking participants to complete the open-ended story. Participants completing the story positively were considered as individuals with high levels of resilience; while participants completing the story negatively were regarded as individuals with low levels of resilience.

According to Connor et al. (2003), there are four possible outcomes following adversity: resilience reintegration- a higher level of outcome than the initial level of wellbeing, homeostatic reintegration- an outcome returning to the initial level of wellbeing, reintegration with a loss- a lower level of outcome than the initial level of wellbeing, and dysfunctional reintegration- an outcome of decompensation or mal-adaptation. The detailed description of these four possible outcomes has been discussed in Chapter 2.

All participants had the same traumatic event; however, each participant did not complete the same story the same way, as Connor et al. (2003) have observed in their research. The phenomenon of completing the story with an ending of life on a level higher than the initial level of wellbeing was considered to be resilience reintegration. Completing the story with an ending returning to the initial level of wellbeing was

regarded as homeostatic reintegration. Participants demonstrating either phenomenon were regarded as individuals with high levels of resilience. However, the phenomenon of completing the story with an ending lower than the initial level of wellbeing was considered a reintegration with a loss. Phenomenon of completing the story with a maladaptive or dysfunctional ending was regarded as dysfunctional reintegration. Participants exhibiting either of these phenomena were considered to be individuals with low resilience. A participant who completed the story negatively was considered as a person with low levels of resilience; a participant who completed the story positively was regarded as a person with high levels of resilience. Table 4 summarizes the rationale of the story ending and the resilience level.

Table 4

A Summary of the Resilience Level and the Story Ending

Outcome	Story Ending	Resilience level
Resilience reintegration	Positive ending in conditions higher than before the adversity	High
Homeostatic reintegration	Positive ending in conditions returning to before the adversity	High
Reintegration with a loss	Negative ending in conditions lower than before the adversity	Low
Dysfunctional reintegration	Negative ending with a maladaptive outcome	Low

How a participant completed the story was also expected to reflect the resilience level. In other words, participants who completed the story positively were expected to have high levels of resilience; yet participants who completed the story negatively were

expected to have low levels of resilience. The level of resilience was measured by the well-established objective assessment the CD-RISC-10.

There were two research questions in this study:

Research Question #1: How well do the resilience ratios measured by the projective method correlate with the CD-RISC-10 scores and the Rosenberg Self-Esteem Scale?

The hypotheses were:

H_01: There is no significant correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem Scale.

H_11: There is a significant correlation between the resilience ratios and the CD-RISC-10 score or between the resilience ratios and the Rosenberg Self-Esteem Scale.

Research Question #2:

Are there significant differences in the resilience ratios, the CD-RISC-10 scores, and Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings? The hypotheses were:

*H_0*2: There is no significant difference in the resilience ratios, the CD-RISC-10 scores, or the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings.

H_12: There are significant differences in the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings.

I used Pearson Correlation to answer Research Question #1. There were two correlation tests in this study: the correlation between the resilience ratios and the CD-RISC-10 scores, and the correlation between the resilience ratios and the Rosenberg Self-Esteem scores. The two variables for the first correlation test were resilience ratios and the CD-RISC-10 scores and the two variables for the second correlation test were resilience ratios and the Rosenberg Self-esteem scores. I used Pearson Correlation tests to verify criterion validity of this projective method.

I used independent *t* tests to answer Research Question #2; there were three *t* tests in this study. The independent variable for the three *t* tests was how participants completed the story, positively or negatively. The dependent variables were the CD-RISC-10 scores, the Rosenberg Self-Esteem scores, and resilience ratios respectively. I used independent *t* tests to verify if how participants completed the open-ended story was a valid way to understand resilience.

Methodology

Population and Sampling Procedure

Participants in the pilot study were students in Rutgers University. Rutgers University is the State University of New Jersey. After I have received the approval from Walden's Institutional Review Board (IRB), I put classified advertisements on the Daily Targum, the newspaper free to Rutgers students and available in the Student Center and dining halls. A copy of the advertisement is displayed on Appendix A; personal information was deleted for confidential purpose. In the advertisement I provided the topic of my study, the length of the interview, the location of the interview site, and my telephone number and email address for contact. The advertisement has been placed

three times on the newspaper, one week in September, three days in October, and three days in November, 2014. The students interested in my research contacted me and made an appointment with me via phone or email.

In my study, communication, cognitive processing, and emotion processing were critical which were the factors influencing the level of resilience. Therefore, I held the interview in a quiet room in the Cru house, the Campus Crusade Ministry house across a street from the Student Center. I have obtained the permission prior to the use of the Cru house. The permission is displayed in Appendix B; personal information was deleted for confidential purpose. An appointment time was set between the participant and me. The use of a quiet room interviewing all participants also minimizes variation in the influence of the environmental factor.

Participants read and signed the consent form prior to the interview. As it was mentioned in the consent form, all the information obtained in the interview remained confidential. A copy of the consent form is displayed on Appendix C; personal contact information was deleted for confidential purpose. In the process of explaining and obtaining consent forms, I made certain that participants in the study were over the age of 18. I have also applied observation of participant's behavior, emotion, and speech to assure that participants were not under the influence of any substance or with a disturbed fluctuating mood. Participants in this study received a stipend of $10.00, paid by me.

After the interview I spent some time talking with each participant to make sure that the traumatic scenario did not affect the participant significantly and the participant would be able to resume normal daily activities. I sent a follow-up email two days after the interview to make sure that the participant has assumed normal daily activities

without difficulty. I also provided a list of local psychologists and counselors to each participant, in case the traumatic scenario I have provided disposed any of the participants to such a low mood that psychological or counseling intervention would be needed. This will be further discussed in the Ethical Issues section of this chapter. After the completion of data analysis, I forwarded dissemination of the result to each participant.

Sample Size

The issue of the sample size has drawn much attention from researchers since Cohen first raised his concerns over statistical power in psychological research (Cohen, 1992). The quantitative analysis used in this study involved *t* tests of two independent samples and correlation analyses of the resilience ratio with the CD-RISC-10 and the Rosenberg Self-esteem Scale. According to Cohen's table (Cohen, 1992), a sample size of 26 is large enough for a *t* test of two independent samples with an α value of .05, a Cohen's d value of .80, and an 1-β value of .80. A sample size of 28 is large enough for a Pearson correlation with a Cohen's d of .70, an 1-β value of .80 and an α value of .05. The sample size of 65 used in this study was large enough for both the *t* tests and the correlation analyses.

Interview

The first part of th**e** data collection was the interview. In this step, I provided a traumatic scenario through recorded story telling. I used the scenario of a car accident. An automobile accident is not foreign or uncommon to college students (Shepherd, Lane, Tapscott, & Gentile, 2011); college students have no difficulty in picking up the elucidation and identifying self with the major character. The script of the story was

documented in Appendix D. In order to assure consistency in the process of story-telling among all participants of the same gender, the narration of the story was pre-recorded.

To provide equal opportunity for male participants and female participants to identify self with the major character in the story, the major character and the narrator was male for male participants and female for female participants. After providing the story, I asked each participant to tell me his or her feelings by using simple words and phrases. The responses each participant provided were recorded; I both wrote down the responses by hand and audio recorded them in order to guarantee accuracy.

After I collected all the responses, I asked each participant to complete the open-ended story. In order to ensure accuracy, an audio recorder was used to record how each participant completed the story.

Instrumentation

I have used several instruments in this study: the open-ended traumatic story, an audio recorder, the CD-RISC-10, the Rosenberg Self-Esteem Scale, and the SPSS version 21 (Armonk, NY: IBM Corp). The audio recorder was a SONY ICD-PX312 digital voice recorder by SONY Corp. Since this study was a pilot study and I did not intend to perform demographic analyses; I collected the basic demographic information of the gender and the range of age only.

Stimulation is often provided in a projective method to incite the response of the test-taker (Campos, 2011). The Somatic Inkblot Series test uses inkblots, Rorschach test uses images, and the Sentence Completion Test uses unfinished sentences. In this study, I provided an open-ended story with the presence of a traumatic event and environmental supports as the stimulus to incite the response of participants.

Presently, a majority of researchers believed that resilience is an interaction of a person with the environment (Catalano et al., 2011). Both the personality trait and environmental supports can serve as protective factors of a person's resilience (Gonzales et al., 2012). Therefore, I designed the open-ended story with the presence of a traumatic event and environmental supports. The personality trait and the ability to perceive and utilize the environmental supports are left for participants to elucidate through words, phrase, and sentences. Cognitive and emotional flexibility can also be understood through the responses. Prior to the initiation of the study, I presented the basic story to seven faculty members in Walden University; they provided me with positive feedback. Likewise, during the interview, a number of participants expressed that the story content was relevant to them.

In order to make it easy for the participant to identify self with the major character in the story, the major character had similar background with the participant: a college student of the same gender with the participant. The losses of the major character in the story because of the adversity were also significant to a majority of college students: intelligence and a significant relationship. The traumatic story was a modification of a true accident happened to a college freshman. I used this story because similar accidents happen to college students everywhere; this type of accident is not uncommon.

I carried out the simulation of the traumatic scenario by playing a pre-recorded traumatic story. I used an audio recorder to pre-record the story and to record the participants' positive and negative responses, and how they completed the story in the interview. I also hand recorded the responses and how they completed the story.

The CD-RISC-10 is one of the most well-established quantitative assessments for resilience; it was developed by Connor et al. (2003). I chose the CD-RISC-10 because of its simplicity in administration and completion, and its superiority to the CD-RISC in its robustness and efficiency (Hartley, 2012). I used it in this study to establish criterion validity. The CD-RISC-10 has been used to validate other resilience assessments such as the RSA (Hjemdal et al., 2011).

The CD-RISC-10 is the short form of the CD-RISC; it was abridged from 25 items to 10 items by eliminating the 15 items with low consistency and low factor loadings (Campbell-Sills et al., 2007). The CD-RISC-10 has high internal consistency, structure validity, and reliability in the U.S. and in many other countries including China (Wang et al., 2010) and in African American men surviving on a low income (Coates et al., 2013). It demonstrates superiority to the original the CD-RISC in both efficiency and robustness. Connor et al. (2003) reported this measurement with a Cronbach's α of .89 in a group of 577 individuals. When being measured at two different times, the CD-RISC had a correlation coefficient of .87 in a group of 24 subjects. The CD-RISC was also positively correlated with the Kobasa hardness, the Perceived Stress Scale, and the Sheehan Stress Vulnerability Scale ($p < .001$). I gave the CD-RISC-10 at the end of the interview. I have obtained the permission to use the CD-RISC-10 in this study; the permission is displayed in Appendix E. I purchased 70 tests of the CD-RISC-10 prior to this study. Each participant needed one test in the interview; five more tests were set aside in case of unsuccessful interviews.

The Rosenberg Self-Esteem Scale is a self-rated ten-item scale. Participants provide answers in a four-point Lidert scale of strongly agree, agree, disagree, and

strongly disagree. The Rosenberg Self-Esteem Scale was originally developed in a group of 5,024 high school juniors from ten randomly selected schools in New York State (Rosenberg, 1965). The validity of Rosenberg Self-Esteem Scale was supported by field and clinical reports; it demonstrated a positive correlation with the grade and negatively correlated with delinquency, anxiety, and depression at a .05 level (Rosenberg, Schooler, & Schoenbach, 1989). The Rosenberg Self-Esteem Scale has been used to develop the validity of the RS (Nygren et al., 2004). The use of the Rosenberg Self-Esteem Scale does not require permission. However, the family of Rosenberg would like to be informed of the use of this scale. Therefore, I have written a letter to the Rosenberg Foundation to express my appreciation and explained how this scale was used in my study.

Coding

I collected two sets of data in the interview and coded them afterwards; the responses provided by participants and how participants completed the open-ended story. Saldana (2012) suggested a coding system of a pattern of similarity, difference, frequency, and other. In this study, I used the coding system of the pattern of similarity. There were only two categories of similarity: the positive and the negative. For the responses provided by the participants, I coded them as either the positive responses or the negative responses. I further inquired ambiguous responses at the end of the interview for clarification. Regarding how participants completed the story, I coded the endings as either a positive ending or a negative ending. Because of the simplicity in codifying the response, I did the coding manually. I counted frequencies of both categories manually as well. I then calculated the resilience ratio as the ratio of the number of positive

responses divided by the number of total responses. The resilience ratio of a participant with no resilience was zero; this person provided no positive responses. The participant who provided many positive responses had a high resilience ratio. The higher the resilience ratio a person obtained, the higher the level of resilience this person was expected to have. Regarding how the participant completed the story, I also categorized it into either a positive ending or a negative ending. I expected resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who provided positive endings to be different from those who provided negative endings.

Descriptive Statistics

I calculated the mean, the median, the range, and the standard deviation for resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores by SPSS version 21. I also used SPSS version 21 to compute the frequency distribution of resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores. I then compared the means and the standard error means of resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who provided positive endings and those who provided negative endings.

Quantitative Analysis

Pearson Correlation.

To establish criterion validity of this projective method, I used Pearson Correlation to measure the relationships between resilience ratios of this study and the CD-RISC-10 scores, and between resilience ratios and the Rosenberg Self-Esteem Scale. To test the correlation between resilience ratios and the CD-RISC-10 scores, the two variables were resilience ratios and the CD-RISC-10 scores. To test the correlation

between resilience ratios and the Rosenberg Self-Esteem scores, the two variables were resilience ratios and the Rosenberg Self-Esteem scores. I selected an α value of .05 for all the analyses. The null hypothesis was that there was no significant correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem Scale. The alternative hypothesis was that there was a significant correlation between the resilience ratios and the CD-RISC-10 score or between the resilience ratios and the Rosenberg Self-Esteem Scale. The rejection of the null hypothesis would support the presence of a significant correlation between resilience ratios of the projective method and the CD-RISC-10 scores or a significant correlation between resilience ratios of the projective method and the Rosenberg Self-Esteem Scale. The significant correlation of resilience ratios with an objective assessment would support criterion validity of this projective method.

***t* Tests.**

To further understand resilience levels of participants who provided positive endings to the open-ended story and those who provided negative endings, I used three *t* tests to measure any difference in resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between these two groups. In the three *t* tests, the independent variable was how participants completed the story- positively or negatively. The dependent variables were resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores respectively. The null hypothesis was that there was no significant difference in the resilience ratios, the CD-RISC-10 scores, or the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings. The alternative hypothesis was that there were significant

differences in the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings. I selected an α value of .05 in this analysis. The rejection of the null hypothesis would support the hypothesis that those who completed the story positively and negatively had significantly different resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores.

Development of Validity

Validating a psychological assessment is a never ending cumulative process (Kirk, 2012). This study was a pilot study. In this study, I adopted the three approaches brought up by Groth-Marnat (2009) in validity establishment: the content-related approach, the construct-related approach, and the criterion-related approach. Content validity cannot be determined by statistics, it is logically judged instead. Different from construct validity, content validity concern the breadth of the construct. It is easier to judge content invalidity than to judge content validity. In this study, it is not possible to prove content invalidity because participants had the opportunity to express all they wanted to express, through words and sentences, and through how they completed the open-ended story. VanderStoep et al. (2009) suggested establish content validity by consulting experts. I have discussed the theoretical framework and the projective technique of this study with seven Walden faculty members; they were recommended by Walden University to provide expertise advices to students regarding their dissertation plans. I have also discussed with Dr. Davidson, the developer of the CD-RISC. They all considered this projective technique as a valid method to understand and measure resilience.

Content validity is often related to face validity (Groth-Marnat, 2009). Different from content validity, face validity is determined by test-takers. After interview, several participants expressed that the open-ended story was relevant to them. Three of them even asked if I was testing for resilience.

Regarding construct validity, I followed the three steps suggested by Sechrest (2005). First, I read hundreds of literatures regarding resilience. Then, from the literatures I understood the construct of resilience and the factors relating to resilience. Even though the study of resilience does not have a long history, resilience has been well scrutinized (Fletcher et al., 2013). After decades of dispute, majority researchers have come to some consensus. The construct of resilience is well understood and well accepted by majority researchers. Finally, I designed the open-ended story with factors related to resilience which included an adversity and an environmental factor of family support. I left resilient personality traits and other social support resources for the participants to elaborate.

Construct validity can be established by convergent validity and discriminate validity as well (Groth-Marnat, 2009). Discriminate validity makes sure that the measurement is measuring what it is intended to measure and not measuring something else (Vogt, 2005). Discriminate validity is difficult to obtain even though it can be critical (Kirk, 2012). This study is a pilot study; I did not intend to perform discriminate validity in a pilot study. Discriminate validity can be performed in the future research.

Criterion validity can be established by concurrent validity and predictive validity (Groth-Marnat, 2009). Verifying predictive validity is time consuming; I did not intend to establish predictive validity. Participants in this study were ordinary college students

and interviews were taken place only one time for each participant, at an ordinary time. Therefore, I substituted predictive validity by concurrent validity (Groth-Marnat, 2009). Concurrent validity refers to a way to determine the validity of a test or an instrument by the correlation with a valid measurement (Vogt, 2005). Up to present, two categories of scales have been used to establish validity of existing objective assessments of resilience: another well-established resilience scale and scales of factors related to resilience such as self-esteem, perceived stress, and others. I used a similar approach to establish criterion validity of this projective method. I selected the CD-RISC-10 as the well-established resilience scale and self-esteem as the factor related to resilience. I used the Rosenberg Self-Esteem Scale to measure self-esteem. In this study, the concurrent validity was verified by the correlation of resilience ratios with a well-established objective resilience assessment, the CD-RISC-10.

Threats to Validity

Psychometric debates of projective approaches regarding the structure, scoring system, and the interpretation have never ceased. Nevertheless, the value of projective approaches is still recognized (Campos, 2011). This dissertation is a study of a projective technique. All threats to projective assessments also apply to this projective technique.

Participants in this study were students in Rutgers University; the majority of them were at the age of early 20s. They do not represent the general population. The recruitment method was participants' self selecting by responding to the advertisement. Due to my work schedule, I held interviews during weekends. A few respondents were not able to participate in the study because of their unavailability in weekends. Therefore,

it is reasonable to question if the self-selecting participants available in weekends may represent students in general.

Verbal expression of feelings was the major channel to approach participants in this study. Therefore, the understanding of participants may not be accurate for those who with difficulty identifying self emotion or expressing self emotion. Even though the great majority of participants in this study spoke English fluently and none appeared to have significant emotional disturbance, it is still possible that some of them may have difficulty identifying self emotion or expressing self.

Ethical Issues

I purchased the CD-RISC-10 after obtaining Walden IRB approval. The participant's recruitment and the interview processes followed the procedures approved by Walden IRB. I have presented consent forms with the Walden IRB approval number and explained it to participants. Participants have signed the form prior to the interview. I have also observed participant's emotional stability prior to and throughout the interview process. I have debriefed after the interview to make sure that participants were not affected significantly by the traumatic scenario presented in the interview. I then sent the follow-up email two days after the interview with the local counselor/psychologist list attached. Electronic recording was transferred to a CD when all the interviews were completed, together with the paper documents they were put in a locked drawer in my basement. I am the sole person who has the access to these documents. All the information on the documents will remain confidential until the documents are destroyed in five years.

Summary

This study was a quantitative study to develop a projective method to understand and measure resilience. Sixty-five college students in Rutgers University completed the interview in this study. I conducted the recruitment, interview, and follow-up procedures according to the procedure approved by Walden IRB. I used SPSS version 21 to perform descriptive statistics and data analysis. I hypothesized that the resilience ratio and how participants completed the open-ended story reflect the resilience level. There are two research questions. The Research Question #1 is: How well does the resilience ratio measured by the projective method correlate with the CD-RISC-10 and the Rosenberg Self-Esteem Scale? The Research Question #2 is: Are there significant differences in the resilience ratios, the CD-RISC-10 score, and the Rosenberg Self-Esteem scores between the participants who completed the story positively and those who completed the story negatively? I used Pearson Correlations and *t*-tests to answer the research questions. Resilience ratios measured in this study were expected to have positive correlations with the CD-RISC-10 scores and the Rosenberg Self-Esteem scores. Resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who provided positive endings to the open-ended story were expected to be significantly different from those who provided negative endings. Results of this study are presented in the next chapter.

Chapter 4: Results

Adversities in life are inevitable, regardless the advancement in technology, medicine, economics, and education. Therefore, resilience, the ability to bounce back from adversities, becomes a significant factor in maintaining human wellbeing. Assessments of resilience not merely measure a person's resilience level; they also help to develop prevention programs and intervention strategies (Afifi et al., 2011). Up to the present, there are several objective assessments measuring resilience. However, there is no projective method. A projective assessment has the advantage of understanding the test-taker as a whole person, instead of a set of numbers. A projective assessment also approaches a person in a multi-dimensional course (Campos, 2011). In addition, it is not easy for a test-taker to fake on a projective assessment; the test-taker has little idea in what the test is for.

The purpose of this pilot study was to develop a projective method to understand and measure resilience. There were two research questions. Research Question #1 was: How well do the resilience ratios measured by the projective method correlate with the CD-RISC-10 scores and the Rosenberg Self-Esteem Scale? Research Question #2 was: Are there significant differences in the resilience ratios, the CD-RISC-10 scores, and Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings? I used the CD-RISC-10 (Connor et al., 2003) as a well-established objective resilience scale and the Rosenberg Self-Esteem Scale (Rosenberg et al., 1989) as a well-established objective scale measuring self-esteem, a factor related to resilience. In this chapter, I will give an account of the impact of this

pilot study on the main study, the data collection process, the results of the data analyses, and the establishment of validity.

Impact of the Pilot Study on the Main Study

Resilience ratios measured in this study are positively correlated with the objective assessment, the CD-RISC-10. This result supported that the resilience ratio is a valid scale to measure resilience. Resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who provided positive endings to the open-ended traumatic story were significantly different from those who provided negative endings. This result demonstrated that how participants completed the open-ended traumatic story can be used to understand a person's resilience level. The projective assessment presented in this study can be used to understand and measure resilience, in addition to the objective quantitative assessments.

Data Collection

I conducted interviews from the end of September to the end of November, 2014, after the IRB approval. The IRB approval number was 09-18-14-0251071. I conducted a total of 67 interviews. Two of the 67 interviews (3%) were excluded because participants failed to complete the objective assessments. All participants were over the age of 18, appeared to be mentally and emotionally stable, and were not under the influence of substances at the time of interview. Among the total 65 participants who completed the interview and the objective assessments, 34 (52.3%) were males and 31 (47.7%) were females. Since this study was a pilot study and I did not intend to perform demographic analyses, other demographic information was not collected. I will discuss future demographic subgroup studies in the recommendation section in Chapter 5. I have

explained the interview process and participants have signed consent forms before proceeding to the interview. After participants listened to the traumatic story, I recorded their responses manually and with an electronic device simultaneously. I also sent follow-up emails two days after the interview. A few participants wrote emails back demonstrating enjoyment in the interview and appreciation of the follow-up email. Majority participants did not respond to the follow-up emails.

Data Analyses

Descriptive Statistics

The mean, the median, the range, and the standard deviation of resilience ratios, the Rosenberg Self-Esteem scores, and the CD-RISC-10 scores are listed in Table 5. The mean score was 21.22 and the standard deviation was 4.93 for the Rosenberg Self-Esteem Scale. The mean score was 28.51 and the standard deviation was 5.71 for the CD-RISC-10. The mean score was .33 and the standard deviation was .27 for resilience ratios.

Table 5

Descriptive Statistics

	Mean	Median	Range	Standard Deviation
Resilience Ratio	.33	.33	0 - 1	.27
Rosenberg Self-esteem Scale	21.22	21	10 - 30	4.93
CD-RISC-10	28.51	28	10 - 40	5.71

Listening to the same story, 65 participants reacted dramatically differently. Eighteen participants (27.7%) in this study had a resilience ratio of 0 by giving all negative responses with no positive response. Nine of them were male and five were

female. Two participants (3.1%) had a resilience ratio of 1 by giving all positive responses with no negative response. They were both male. The rest 45 participants (69.2%) provided responses with both positive and negative responses. Positive responses provided by the participants were words of "*hope*", "*lucky*", "*love*", "*understanding*", "*support*", "*strength*", and "*acceptance*". Negative responses were words of "*sad*", "*hopeless*", "*angry*", "*unfair*", "*injustice*", and "*heartbreaking*". The number of positive responses and total responses were counted manually. I used a calculator to obtain resilience ratios, dividing the number of the positive responses by the number of total responses. The frequency statistics of resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores is listed in Table 6.

Table 6

Frequency Statistics

Resilience ratio	CD-RISC-10	Rosenberg Self-esteem	Percentile
0	10	10	0
0	25	17.5	25
.25	27	19.4	40
.33	28	21	50
.40	30	22	60
.50	31	25	75
1	40	30	100

As it is illustrated in Table 5 and 6, the scores of the CD-RISC-10 and the Rosenberg Self-Esteem Scale are normally distributed with the means and the medians at

the 50 percentiles. However, the distribution of resilience ratios is positively skewed with the range from 0 to 1 and both the mean and the median at .33. Majority participants (54 participants, 83.1%) had resilience ratios less than .5; they provided more negative responses than positive responses. Only a small percentage of participants (16.9%) provided more positive responses than positive responses. This means, a majority of individuals expressed more negative emotions than positive experience at the presence of adversities; only a small percentage of individuals perceived more positive elements than negative elements in life at the presence of adversities.

Pearson Correlation

My Research Question #1was: How well do the resilience ratios measured by the projective method correlate with the CD-RISC-10 scores and the Rosenberg Self-Esteem Scale? The null hypothesis ($H_0$1) was: There is no significant correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem Scale. The alternative hypothesis ($H_1$1) was: There is no significant correlation between the resilience ratios and the CD-RISC-10 scores or between the resilience ratios and the Rosenberg Self-Esteem Scale.

I used SPSS version 21 to analyze correlations between resilience ratios of the projective method and the CD-RISC-10 scores; and between resilience ratios and the Rosenberg Self-Esteem scores. Pearson correlations revealed a positive correlation with a *p* value lower than a .05 level between resilience ratios and the CD-RISC-10 scores. However, the correlation between resilience ratios and the Rosenberg Self-Esteem scores failed to show significance at a .05 level; the *p* value was greater than .05. The result of Pearson correlations is listed in Table 7.

Table 7

Pearson Correlations

	Resilience Ratio	CD-RISC-10	Rosenberg Self-Esteem
Resilience ratio			
Pearson Correlation	1	.27*	.20
p value (2 tailed)		.03	.10
N	65	65	65
CD-RISC-10			
Pearson Correlation	.27*	1	.68**
p value (2 tailed)	.03		.00
N	65	65	65
Rosenberg Self-esteem			
Pearson Correlation	.20	.68**	1
p value (2 tailed)	.10	.00	
N	65	65	65

*$p < .05$ level (2 tailed)
**$p < .01$level (2 tailed)

The correlation between resilience ratios and the CD-RISC-10 scores was statistically significant at a .05 level. The null hypothesis was rejected and the alternative hypothesis was retained. There was a positive correlation between resilience ratios and the CD-RISC-10 scores. The effect size was less than medium with $r = .275$ and $r^2 = .08$. The correlation between resilience ratios and the Rosenberg Self-Esteem scores failed to demonstrate statistical significance. The null hypothesis failed to be rejected. A person's self-esteem level was not related to the resilience ratio in the current study using a sample size of 65. The possible reasons of the insignificant correlation between resilience ratios and the Rosenberg Self-Esteem scores will be discussed in Chapter 5.

Independent Samples *t* Test

Fifty-one out of the 65 participants (78.5%) completed the story positively: the major character regained his/her ability little by little, with the help of his/her parents, or as much as he/she could; became independent as much as he/she could, met another boy/girlfriend, and enjoyed the rest of his/her family life and social life. The other 14participants (21.5%) completed the story negatively: no future, the major character died young, he/she could not face the reality and became alcoholic, his/her parents failed to support him/her later on, his/her parents died and he/she could not survive, he/she was bullied by others, he/she met a new boy/girl friend who failed to take care of him/her, or he/she lived a dull life for the rest of the years. Among the 14 participants who gave negative endings to the story, 11 of them (79%) provided a resilience ratio of 0. They failed to show cognitive or emotional flexibility. I performed independent sample *t* tests with unequal sample sizes to analyze the differences in the CD-RISC-10 scores, the Rosenberg Self-Esteem scores, and resilience ratios for participants who completed the story positively and those who completed the story negatively. The means and the standard error means for the Rosenberg Self-Esteem scores, the CD-RISC-10 scores, and resilience ratios for the participants who completed the story positively and those who completed the story negatively are shown in Table 8.

My Research Question #2 was: Are there significant differences in the resilience ratios, the CD-RISC-10 scores, and Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings? The null hypothesis was: There is no significant difference in the resilience ratios, the CD-RISC-10 scores, or the Rosenberg Self-Esteem scores between the participants providing

positive endings and those who providing negative endings. The alternative hypothesis was: There are significant differences in the resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between the participants providing positive endings and those who providing negative endings.

Table 8

Group Statistics for Participants Completed the Story Positively and Those Who Completed the Story Negatively

	N	Mean	Standard Error Mean
Rosenberg Self-esteem			
Positive Ending	51	21.88	.69
Negative Ending	14	18.79	1.18
CD-RISC-10			
Positive Ending	51	29.25	.82
Negative Ending	14	25.79	1.19
Resilience Ratio			
Positive Ending	51	.37	.04
Negative Ending	14	.19	.05

Levene's tests for resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores failed to reject the null hypotheses of equal variance. The *p* values were .481, .259, and .368 respectively. Therefore, equal variances were assumed. All three t tests for resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores between participants who proved positive endings and those who provided negative endings demonstrated statistical significant differences at the .05 level with a degree of freedom 63. The result is listed in Table 9. The null hypotheses have to be rejected and the alternative hypotheses have to be retained. There are significant

differences in the Rosenberg Self-Esteem scores, the CD-RISC-10 scores, and resilience ratios between participants who completed the story positively and those who completed the story negatively. A person's resilience can be understood by how this person completed the traumatic scenario. The Cohen's d values of the *t* tests for resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores were .69, .65, and .62 respectively. The effect sizes were medium to large.

Table 9

Independent Sample t-Tests Results

	df	*p* value (2-tailed)
Rosenberg Self-esteem	63	.036*
CD-RISC-10	63	.043*
Resilience ratio	63	.026*

*$p < .05$

Establishment of Validity

Three approaches can be used to establish validity: the content-related approach, the construct-related approach, and the criterion-related approach (Groth-Marnat, 2009). It is not possible to establish content validity; instead, it is easier to judge content invalidity. In this study, it is not possible to verify content invalidity because participants had free room to express all what related to resilience. In addition, I have followed what VanderStoep et al. (2009) suggested, establishing content validity by consulting experts. I have consulted Dr. Davidson, the developer of the CD-RISC, and seven Walden faculty members who were recommended by Walden University to provide expertise advice to students for their dissertations. They all considered the resilience ratio and how

participants complete the open-ended story as valid methods to understand and measure resilience. They also considered the traumatic story as a valid instrument for this projective assessment. Initial content validity of this study can be established by the consent of these experts.

Initial construct validity of this study was developed by following the three steps suggested by Sechrest (2005). I first read hundreds of literatures regarding resilience. From the literature I understood the construct of resilience and factors relevant to resilience. Then I designed the open-ended story with the presence of a major adversity and positive environmental support.

Criterion validity of this study was established by concurrent validity; comparison of the resilience ratios measured by this projective method and the scores of a well-established resilience scale, the CD-RISC-10. Resilience ratios measured in this study are positively correlated with the CD-RISC-10 scores. The resilience ratio is a variable valid to measure resilience. In addition, how participants complete the story can also be used to understand resilience. Resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores of participants who provided positive endings were significantly different from the scores of those who provided negative endings. Both the resilience ratio and how participants complete the story are valid methods to understand and measure resilience.

Summary

The resilience ratio measured by this projective method is able to measure resilience since it is significantly correlated with a well-established objective resilience scale, the CD-RISC-10. However, the resilience ratio failed to demonstrate a significant

correlation with the Rosenberg Self-Esteem Scale. Possible explanation will be discussed in Chapter 5. Moreover, how an individual complete a traumatic story can be used to understand the resilience level because resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who completed the story positively and those who completed the story negatively were significantly different.

Chapter 5: Discussion

The purpose of this study was to develop a projective method to understand and measure resilience. Up to the present, there are several objective assessments to measure resilience; however, there is no projective method available. In the current study, resilience ratios measured were positively correlated with the scores of a well-established objective assessment scale, the CD-RISC-10. This suggests that the resilience ratio is a valid instrument to measure resilience. Furthermore, resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who completed the story positively and for those who completed it negatively were significantly different. This suggests that how an individual completes an open-ended story with a traumatic event can be used to understand resilience. However, the resilience ratio measured by the projective method in a sample size of 65 was not significantly correlated with the Rosenberg Self-Esteem Scale. Self-esteem is one of the intrapersonal traits related to resilience. This will be discussed in the next section. In this chapter, I will discuss the interpretation of the statistics findings, the phenomenological findings, limitations of this study, and the establishment of validity of this study. I will also provide my recommendations for future studies and implication of this study.

Interpretation of the Findings

Descriptive Statistics

A majority of the participants in the current study provided positive endings to the open-ended story. This finding agreed with the report of Bonanno et al. (2005). These authors reported that resilience was a common phenomenon observable in majority individuals. The distribution of resilience ratio is positively skewed. This suggests that it

is normal for an individual to express more negative feelings than positive feelings at the presence of adversities. Only two participants in this study provided positive responses with no negative response. This finding indicates that it is not common for individuals not to experience any negative emotion at the presence of adversities.

Correlation Tests

Findings of this study support the positive association of resilience with cognitive and emotional flexibility. Resilience is a human trait preventing the maladjustment toward the unwanted situations (Huai et al., 2009). Being exposed to the same unwanted situation, every person responds differently. Individuals with cognitive and emotional flexibility are able to perceive and experience positive elements in life even at times of adversity (Galatzer-Levy et al., 2013). However, individuals with cognitive and emotional inflexibility are not; they are often disturbed and overwhelmed by the unwanted situation (Waugh et al., 2011).

Personal experience can be captured by words which individuals provide (Graesser, 2011). Positive emotions during traumatic events disclosed by positive words are indicators of cognitive and emotional flexibility which is related to resilience (Galatzer-Levy et al., 2013). Individuals with high levels of resilience have been found to hold a positive view toward self, the world, and the future: the positive triad (Mak et al., 2011).

In the current study, the extent of positive emotions expressing the positive triad was illustrated by the resilience ratio. All the participants listened to the same open-ended traumatic story. However, their resilience ratios varied greatly. About one-quarter of participants gave only negative responses with no positive response, two participants

gave only positive responses with no negative response, and the majority gave responses expressing both negative and positive feelings. The majority participants in the current study demonstrated cognitive and emotional flexibility of various extents. The resilience ratio of the projective method is found to be positively correlated with the well-established objective assessment, the CD-RISC-10. This suggests that the more an individual is able to perceive, experience, and express positive emotions in an unwanted situation, the more probable this person may have a high level of resilience.

The current study failed to demonstrate a significant correlation between resilience ratios and the Rosenberg Self-esteem scores. A possible reason is the small sample size. Because this study was a pilot study and it was conducted in the way of individual interview, I only used a small sample size of 65. In behavioral science, a study with a large sample size will provide better accuracy in correlation analysis (Anderson, Doherty, & Friedrich, 2008). Future researches with large sample sizes may support a positive correlation between resilience ratios and the Rosenberg Self-Esteem scores.

In addition, it was observed that a few participants, mostly females, provided many positive responses yet rated themselves relatively low in the objective scales. Usually I did not have the opportunity to score the objective scales until all the interviews of the day were completed. I had the opportunity to read the objective scales of one female participant after the interview because there was no other appointment after her. I asked the participant if she was very harsh to herself. Her answer was yes. It is possible that the other few female participants were also harsh on themselves. Rice, Lopez, Richardson, and Stinson (2013) have found that males with high achievement tended to be low in self-criticism yet females with high achievement tended to be high in self-

criticism. These few participants could affect the correlation. On the contrary, there were also participants, often males, who had low resilience ratios yet they rated themselves relatively high on the objective scales. Males have been found to build their resilience through aggression and personal strife (Waaktaar et al., 2012). Therefore, it is possible that males can be resilient by aggression and personal strife even when they are low in cognitive or emotional flexibility. Because of the small sample size, the gender subgroup analysis failed to demonstrate significant result. This will be further elaborated in the recommendation section.

Phenomenological Findings

This is a quantitative study. However, the assessment method is a projective method. Therefore, phenomena were observed during the interview. Resilience is a personality trait characterized by self-efficacy, self-esteem, self-confidence, social confidence, a sense of control, problem solving skills, curiosity, self-discipline, and intellectual functioning (Galatzer-Levy et al., 2013). Findings in this study according to the contents of how participants completed the open-ended story also support resilience as a personality trait. Forty-one participants completed the story positively by the continual improvement in their cognitive ability, continual learning and training, gaining independency little by little, learning problem-solving skills, finding a job suitable for his/her ability level, starting a new business, or developing other skills such as painting or rice sculpture.

Afifi et al. (2011) have found that environmental factors are significant protecting factors for resilience development; such environmental factors include family support, community resources, and social policies. Besides personality traits, findings in this

study support environmental elements as supporting factors for resilience as well. In the scenario provided, family support was the only environmental protecting factors. Fourteen participants gave positive responses regarding family support; such responses as "*love*", "*support*", "*family*" and "*warmth*". Twenty-two participants completed the story positively with the help of the family.

Interpersonal relationships such as family relationship, other relationships, and social connections have also been found to play a significant role in resilience (Lee et al., 2013). In the current study, even though the family relationship and the broken courtship relationship were the only interpersonal relationships provided in the scenario, 34 participants employed other relationships in completing the story positively, such relationships provided included a new boy/girl friend, elementary school friends, other friends, or social activities. Findings in this study support relationships as significant factors for resilience.

Through this projective assessment, it is possible to identify each participant's resilience style. Generally speaking, three resilience styles were observed in this study: the performance style, the relationship style, and the combination of these two. Some participants completed the story positively with the ending of further cognitive recovery and success in academic achievement, business, or career. These participants tended to build their resilience on the performance; they gain resilience the performance style. Some participants completed the story positively with the ending of good relationships with parents, friends, a new boy/girl friend, marriage, and a family. It appears that these participants built their resilience on relationships; they gain resilience the relationship style. Other participants completed the story positively with both performance and

relationship- the recovery of performance and the enjoyment of the existing and new relationship. They gain resilience through the combination style.

In conclusion, phenomenological findings in this study are congruent with other literature reports (Galatzer-Levy et al., 2013). The findings support cognitive and emotional flexibility as significant elements for resilience. This study also supports that personality traits, interpersonal relationship, and environmental factors are protecting factors for resilience. In addition, three resilience styles were observed, the performance style, the relationship style, and the combination style.

Limitations of the Study

There are several limitations in this study. The first and the most significant limitation of this study is the small sample size. Studies with large samples size may possibly demonstrate a significant correlation between the resilience ration and the Rosenberg Self-esteem scale. Besides the correlation with the Rosenberg Self-Esteem scale, the small sample size also made further subgroup analyses not possible, such as different positive words used in participants of different gender, ethnic background, socioeconomic status, or academic achievement. The factors of gender, ethnic background, socioeconomic status, and academic achievement have been found to affect a person's resilience significantly (Friborg et al., 2011; Kirmayer et al., 2011). Males tend to build their resilience upon performance and personal strife yet females often use family and social support well (Galatzer-Levy et al., 2013). Regarding ethnic background, Easterners often emphasize performance yet Westerners often stress the recovery of socialization (Li et al., 2012). The current pilot study was not able to

accomplish the above mentioned subgroup analyses; this is an area requires future research.

Participants of this study were college students over the age of 18. Majority of them appeared to be at their early 20s. College students are a special group of individuals who do not represent the whole population. Age is also a factor affecting resilience (Diehl & Hay, 2010). It has been found that the young and the old are different in ways of gaining resilience (Li et al., 2012). However, this study is not designed to assess resilience in individuals of other age groups. The research results of studies in other populations and other age groups may present different outlook.

Another significant limitation of this study is the limited phenomenological analyses. The assessment method presented in this study is a projective method; interesting phenomena were observed during the interview. However, this study is a quantitative study. Therefore, phenomena were observed but not further explored. Projective method is a valuable approach for phenomenological study (Campos, 2011). I will recommend future phenomenological research; the detail is described in the next section.

Recommendations

Future Phenomenological Research

The open-ended scenario provided in this study was a projective method. Therefore, interesting phenomena can be observed during the interview. Participants have the tendency to project their self onto the major character; which is a significant purpose of a projective method (Campos, 2011). During the interview, one male participant completed the story with the major character establishing his own family with

three children: the first child a boy, the second child a girl, and the third child a girl again. This participant put a strong emphasis on the number, the gender, and the sequence of the gender of these three children. In a phenomenological study, further inquiry regarding the significance of the number, the gender, and the sequence of the gender of these three children can be assessed. Another male participant completed the story with the major character pursuing justice regarding the drunk-driving incidence after his recovery. In a phenomenological study, the significance of pursuing justice to this person may also be assessed. To some individuals, it is possible that pursuing justice contributes to the motivation and personal strife for their resilience. Future phenomenological research may discover and explore these phenomena.

As it has been mentioned earlier, a few female participants gave many positive responses yet they rated themselves relatively low on objective scales. In a future phenomenological study, there may be opportunities to further inquire the criteria of how participants rate themselves in the objective scales. This will provide more accurate information to approximate the correlation between the resilience ratio and the scores of the objective scales. The further inquiry in future phenomenological research may also help participants to assess themselves in a more reasonable manner.

One male participant completed his story with the ending of the major character working on rice sculptures and then becoming a famous artist. A female participant completed the story with the ending of the major character painting and then meeting a man loving her paintings. I had the opportunity to ask the female participant if she had a passion for painting. Her answer was yes. It appeared that her passion for painting was a way to gain resilience for her. It is possible that rice sculpture is also a passion for the

former participant and a way of resilience for him. Art has been found with healing power (Rubin, 2012). Sometimes, personal passion may become the strength to help the person to overcome difficulties. This can be approached in a phenomenological study. When a participant completes the story positively with the major character becoming an artist, further inquires can be made regarding the significance of art to the participant and the participant's experience of art. It may also be a good idea to encourage the participant to continue engaging in the art activity.

Two participants completed the story that the major character married, had a son, and his son went to Harvard University. Both of these two participants were male. It would be interesting to further explore if males tend to place unfulfilled dreams onto their children in a phenomenological study. This phenomenon may be observed in females as well. It takes future research to further study this phenomenon by a gender subgroup analysis.

Some participants expressed understanding and acceptance regarding the dissolution of the courtship relationship in the scenario, some demonstrated remorse, yet others showed anger. There were also a few participants trying to restore this broken relationship even though they understood that it was not possible. Two of the participants ended the story with this courtship relationship becoming an ordinary friendship. It would be interesting to further explore if the attachment style is related to the attitude toward the dissolution of the courtship relationship. In future phenomenological research, attachment style characterized by childhood reactions toward parental separation can be assessed to analyze the possible correlation. In addition,

further inquiries regarding how each participant has managed the termination of past relationships can also be included to discover any similarity or pattern.

Regarding parents' decision in waiting for the major character to wake up, most participants were grateful toward the parents' patience and love. However, some felt sorry for the parents' hard work and responsibility in taking care of the major character afterwards. Yet one female participant considered it "*stupid*" to exert such an effort. It appears that these participants placed different values on the meanings and significance of life. Some placed high value on life itself, some placed high value on smoothness of life, yet the female participant placed high value on quality of life. Future phenomenological research may further inquire each participant the meanings and significance of life in order to identify any association between the attitude toward the parental decision and the meanings and significance of life. Future research may also explore the possible relationship between resilience and the meanings and significance of life.

In conclusion, sentence completion and story-telling have been used to understand a person (Dent-brown et al., 2004; Lunday, 1989; Veldman, 1969). Similarly, the projective method presented in the current study with an open-ended scenario can also be used in qualitative phenomenological studies to understand a person. Basing on the participant's responses, inquires can be further supplemented to understand the participant in the future phenomenological research.

Further Subgroup Study

Males and females are different in resilience (Galatzer-Levy et al., 2013). Females tend to build resilience upon relationship and social resources yet males tend to

build resilience upon aggression and performance (Galatzer-Levy et al., 2013). Positive responses of "*love*," "*care*," "*warm family*," and "*support*" are words representing relationship and response of "*strength*," "*endurance*," "*move-on*," and "*strong mind*" are words representing aggression and performance. In future studies, it will be interesting to examine if there are any differences between males and females in using different categories of positive responses.

As it has been mentioned, there are three resilience styles observed, the performance style, the relationship style, and the combination style. Ruble (1972) has found that elementary school girls tend to be socially oriented and elementary boys tend to be task oriented. Future research may also study any association between the resilience style and gender, and any association between the resilience style and the socially oriented personality or the task oriented personality.

Resilience for the young can be different from the old (Li et al., 2012). The young tend to build resilience on aggression and the old tend to build resilience on endurance (Li et al., 2012). Almost all participants in this study were young men and women in their 20s and no one was over the age of 40. It will be interesting for the future study to involve participants of all ages and examine any differences among age groups in the word used for positive responses.

Cultural studies have drawn plenty of attention recently (Pernell-Arnold, Finley, Sands, Bourjolly, & Stanhope, 2012). Western culture and Eastern culture are different; a collective culture and an individualistic culture are also different. Regarding resilience, it has been found that Westerners tend to view social reconnection as a significant sign of resilience yet Easterners would focus on the recovery of performance (Li et al., 2012).

Resilience in a collective culture is also different from that in an individualistic culture (Wu et al., 2011). Individuals in a collective culture tend to gain resilience from a sense of general justice yet individuals in an individualist culture tend to gain resilience from a sense of personal satisfaction in life. In the current study, majority respondents were Caucasians. Therefore, it was not possible to examine the difference in resilience ratios or the words used for positive responses among different cultural groups. Nevertheless, this can be accomplished in the future studies by drawing a more diverse sample.

Additional Projective Scenarios

Resilience is related to value (Woodier, 2011). Individuals have different values; therefore, different individuals may react differently toward different adversities. In the open-ended scenario presented in this study, the losses presented were cognitive ability and a significant relationship. There are other types of loss, such as talents, economic status, social status, physical ability, health, power, fame, and appearance. Regarding relationship, there are also different types of relationship loss. The scenario provided in the current study was the loss of the courtship relationship. There are other types of relationship loss, such as parent-children relationship, husband-wife relationship, sibling relationship, friendship, work relationship, or social relationship. Individuals may react differently toward various types of loss. Scenarios of various types of loss can be created to assess a person's value. Moreover, different culture may also place different values on different losses (Li et al., 2012).

Other Possible Means of Data Collection

The current study was conducted using an individual interview, providing the scenario in an audio format, and collecting the responses in a verbal format. There are

other ways to conduct the study. The scenario can be provided in an audio format, in a text format, or in the format of video clip. Scenarios in audio and text formats are easy to produce. However, the video clip creates stronger impact and provides more information to participants (Christie & Collyer, 2008). It is possible that participants will respond with more and stronger emotional words after watching video clip. Regarding the ways to collect responses the participants may respond in verbal or in writing. Personal interview is required if verbal responses are collected. Written responses can be collected via mail or through the internet. Besides personal interview, it is possible to conduct the study in groups by having the participants write down their responses after listening to the story, reading the story, or watching the video clip.

Validity of the Assessment

Initial content and construct validity of this projective method was developed and criterion validity was established by the correlation of resilience rations with the CD-RISC-10 scores. However, there are many types of validity not performed in this study. I did not intend to perform predictive validity in this study. Predictive validity can be verified in the future by a longitudinal study. Convergent validity can also be verified by comparing this method with other resilience assessments such as RS, RSA, and READ. Discriminant validity is difficult to obtain even though it can be critical (Kirk, 2012). Discriminant validity can be performed in future research as well.

Furthermore, the establishment of an assessment is a never-ending process (Stickle et al., 2006). Further verification of validity of this projective assessment requires continual elaboration. First, participants of this study were college students in Rutgers University. The traumatic scenario was designed to specifically fit the

stipulation of college students. Validity of this projective method in other population groups including other age, education, and ethnic groups needs to be established. As it has been mentioned in Chapter 2, construct of resilience in different population groups may be different; males and females are different, the old and the young are different, and individuals of different cultural background are different. (Galatzer-Levy et al., 2013; Gooding et al., 2012). Therefore, the traumatic scenario of the projective method has to be different for different population groups. Validity of the projective method with different traumatic scenarios for different population groups has to be evaluated. As time goes by, the construct of resilience can be changes as well. The traumatic scenario will have to change and validity has to be re-evaluated.

Implication

Prevention Programs and Intervention Strategies

Resilience can be taught and trained (White et al., 2010). Besides measuring resilience, a resilience assessment can also be used to establish prevention programs and intervention strategies (Afifi et al., 2012). Basing on the same methodology, prevention programs and intervention strategies can be established by providing an open-ended traumatic scenario, then helping participants to perceive positive elements in the story, and working with participants to come up with a positive resilient ending. To apply the simulated scenario to real life, participants may project the positive elements in the scenario to positive elements in their real life, identify possible help and resources in the community, and participants may come up with their own ways of living a resilient life. This prevention or intervention program can be conducted individually or in groups. In addition to the idealistic resilience building, it is important to discuss the possible

challenges and obstacles in the process of resilience. Possible personal mental and emotional struggles also need to be talked over**.**

Social Change

There are two pathways of social change, top-down and bottom-up (Mayor, 1995). Social changes may start from governmental and social policies or from individual change. The change in policies may change individuals and the change in individuals can change policies as well. The method presented in the current study may bring about changes both top-down and bottom-up. The top-down change can be effected when a school or a company screen and identify individuals with low resilience levels. Then the school or the company institutes the prevention program for students or employees at risk with the strategies mentioned above. The top-down change can also be effected in a mental institute by identifying patients with low levels of resilience. Education and training of resilience can be instituted as an inpatient group activity.

The bottom-up change can be implemented in hospitals, community centers, counseling centers, or any other places where individuals with need may receive individual resilience education and training. Social change will take place when individuals become resilient and able to manage undesired situations, using either a top-down or a bottom-up pathway. Employees may stay in their jobs happily and be able to manage their job stress and relationships better after the education and training. Students may be able to manage academic stress better, manage their relationships better, and achieve better academic achievement after the education and training, there will be reduced number of individuals with issues of depression, anxiety, stress, violence, suicide, or other psychiatric/psychological disorders when individuals become resilient (Scali et

al., 2012). The medical expense will be reduced as well. At the end, the society will become healthy when individuals are healthy.

Summary

The resilience ratio measured in the current study is valid in measuring resilience level because it demonstrated a significant correlation with the well-established objective assessment, the CD-RISC-10. In addition, how a person completes an open-ended traumatic story is also a valid method to understand resilience. Resilience ratios, the CD-RISC-10 scores, and the Rosenberg Self-Esteem scores for participants who completed the story positively and for those who completed the story negatively were significantly different. However, the current study failed to demonstrate a significant correlation between resilience ratios and the Rosenberg Self-Esteem scores. It requires further research to verify this correlation. The small sample size is a major limitation of the current study; many subgroup analyses were not possible to conduct. Nevertheless, this is a pilot study. The purpose of a pilot study is to open avenues for future further research. Future research with large sample sizes may accomplish many valuable subgroup analyses. Phenomenological observation is a significant feature for a projective method. In addition, many future studies can be conducted with this projective methodology in different genders, cultures, ages, or socioeconomic backgrounds. Different scenarios can be developed in assessing individuals in different population groups mentioned above. Prevention programs and intervention strategies can also be developed according to the methodology presented as well. The future research and prevention programs may result in positive social change.

References

Afifi, T. O. & MacMillan, H. L. (2011). Resilience following child maltreatment: A review of protective factors. *Canadian Journal of Psychiatry/LaRevue canadienne de psychiatrie, 56*(5), 266–272.

Aldwin, C. M., Cunningham, M., & Taylor, A. L. (2010). Resilience across the life span: A tribute to Emmy E. Werner. *Research in Human Development, 7*(3), 159–163. doi:10.1080/154276092010.504502

Alvarado, N. (1994). Empirical validity of the Thematic Apperception Test. *Journal of Personality Assessment,63*(1), 59–79. doi:10.1207/s15327752jpa6301

Anderson, R. B., Doherty, M. E., & Friedrich, J. C. (2008). Sample size and correlational inference. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 34*(4), 929–944. doi:10.1037/0278-7393.34.4.929

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science, 1*(2), 164–180. doi:10.1111/j.1745-6916.2006.00011.x

Barton, S., Morley, S., Bloxham, G., Kitson, C., & Platts, S. (2005). Sentence completion test for depression (SCD): An idiographic measure of depressive thinking. *British Journal of Clinical Psychology, 44*, 29–46. doi:10.1348/014466504X19794

Beilin, H. & Werner, E. (1957). Sex differences among teachers in the use of the criteria of adjustment. *Journal of Educational Psychology, 48*(7), 426–436.

Bendayan, R., Blanca, M. J., Fernandez-Baena, J. F., Escobar, M. V., & Trines, M. (2013). New empirical evidence on the validity of Satisfaction With Life Scale in early adolescents. *European Journal of Psychological Assessment, 29*(1), 36–43. doi:10.1027/1015-5759/a000118

Block, J. & Turula, E. (1963). Identification, ego control, and adjustment. *Child Development, 34*(4), 945–953. Available from http;//www/jstor.org/stable/1126537

Boker, S. M., Montpetit, M. A., Hunter, M. D., & Bergeman, C. S. (2010). Modeling resilience with differential equations. In P. C. M. Molenaar & K. M. Newell (Ed.), *Individual pathways of change: Statistical models for analyzing learning and development.* (pp. 183–206). Washington, DC: American Psychological Association. doi:10.1037/12140-011

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*(1), 2028. doi:10.1037//0003-066X.59.1.20

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahow, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology, 75*(5), 671–682. doi:10.1037/0022-0066X.75.5.671

Bonanno, G. A., Kennedy, P., Galatzer-Levy, I. R., Lude, P., & Elfstrom, M. L. (2012). Trajectories of resilience, depression, and anxiety following spinal cord injury. *Rehabilitation Psychology, 57*(3), 236–247. doi:10/1037/a0029256

Bonanno, G. A., Rennicke, C., & Dekel, S. (2005). Self-enhancement among high-exposure survivors of the September 11th terrorist attack: Resilience or social maladjustment? *Journal of Personality and Social Psychology, 88*(6), 984–998. doi:10.1037/0022-3514.88.6.984

Bornstein, R. F. (1998). Implicit and self-attributed dependency strivings: Differential relationships to laboratory and field measures to help seeking. *Journal of Personality and Social Psychology. 75*(3), 778–787. doi:10.1037/0022.3514.75.3.778

Bornstein, R. F. (1999). Criterion validity of objective and projective dependency tests: A meta-analytic assessment of behavioral prediction. *Psychological Assessment, 11*(1), 48–57. Doi:10.1037/1040-3590.11.1.48

Campbell-Sills, L. & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*(6), 1019–1028. doi:10.1002/jts.20271

Campos, R. C. (2011). 'It might be what I am': Looking at the use of Rorschach in psychological assessment. *Journal of Projective Psychology & Mental Health, 18*(1), 28–38. Available from PsycINFO

Carr, W., Bradley, D., Ogle, A. D., Eonta, S. E., Pyle, B. L., & Santiago, P. (2013). Resilience training in a population of deployed personnel. *Military Psychology, 25*(2), 148–155. doi:10.1037/h0094956

Carson, S. H. (2011). Risk and resilience in the Ozarks. *PsycCRITIQUES, 56*(25), [Review-Media]. doi:10.1037/a0024267

Casual, C. (2010). Metaphors to reawaken resiliency in patients. *Australian Journal of Clinical & Experimental Hypnosis, 38*(1), 62–71. Available from PsycINFO

Catalano, D., Chan, F., Wilson, L, Chiu, C., & Muller, V. R. (2011). The buffering effect of resilience on depression among individuals with spinal cord injury: A structural

equation model. *Rehabilitation Psychology, 56*(3), 200–211. doi:10.1037/a0024571

Christie, B. & Collyer, J. (2008). Do video clips add more value than audio clips? Presenting industrial research and development result using multimedia. *Behavior and Information Technology,27*(5), 395–405. doi:10.1080/01449290200959146

Coates, E. E., Phares, V., & Dedrick, R. F. (2013). Psychometric properties of the Connor-Davidson Resilience Scale 10 among low-income African American men. *Psychological Assessment, July* 1, 2013. Doi:10.1037/a0033434

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. doi:10.1037/0033-2909.112.1.155

Connor K. M. & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*(2), 76–82. doi:10.1002/da10113

Corley, C. (2010). Creative expression and resilience among Holocaust survivors. *Journal of Human Behavior in the Social Environment, 20*(4), 542–552. doi:10.1080/10911350903275325

Costantino, G., Flanagan, R., & Malgady, R. (1995). The history of Rorschach: Overcoming bias in multicultural projective assessment. *Rorschachiana, 20*(1), 148–171. doi:10.1027/1192-5604.20.1.148

Daini, S., Manzo, A., Pisani, F., & Tancredi, A. (2010). Attempted suicide: Psychopathology and Wartegg Test indicators. *Journal of Projective Psychology & Mental Health, 17*(2), 171–177. Available from PsychINFO

Dent-Brown, K. & Wang, M. (2004). Developing a rating scale for projected stories. *Psychology and Psychotherapy: Theory, Research, and Practice, 77*(3), 325–333. doi:10.1348/1476038041839321

deTychey, C. Lighezzolo-Alnot, J., Claudon, P., Garnier, S., & Demogeot, N. (2012). Resilience, mentalization, and the development tutor; A psychoanalytic and projective approach. *Rorschachiana, 33*(1), 2012. doi:10.1027/1192-5604/a000027

Dickens, C. (1859). *A tale of two cities.* London: Chapman & Hall.

Diehl, M. & Hay, E. L. (2010). Risk and resilience factors in coping with daily stress in adulthood: The role of age, self-concept incoherence, and personal control. *Developmental Psychology, 46*(5), 1132–1146. doi:10.1037/a0019937

Diener, E. , Emmons, R., Larsen, J. & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*(1), 71–75. doi:10.1207/s15327752jpa4901_13

Fletcher, D. & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist, 18*(1), 12–23. doi:10.1027/1016-9040/a000124

Foran, H. M., Adler, A. B., McGurk, D., & Bliese, P. D. (2012). Soldiers' perceptions of resilience training and postdeployment adjustment: Validation of a measure of resilience training content and training process. *Psychological Services, 9*(4), 390–403. doi:10.1037/a0028178

Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M. P.,… Grimshaw, J. M. (2010). What is an adequate sample size? Operationalising data

saturation for theory-based interview studies. *Psychology & Health, 25*(10), 1229–1245. doi:10.1080/08870440903194015

Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J. H., & Hjemdal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research, 14*(1), 29–42. doi:10.1002/mpr15

Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martiunussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research, 12*(2), 65–76. doi:10.1037/t07443-000

Gable, S. L. & Haidt, J. (2005). What (and Why) Is Positive Psychology? *Review of General Psychology, 9(2),* p. 103–110. doi:10.1037/1089-2680.9.2.103

Galatzer-Levy, I. R., Brown, A. D., Hene-Haasse, C., Metzler, T. J., Neylan, T. C., & Marmar, C. R. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion, 13*(3), 545–553. doi:10.1037/a0031314

Galatzer-Levy, I. R., Burton, C. L., & Bonanno, G. A. (2012). Coping flexibility, potentially traumatic life events, and resilience: A prospective study of college student adjustment. *Journal of Social and Clinical Psychology, 31*(6), 542–567. Doi:10.1521/jscp.2012.31.6.542

Galligan, S. B., Barnett, R. V., Brennan, M. A., & Israel, G. D. (2010). The effects of gender role conflict on adolescent and emerging adult male resiliency. *Journal of Men's Studies, 18*(1), 3–21. doi:10.3149/jms.1801.3

Garmezy, N., Clarke, A. R., & Stockner, C. (1961). Child rearing attitudes of mothers and fathers as reported by schizophrenic and normal patients. *Journal of Abnormal and Social Psychology,63*(1), 176–182. doi:10.1037/h0041922

Genet, J. J. & Siemer, M. (2011). Flexible control in processing affective and non-affective material predicts individual differences in trait resilience. *Cognition and Emotion, 25*(2), 380–388. doi:10.1080/02699931.2010.491647

Ghimbulut, O., Ratiu, L., & Opre, A. (2012). Achieving resilience despite emotional instability. *Cognition, Brain, Behavior: An Interdisciplinary Journal, 16*(3), 465–480. Available from PsycINFO

Goldberg, C. (2006, March 10). Harvard's crowded course to happiness. *Boston Globe.* Retrieved from www.boston.com/news/local/articles/2006/03/10/harvards_crowded_course_to_happiness/

Gonzales, G. Chronister, K. M., Linville, D., & Knoble, N. B. (2012). Experiencing parental violence: A qualitative examination of adult men's resilience. *Psychology of Violence, 2*(1), 90–103. doi:10.1037/a0026372

Gooding, P. A., Hurst, A., Johnson, J., & Tarrier, N. (2012). Psychological resilience in young and older adults. *International Journal of Geriatric Psychiatry, 27*(3), 262–270. doi:10.1002/gps.2712

Gould, R. L., Coulson, M. C., & Howard, R. J. (2012). Cognitive behavioral therapy for depression in older people: A meta-analysis and meta-regression of randomized controlled trials. *Journal of the American Geriatrics Society, 60*(10), 1817–1830. Doi:10.1111/j.1532-5415.2012.04166.x

Graesser, A. C. (2011). Learning, thinking, and emoting with discourse technologies. *American Psychologist, 66*(8), 746–757. doi:10.1037/a0024974

Grafton, E., Gillespie, B., & Henderson, S. (2010). Resilience: The power within. *Oncology Nursing Forum, 37*(6), 698-705. doi:10.1188/10.ONF.698-705

Greene, R. R. (2010). Holocaust survivors: Resilience revisited. *Journal of Human Behavior in the Social Environment, 20*(4), 411–422. doi:10.1080/10911350903269963

Groth-Marnat, G. (2009). *Handbook of psychological assessment*. (pp 24–29). Hoboken, NJ: John Wiley & Sons.

Guadagnoli, E. & Velicer, W. F. (1988). Relation to sample size to the stability of *component patterns. Psychological Bulletin, 103*(2), 265–275. doi:10.1037/0033-2909.103.2.265

Handler, L. (1994). Bruno Klopfer, a measure of the man and his work: a review of developments in the Rorschach technique. *Journal of Personality Assessment, 62*(3), 562–577. doi:10.1207/s15327752jpa6203_16

Hartley, M. T. (2012). Assessing and promoting resilience: An additional tool to address the increasing number of college students with psychological problems. *Journal of College Counseling, 15*(1), 37–51. doi:10.1002/j.2161-1882.2012.00004.x

Hawk, S. T., Fischer, A. H., & Van Kleef, G. A. (2012). Face the noise: Embodied responses to nonverbal vocalizations of discrete emotions. *Journal of Personality and Social Psychology, 102*(4), 796–814. Available from PsycINFO

Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is resilience? *Canadian Journal of Psychiatry/La Revue canadienne de psychiatrie, 56*(5), 258–265. Available from PsycINFO

Hertzog, M. A. (2007). Considerations in determining sample size for pilot studies. *Research in Nursing & Health, 31,* 180–191. doi:10.1002/nur.20247

Hibbard, S., Hilsenroth, M. J., Hibbards, J. K., & Nash, M. R. (1995). A validity study of two projective objective representations measures. *Psychological Assessment, 7*(4), 432–439. 10.1037/1040-3590.7.4.432

Hjemdal, O., Friborg, O., Braun, S., Kempenaers, C., Linkowski, P., & Fossion, P. (2011). The Resilience Scale for Adults: Construct validity and measurement in a Belgian sample. *International Journal of Testing, 11*(1), 53–70. doi:10.1080/10305058.2010.508570

Hjemdal, O., Friborg, O., & Stiles, T. C. (2012). Resilience is a good predictor of hopelessness even after accounting for stressful life events, mood and personality (NEO-PI-R). *Scandinavian Journal of Psychology,* 174–180. doi:10.1111/j.1467-9450.2011.00928.x

Hjemdal, O., Friborg, O., Stiles, T. C., Martinussen, M., & Rosenvinge, J. H. (2006). A new scale for adolescent resilience: Grasping the central protective resources behind healthy development. *Measurement and Evaluation in Counseling and Development, 39*(2), 84–96. Available from PsycINFO

Hochwalder, J., Mattsson, M., Holmqvist, R., Cullberg, J., & Rosenbaum, B. (2013). Psychometric evaluation of the Danish and Swedish Satisfaction With Life Scale in first episode psychosis patient. *Quality of Life Research: an International*

Journal of Quality of Life Aspects of Treatment, Care, & Rehabilitation, 22(3), 537–546. Available from PsycINFO

Holaday, M., Smith, D., & Sherry, A. (2000). Sentence Completion Test: A review of the literature and results of a survey of the society for personality assessment. *Journal of Projective Techniques & Personality Assessment, 74*(3), 371–383. doi:10.1207/S15327752_JPA7403_3

Howe, A., Smajdor, A., & Stockl, A. (2012). Towards an understanding of resilience and its relevance to medical training. *Medical Education, 46*(4), 349–356. Doi:10.1111/j.1365-2923.2011.04188.x

Javors, I. R. (2010). Resiliency counseling in economic hard times. *Annals of the American Psychotherapy Association, 13*(2), 43. Available from PsycINFO

Jowkar, B., Friborg, O., & Hjemdal, O. (2010). Cross-cultural validation of the Resilience Scale for Adult (RSA) in Iran. *Scandinavian journal of Psychology, 51*(5), 418–425. doi:10.1111/j1467-9450.2009.00794.x

Keenan, E. K. (2010). Seeing the forest and the trees: Using dynamic systems theory to understand ‘stress and coping’ and ‘trauma and resilience.’ *Journal of Human Behavior in the Social Environment, 20*(8), 1038–1060. doi:10.1080/10911359.2010.494947

Kent, M., Davis, M. C., Stark, S. L., & Stewart, L. A. (2011). A resilience-oriented treatment for posttraumatic stress disorder: Results of a preliminary randomized clinical trial. *Journal of Traumatic Stress, 24*(5), 591–595. doi:10.1002/jts.20685

Khan, N. A., Kanchan, A., Jahan, M., & Singh, A. R. (2011). Human figure drawings of normal Indian adults. *Journal of Projective Psychology & Mental Health, 18*(1), 50–61. Available from PsycINFO

Kinman, G. & Grant, L. (2011). Exploring stress resilience in trainee social workers: The role of emotional and social competencies. *British Journal of Social Work, 41*(2), 261–275. doi:10.1093/bjsw/bcq088

Kirk, R. E. (2012). Experimental design. In I. B. Weiner, J. A. Shinka, & F. Wayne (Ed.), *Handbook of psychology: Research method in psychology, (2nd ed.).* (pp 3–33). Hoboken, NJ, John Wiley & Sons. Available from http://site.ebrary.com/lib/waldenu/reader.action?docID=10621309

Kirmayer, L. J., Dandeneau, S., Marshall, E., Phillips, M. K., & Williamson, K. J. (2011). Rethinking resilience from indigenous perspectives. *Canadian Journal of Psychiatry/La Revue canadienne de psychiatrie, 56*(2), 84-91. Available from PsycINFO

Kolar, K. (2011). Resilience: Revisiting the concept and its utility for social research. *International Journal of Mental Health and Addiction, 9*(4), 421–433. doi:10.1007/s11469-011-9329-2

Lee, J. E., Sudom, K. A., & Zamorski, M. A. (2013). Longitudinal analysis of psychological resilience and mental health in Canadian military personnel returning from overseas deployment. *Journal of Occupational Health Psychology, 18*(3), 327–337. doi:10.1037/10033059

Lee, J. E. C., Sudom, K. A., & McCreary, D. R. (2011). Higher-order model of resilience in the Canadian forces. *Canadian Journal of Behavioural*

Science/Revuecanadienne dessciences du compoutement, 43(3), 222–234. doi:10.1037/a0024473

Lee, J. H., Nam, S. K., Kim, A., Kim, B., Lee, M. Y., & Lee, S. M. (2013). Resilience: A meta-analytic approach. *Journal of Counseling &Development, 91*(3), 269–279. doi:10.1002/j.1556-6676.2013.00095.x

Li, M. & Nishikawa, T. (2012). The relationship between active coping and trait resilience across U.S. and Taiwanese college student samples. *Journal of College Counseling, 15*(2), 157–171. doi:10.1002/j.2161-1882.2012.00013.x

Li, M., Xu, J., He, Y., & Wu, Z. (2012). The analysis of the resilience of adults one year after the 2008 Wenchuan earthquake. *Journal of Community Psychology, 40*(7), 860–870. doi:10.1002/jcop.21496

Locke, J. (1890). On fear and courage in children. In *Some Thoughts Concerning Education* (pp. 215–228). London, Great Britain: National Society's Depository. doi:10.1037/12985-014

Lubbock, J. (1294). Hope. In *The Use of Life* (pp. 241-252). London, Great Britain: Macmillan & Co. doi:10.1037/12943-015

Lundman, B., Strandberg, G., Eisemann, M., Gustafson, Y., & Brulin, C. (2007). Psychometric properties of the Swedish version of the Resilience Scale. *Scadinavian Journal of Caring Science, 21*(2), 229–237. doi:10.1111/j.1471-6712.2008.00682.x

Lundy, A. (1988). Instructional set and Thematic Apperception Test validity. *Journal of Personality Assessment, 52*(2), 309–320. Available from PsycINFO

Mak, W. W. S., Ng, I. S. W., & Wong, C. C. Y. (2011). Resilience: Enhancing well-being through the positive cognitive triad. *Journal of Counseling Psychology. 58*(4), 610–617. doi:10.1037/a0025195

Manzano-Garcia, G. A., & Calvo, J. C. (2013). Psychometric properties of Connor-Davidson Resilience Scale in a Spanish sample of entrepreneurs. *Psicothema, 25*(2), 245–251. doi:10.7334/psycotherna2012.183

Maring, E. F., Malik, B. B., & Wallen, J. (2012). Drug abuse in India: Grounding research in ecological risk and resilience theory. *Family and Consumer Sciences Research Journal, 41*(2), 172–182. Available from PsycINFO

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Qualitative Research, 11*(3), Art.8. Available from PsycINFO

Mayor, F. (1995). How psychology can contribute to a culture of peace. *Peace & Conflict 1*(1), 3–10. doi:10.1207/s15327949pac0101_2

McCracken, L. M., Vowles, K. E., & Zhao-O'Brien, J. (2010). Further development of an instrument to assess psychological flexibility in people with chronic pain. *Journal of Behavioral Medicine, 33*(5), 346–354. doi:10.1007/s10865-010-9264-x

Montpetit, M. A., Bergeman, C. S., Deboeck, P. R., Tiberio, S. S., & Boker, S. M. (2010). Resilience-as-process: Negative affect, stress, and coupled dynamical systems. *Psychology and Aging, 25*(3), 631–640. doi:10.1037/a0019268

Moran, G. S. & Nemec, P. B. (2013). Walking on the sunny side: What positive psychology can contribute to psychiatric rehabilitation concepts and practice. *Psychiatric Rehabilitation Journal, 36*(3), 202–208. doi:10.1037/prj0000012

Neff, L. A., & Broady, E. F. (2011). Stress resilience in early marriage: Can practice make perfect? *Journal of Personality and Social Psychology, 101*, 1050–1067. doi:10.1037/a0023809

Nicoll, W. G. (2011). Resilience-focused brief family therapy: An Adlerian approach. *The Journal of Individual Psychology, 67*(3), 205–221. Available from PsycINFO

Nygren, B., Randström, K. B., Lejonklou, A. K., & Lundman, B. (2004). Reliability and validity of a Swedish language version of the Resilience Scale. *Journal of Nursing Measurement, 12*(3), 169–178. doi:10.1981/jnum.12.3.169

Odendaal, I. E., Brink, M., & Theron, L. C. (2011). Rethinking Rorschach interpretation: An exploration of resilient black South African adolescents' personal constructions. *South African Journal of Psychology, 41*(4), 528–539. doi:10.1177/008124631104100411

O'Halloran, R., Worrall, L., & Hickson, L. (2011). Environmental factors that influence communication between patients and their healthcare providers in acute hospital stoke units: An observational study. *International Journal of Language & Communication Disorders, 46*(1), 30–47. doi:10.3109/13682821003660380

Onwuegbuzie, A. J. & Leech, N. L. (2007). A call for qualitative power analyses. *International Journal of Methodology, 41*(1), 105–121. doi:10.1007/s11135-005-1098-1

Padesky, C. A. & Mooney, K. A. (2012). Strengths-based cognitive-behavioral therapy: A four-step model to build resilience. *Clinical Psychology & Psydesluchotherapy, 19*(4), 283–290. doi:10.1002/cpp.1795

Park, N. (2005). History and Systems of Psychology. Laureate Education, Inc. (Executive Producer). Baltimore: Park.

Pernell-Arnold, A., Finley, L., Sands, R. G., Bourjolly, J., & Stanhope, V. (2012). Training mental health providers in cultural competence: A transformative learning process. *Journal of psychiatric Rehabilitation, 15*(4), 334–356. doi:10.1080/15487768.2012.733287

Philippe, F. L., Laventure, S., Beaulieu-Pelletier, G., Lecours, S., & Lekes, N. (2011). Ego-resiliency as a mediator between childhood trauma and psychological symptoms. *Journal of Social and Clinical Psychology, 30*(6), 583–598. doi:10.1521/jscp.2011.30.6.583

Picano, J. J., Roland, R. R., Rollins, K. D., & Williams, T. J. (2002). Development and validation of a Sentence Completion Test measure of defensive responding in military personnel assessed for nonroutine missions. *Military Psychology, 14*(4), 279–298. doi:10.1207/S15327876MP1404_4

Picano, J. J., Roland, R. R., Williams, T. J., & Rollins, J. D. (2006). Sentence Completion Test verbal defensiveness as a predictor of success in military personnel selection. *Military Psychology, 18*(3), 207–218. doi:10.1207/s15327876mp1803_2

Portzky, M., Wagnild, G., DeBacqyer, D., & Audenaert, K. (2010). Psychometric evaluation of the Dutch Resilience Scale RS-nl on 3265 healthy participants: A confirmation of the association between age and resilience found with the Swedish version. *Scadinavian Journal of Caring Sciences, 24*(1), 86–92. doi:10.1111/j.1471-6712.2010.00841.x

Puskar, K., Bernardo, L. M., Ren, D., Haley, T. M., Tark, K. H., Switala, J.,… Sieman, L. (2010). Self-esteem and optimism in rural youth: Gender differences. *Contemporary Nurse, 34*(2), 190–198. doi:10.5172/conu.2010.34.2.190

Rhode, A. R. (1957). Sentence Completion Test in C. S. Newmark (Ed.), *Major psychological assessments* (pp. 133–163). Boston: Allyn and Bacon.

Rice, K. G., Lopez, F. G., Richardson, C. M. E., & Stinson, J. M. (2013). Perfectionism moderates stereotype treat effects on STEM majors' academic performance. *Journal of Counseling Psychology, 60*(2), 287–293. doi:10.1037/a0032052

Roman, P., Dublineau, M., & Saboia, C. (2011). Projective kit for early childhood (P. K. E. C.): A projective tool for research and clinical assessment. *Rorschachiana, 32,* 223–251. doi:10.1027/1192-5604/a000023

Romer, N., Ravitch, N. K., Tom, K., Merrell, K. W., & Wesley, K. L. (2011). Gender differences in positive social-emotional functioning. *Psychology in the Schools, 48*(10), 958–970. doi:10.1002/pits.20604

Robinson, J. S., Larson, C. L., & Cahill, S. P. (2014). Relations between resilience, positive and negative emotionality, and symptoms of anxiety and depression. *psychological Trauma: Theory, Research, Practice, and Policy, 6*(1), 92–98. doi:10.1037/a0033733

Ross, T., Kaser-Boyd, N., & Maloney, M. P. (2001). Overview in A. S. Kaufman & N. L. Kaufman (Eds.), *Essentials of Rorschach Assessment* (pp. 2-4). NY: Wiley.

Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review, 54*(6), 1004–1018. doi:10.2307/2095720

Rubin, J. B. (2012). Psychoanalysis and art: Partners in healing. *psycCRITIQUES, 57*(44). doi:10.1037/a0030375

Ruble, D. (1972). Task orientation versus social orientation in young children and their attention to relevant social cues. *Child Development, 43*(2), 471–480. doi:10.2307/1127549

Rutter, M. (1999). Resilience concepts and findings: Implications for family therapy. *Journal of Family Therapy, 21*(2), 119–144. doi:10.1111/1467-6427.00108

Salahuddin, N. M. & O'Brien, K. M. (2011). Challenges and resilience in the lives of urban, multiracial adults: An instrument development study. *Journal of Counseling Psychology, 58*(4), 494–507. doi:10.1037/a0024633

Saldana, J. (2012). *The Coding Manual for Qualitative Researchers*. Sage: Los Angeles, London, New Delhi, Singapore, Washington DC. (pp. 1–40). Available from https://books.google.com/books?id=V3tTG4jvgFkC&printsec=frontcover&dq=the+coding+manual+for+qualitative+researchers&hl=en&sa:

Sanyal, N., Dasgupta, M., & Agarwal, S. (2011). Penetrative interpretation of the inner self of a case through projective imagery: A comparative exploration. *Journal of Projective Psychology & Mental Health, 18*(2), 155–164. Available from PsychINFO

Scali, J., Gandubert, C., Ritchie, K, Soulier, M., Ancelin, M., & Chaudieu, I. (2012). Measuring resilience in adult women using the 10-items Connor-Davidson Resilience Scale (CD-RISC). Role of trauma exposure and anxiety disorders. *PLoS ONE, 7*(6), *ArtID* e39879. doi:10.1371/journal.pone.0039879

Sechrest, L. (2005). Validity of measures is no simple matter. *Health Services Research, 40* (Oct.), 1584–604. doi:10.1111/j.1475-6773.2005.00443.x

Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever does not kill us: Cumulative lifetime adversity, vulnerability, and resilience. *Journal of Personality and Social Psychology, 99*(6), 1025–1041. doi:10.1037/a0021344

Seligman, M. E. (1999). The president's address. *American Psychologist, 54*(8), 559–562. Available from http://psycnet.apa.org/journals/amp/54/8/

Seligman, M. E. P. & Csikszentmihlayi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5–14. doi:10.1037/0003-066X.55.1.5

Semple, R. J., Lee, J., Rosa, D., & Miller, L. F. (2010). A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social-emotional resiliency in children. *Journal of Child and Family Studies, 19*(2), 218–229. doi:10.1007/s10826-009-9301-y

Shepherd, J. L., Lane, D. J., Tapscott, R. L., & Gentile, D. A. (2011). Susceptible to social influence: Risky "driving" in response to peer pressure. *Journal of Applied Social Psychology, 41*(4), 773–797. doi:10.1111/j.1559-1816.2011.00735.x

Simpson, G. & Jones, K. (2012). How important is resilience among family members supporting relatives with traumatic brain injury or spinal cord injury? *Clinical Rehabilitation, 27*(4), 367–377. Doi:10.1177/0269215512457961

Sirikantraporn, S. (2013). Biculturalism as a protective factor: An exploratory study on resilience and the bicultural level of acculturation among Southeast Asian American youth who have witnessed domestic violence. *Asian American Journal of Psychology, 4*(2), 109–115. doi:10.1037/a0030433

Soest, T., Mossige, S., Stefansen, K., & Hjemdal, O. (2010). A validation study of the Resilience Scale for Adolescents (READ). *Journal of Psychopathology and Behavioral Assessment, 32*(2), 215–225. doi:10.1007/s10862-009-9149-x

Songprakun, W. & McCann, T. V. (2012). Effectiveness of a self-help manual on the promotion of resilience in individuals with depression in Thailand: A randomized controlled trial. *BMC Psychiatry, 12*, Feb 16. ArtID 12. doi:10.1186/1471-244X-12-12

SPSS Version 21 (2012). IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation, 7*(17), Retrieved April 25, 2014 from http://PAREonline.net/getvn.asp?v=7&n=17.

Stickle, T. R. & Weems, C. F. (2006). Improving prediction from clinical assessment: The roles of measurement, psychometric theory, and decision theory. In Bootzin & McKnight (Eds.), *Strengthening research methodology psychological measurement and evaluation.* (pp 213–230). Washington DC: APA. doi:10.1037/00384-011

Stratta, P., Riccardi, I., DiCosimo, A., Cavicchio, A., Struglia, F.,Daneluzzo, E., … Rossi, C. (2012). A validation study of the Italian version of the Resilience Scale for Adolescents (READ). *Journal of Community Psychology, 40*(4), 479–485. doi:10.1002/jcop.20518

Streiner, D. L. (2006). Sample size in clinical research: When is enough enough? *Journal of Personality Assessment, 87*(3), 259–260. doi:10.1207/s15327752jpa8703_06

Symonds, P. M. (1947). The sentence completion test as a projective technique. *The Journal of Abnormal and Social Psychology, 42*(3), 320–329. doi:10.1037/h0054808

Theadom, A., Smith, H., Home, R., Bowskill, R., Apfelacher, C. J., & Frew, A. J. (2010). Participant experiences of a written emotional disclosure intervention in asthma. *Stress and Health: Journal of the International Society for the Investigation of Stress, 26*(1), 45–50. doi:10.1002/smi.1255

Tran, U. S., Gluck, T. M., & Lueger-Schuster, B. (2013). Influence of personal and environmental factors on mental health in a sample of Austrian survivors of World War II with regard to PTSD: Is it resilience? *BMC Psychiatry, 13*, Feb 4, *ArtID* 47. doi:10.1186/1471-244X-13-47

Uji, M., Kitamura, T., & Nagata, T. (2011). Self-conscious affects: Their adaptive functions and relationship to depressive mood. *American Journal of Psychotherapy, 65*(1), 27–46. Available from PsycINFO

Ungar, M. (2010). What is resilience across cultures ad contexts? Advances to the theory of positive development among individuals and families under stress. *Journal of Family Psychotherapy, 21*(1), 1–16. Doi:10.1080/08975351003618494

Ungar, M., Theron, L., & Didkowsky, N. (2011). Adolescents' precocious and developmentally appropriate contributions to their families' well-being and resilience in five countries. *Family Relations: An Interdisciplinary Journal of Applied Family Studies, 60*(2), 231–246. doi:10.1111/j.1471-3729.2010.00645.x

VanderStoep, S. W. & Johnston, D. D. (2009). Planning your qualitative study: Design, sampling, and data analysis, in *Research method for everyday life: Blending*

qualitative and quantitative approaches. (pp 181–199). Hoboken, NJ: John Wiley & Sons.

Van Teijlingen, E. & Hundley, V. (2002). The importance of pilot studies. *Nursing Stand, 16*(40), 33–36. Available from PsycINFO

Veldman, D. J. & Menaker, S. L. (1969). Directed imagination method for projective assessment of teacher candidates. *Journal of Education Psychology, 60*(3), 178–187. doi:10.1037/h0027616

Vogt, P. (2005). *Dictionary of statistics & methodology a nontechnical guide for social sciences.* Los Angeles: Sage. doi:10.4135/9781412983907

Waaktaar, T. & Torgersen, S. (2010). How resilient are resilience scales? The Big Five Scales outperform resilience scales in predicting adjustment in adolescents. *Scandinavian Journal of Psychology, 51*(2), 157–163. doi:10.1111/j.1467-9450.2009.00757.x

Waaktaar, T. & Torgersen, S. (2012). Genetic and environmental causes of variation in trait resilience in young people. *Behavior Genetics, 42*(3), 366–377. doi:10.1007/s10519-011-9519-5

Wagnild, G. (2009). A review of Resilience Scale. *Journal of Nursing Measurement, 17*(2), 105–113. doi:10.1891/1061-3749.17.2.105

Wagnild, G. M. & Collins, J. A. (2009). Assessing resilience. *Journal of Psychosocial Nursing and Mental Health Services, 47*(12), 28–33. doi:10.3928/02793695-20091103-01

Walker, W. (2013). Teaching hypnotically responsive clients self-management of negative emotions using self-talk, imagination, and emotion. *Australian Journal of Clinical & Experimental Hypnosis, 40*(2), 84–87. Available from PsycINFO

Wang, L. S., Shi, B., Zhang, Y., & Zhang, Z. (2010). Psychometric properties of the 10-item Connor-Davidson Resilience Scale in Chinese earthquake victims. *Psychiatry and Clinical Neurosciences, 64*(5), 499–504. doi:10.1111/j.1440-1819.2010.02130.x

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: PANAS Scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. doi:10.1037/0022-3514.54.6.1063

Watson, R. E., Pritzker, L., & Madison, P. (1955). *Hostility Scrambled Words Test.* doi: 10.1037/t00968-000.

Waugh, C. E., Thompson, R. J., & Gotlib, I. H. (2011). Flexible emotional responsiveness in trait resilience. *Emotion, 11*(5), 1059–1067. doi:10.1037/a0021786

Weiner, I. (1999). Contemporary perspective of Rorschach Assessment. *European Journal of Psychological Assessment. 15*(1), 78–86. doi:10.1027//1015-5759.15.1.78

Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science, 4*(3), 81–85. doi:10.1111/1467-8721.ep10772327

West, C, Stewart, L., Foster, K., & Usher, K. (2012). The meaning of resilience to persons living with chronic pain: An interpretive qualitative inquiry. *Journal of Clinical Nursing, 21*(9–10), 1284-1292. doi:10.1111/j.1365-2702.2011.04005.x

Westphal, M., Seivert, N. H., & Bonanno, G. A. (2010). Expressive flexibility. *Emotion, 10*(1), 92–100. doi:10.1037/a0018420

White, B., Driver, S., & Warren, A. M. (2010). Resilience and indicators of adjustment during rehabilitation from a spinal cord injury. *Rehabilitation Psychology,55*(1), 23–32. doi:10.1037/a0018451

Williams, R. B., French, L. A., Picthall-French, N., & Flagg-Williams, J. B. (2011). In pursuit of the Aboriginal child's perspective via a culture-free task and clinical interview. *Journal of Projective Psychology & Mental Health, 18*(1), 22–27.

Windle, G., Woods, R. T., & Markland, D. A. (2010). Living with ill-health in older age: The role of a resilient personality. *Journal of Happiness Studies, 11*(6), 763–777. doi:10.1007/s10902-009-9172-3

Wong, P. T. P. (2011). Positive psychology 2.0: Towards a balanced interactive model of the good life. *Canadian Psychology/Psychologie canadienne, 52*(2), 69–81. doi:10.1037/a0022511

Woodier, D. (2011). Building resilience in Looked After young people: A moral values approach. *British Journal of Guidance & Counseling, 39*(3), 259–282. doi:10.1080/03069885.2011.562638

Wu, M. S., Yan, X., Zhou, C., Chen, Y., Li, J., Zhu, Z., et al. (2011). General belief in a just world and resilience: Evidence from a collectivistic culture. *European Journal of Personality, 25*(6), 431–442. doi:10.1002/per.807

Yadav, S. K., Alreja, S., Sengar, K. S., & Singh, A. R. (2011). Cognitive flexibility in patients with bipolar affective disorder: Current episode mania. *Journal of Projective Psychology & Mental Health, 18*(2), 200–205. doi:10.1037/t20936-000

Yeung, E. W., Arewasikporn, A., & Zautra, A. J. (2012). Resilience and chronic pain. *Journal of Social and Clinical Psychology, 31*(6), 593–617. doi:10.1521/jscp.2012.31.6.593

Zautra, A. J., Arewasikporn, A., & Davis, M. C. (2010). Resilience: Promoting well-being through recovery, sustainability, and growth. *Research in Human Development, 7*(3), 221–238. doi:10.1080/15427609.2010.504431

Zeamer, C. & Fox Tree, J. E. (2013). The process of auditory distraction: Disrupted attention and impaired recall in a simulated lecture environment. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 39*(5), 1463–1472. doi:10.1037/a0032190

Appendix A: Participant Recruitment Advertisement

Earn $10.00 by participating in a dissertation study

Research topic: resilience, how people react to an adversity

Time required: 30 minutes

Interview location: 36 Bartlett St., next to the Student Center at College Ave.

Contact Tina Chen for an appointment:

Appendix B: Permission of the Use of Cru House

From: Tommy Waters
Sent: Thursday, August 28, 2014 7:53 PM
To: Tina Chen
Subject: use of cru house

To whom it may concern,

This letter is to confirm that Mrs. Tina Chen has my permission to use the Campus Crusade ministry Cru House at 36 Bartlett street, New Brunswick, New Jersey for her dissertation research interview with Rutgers students.

If you have any question, please do not hesitate to contact me.

Thank you.

Tommy Waters
Central Jersey Team Leader
New Jersey Metro

Appendix C: Consent Form

You are invited to take part in a research study of resilience. The researcher is inviting students in Rutgers University to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part. This study is being conducted by a researcher named Tina Chen, who is a doctoral student at Walden University. The interview will last 20 to 30 minutes.

Background Information:

The purpose of this study is to help people to manage life regardless what happens.

Procedures:

If you agree to be in this study, you will be asked to:

1. Listen to a pre-recorded scenario
2. Respond with your feelings
3. Finish the incomplete story
4. Complete a CD-RISC-10 scale
5. Complete a Rosenberg Self-Esteem Scale

Here is one sample question:

John went to bar on Friday night, he was beaten up by street gang badly. Tell me your feelings about this scenario and please finish the story.

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Rutgers University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as feeling upset after listening to the scenario. Being in this study would not pose risk to your safety or wellbeing.

The benefit of this study is to identify factors helping people live a satisfactory life.

When you complete this study, you will receive $10.00 in cash.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure in a locked drawer. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below I understand that I am agreeing to the terms described above.

Print the name of participant _____

Date of consent _____

Participant's signature _____

Researcher's signature _____

Appendix D: Traumatic Scenario

Once upon a time there was a brilliant young girl (if the participant is male, the word 'boy' will be substituted for 'girl' throughout the story) who had a warm family and loving parents. When the young girl grew up, she was accepted to Harvard University. In her freshman year she met an attractive young man (substitute the word 'girl' for male participants); they got along quite well and they often studied together. Unfortunately, one evening near the end of her freshman year, the young girl was hit by a drunk driver while she was crossing the street. The poor young girl lost consciousness.

After hearing what had happened to their daughter (the word 'son' will be substituted for male participants throughout the story) both of the girl's parents came to the hospital to take care for her. After several days the girl still did not wake up. The doctor gave her parents a choice: they could either give up on her or continue to wait for her to wakeup. However, the likelihood of her awakening did not seem promising. Her parents refused to give up on their daughter; they rented an apartment near the hospital while waiting for their daughter to wake up. After a month, a miracle took place. The girl regained consciousness. However, the girl was not able to return to what she used to be. Her parents took her home. Her boyfriend (substitute the work 'girlfriend' for male participants) came to visit her twice, but he soon stopped coming as they did not seem to fit together anymore. After a whole year's recovery, the girl started school at a community college near her home because she was unable to resume her studies at Harvard; she could not even manage the classes at the state college. Though the girl struggled with her work, she was able to finish community college with encouragement from her parents. After graduation, the girl worked for her father who was a dentist. The

girl handled simple billing. When she encountered a complicated billing problem, her parents had to take over.

Appendix E: Permission to Use the CD-RISC-10

Thank you Tina:

I am pleased to enclose copies of the CD-RISC-10 and manual for your study.

We appreciate your interest in the CD-RISC and wish you every success in your work.

With best wishes,

Sincerely yours,

Jonathan R. T. Davidson, M.D.

Kathryn M. Connor, M.D.