

THE RELATIONSHIP BETWEEN
THINKING STYLES AND RESILIENCE

By

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Bachelor of Science in Psychology

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Chickasha, Oklahoma

2010

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
July, 2012

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CHAPTER I

INTRODUCTION

The present research investigates the relationship between thinking styles and resilience. Resilience is defined as “the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development (Masten, 2011, p. 494).” Prior research has suggested that cognitive factors, such as coping strategies, play an important role in resilience (Elliott, Sahakian, & Charney, 2010) and that cognitive problem solving can mediate the effects of stress and promote resilience (Shure & Aberson, 2005). Sternberg and Grigorenko (1997) have identified thirteen distinct thinking styles that incorporate aspects of cognitive problem solving and coping strategies. These thinking styles have been found to predict positive academic outcome as well as or better than traditional measures; such as personality, motivation, and learning approach (Zhang & Sternberg, 2001). The present study examines whether some thinking styles more strongly predict resilience than others.

CHAPTER II

REVIEW OF LITERATURE

Beginning in the 1970's, researchers interested in trauma and stress began to notice that not all children were negatively impacted by trauma and stress but, that some children appeared to be robust to the effects of trauma and stress. This sparked a change in focus for researchers from differing disciplines and led to what is known as the lifespan science of resilience (Masten, 2009; Masten & Wright, 2010; Esschleman, Bowling, & Alarcon, 2010). Initially, there was debate within resilience research regarding the construct validity, measurement /assessment, and the correct operational definition for resilience (Sinclair, & Tetrick, 2004; Masten & Wright, 2010; Hjemdal, 2007; Friborg, Hjemdal, Martinussen, & Rosenvinge, 2009; Jowkar, Friborg, & Hjemdal, 2010). The theoretical discourse found in early resilience research has helped to make the study of resilience more parsimonious. For example, resilience research has moved toward a precise, but translational operational definition of resilience as “the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development (Masten, 2011, p. 494).” This translational definition allows researchers to narrow focus and examine specific systems or domains within resilience. By examining specific systems and domains researchers have found neurobiological, socio-psychological, and cognitive factors associated with resilience (Cicchetti, Rogsch, Howe, & Toth, 2010).

Resilience is believed to occur when protective factors counter act risk factors and result in a normative or positive outcome (Masten, 2009; Masten & Cicchetti, 2010). Any significant challenge to the stability, viability, or development of a dynamic system is a risk factor in resilience (Masten, 2011). Risk factors most commonly associated with resilience include socioeconomic disadvantage and poverty, physical/sexual abuse, and a family history of drug

abuse or mental illness (Flouri, Tzavidis, & Kallis, 2010; McClure, Chavez, Agars, Peacock, & Matosian, 2008). Additionally, any factors related to poor mental or physical health and subsequent undesirable outcome have been determined to be risk factors within resilience research (Hjemdal, 2007). However, any life event or circumstance that creates chronic or severe stress is considered a risk factor (Masten, 2009). Just as research has identified risk factors associated with undesirable outcomes, research has also identified protective factors associated with resilient outcomes or positive adaptation (Masten, 2011). These protective factors include social competence, family and peer support, internal locus of control, education, problem solving skills, coping strategies, and intelligence (Vanderbilt-Adriance, & Shaw, 2008; Elliott et al., 2010).

Much of the research regarding resilience has focused on factors related to positive, or non-delinquent, outcomes as determined by assessment methods developed and shaped within westernized individualistic cultures (Ungar, 2008). However, cultural differences exist. Some of these cultural factors include societal differences, such as individualism, collectivism, and political/religious dominance. Other cultural differences include differences between specific subgroups such as, socioeconomic status, minority status, and any group status that is divergent from the overarching culture (Ungar, 2008; Johnson-Powell & Yamamoto, 1997). While these cultural and contextual differences exist, concepts developed in a Eurocentric epistemology such as attachment, social support, socioeconomic status, and self-esteem, appear to be important in developing resilience across different cultures (Johnson-Powell & Yamamoto, 1997).

Recently, resilience research has begun to address the cultural and contextual differences that exist and to develop predictive measures for resilience (Jowkar et al., 2010). Assessing protective factors associated with resilience has been found to be a valid and reliable way to predict resilience in several studies across multiple cultures such as, Iran, Norway, and Persia (Jowkar et al., 2010). For example, the Resilience Scale for Adults (RSA; Friborg, Hjemdal,

Rosenvinge, & Martinussen 2003), was developed by European researchers through assessing protective factors associated with resilience. The RSA is unique in that it is designed to assess resilience by measuring social and intrapersonal protective factors, such as family cohesion, social resources, structure style, and positive self-view. Traditionally, resilience measures have assessed resilience through measuring risk factors and then measuring mental health outcomes. This is a problem within the research on resilience because it only allows for assessment of resilience after trauma or risk has occurred. The RSA assesses resilience even if risk or trauma has not occurred. In a series of studies (Friborg et al., 2009), the RSA has been found to assess resilience as well or better than traditional measures. The results were replicated for the first time using an American sample (Ponce-Garcia & Kennison, 2012, in preparation). It appears that the assessment of protective factors in resilience is central to assessing resilience and predicting the likelihood of positive or negative outcome.

Prior research has found that cognitive factors, such as coping strategies, are protective factors associated with resilience (Elliott et al., 2010). Several studies have found that cognitive problem solving can mediate the effects of stress and promote resilience (Spivack & Shure, 1989; Shure, Spivack & Gordon, 1972; Shure & Spivack, 1981; Shure & Spivack, 1979; Shure & Aberson, 2005). Positive academic outcome, or academic success, is also known to be an important protective factor for overall resilience (Martin & Marsh, 2008).

Resilience research is not alone in its examination of protective factors such as, coping strategies, problem solving skills, education, and social competence. Research regarding cognitive style, intellectual style, and/or thinking style also focuses on these factors (Zhang & Sternberg, 2005). For example, the Theory of Mental Self Governance (TMSG, Sternberg, 1997) was developed out of research regarding problem-solving, coping strategies, and cognitive style (Zhang & Sternberg, 2005). Sternberg proposed that much like there are different ways of governing a society, there are different ways that people prefer to solve problems, approach tasks, and organize projects.

Sternberg and colleagues went on to identify 13 “thinking styles” within TMSG that fall along five dimensions: (1) functions (including the legislative, executive, and judicial styles), (2) forms (hierarchical, monarchic, oligarchic, and anarchic styles), (3) levels (global and local styles), (4) scopes (internal and external styles), and (5) leanings (liberal and conservative styles) (Zhang & Sternberg, 2005).

Through work to incorporate empirical findings from the history of research regarding cognitive style, intellectual styles, and problem-solving style, further classification of the 13 thinking styles has been developed (for full review see Zhang & Sternberg, 2005). The classifications are: Type I (holistic, creative, field-independent, and reflective), Type II (analytic, concrete, field-dependent, and impulsive), and Type III (flexible, exhibiting the characteristics of Type I and Type II dependent upon the specific task or situation). As shown in Table 1, the 13 thinking styles, five dimensions, and three types are organized within the Threefold Model of Intellectual Styles (Zhang and Sternberg, 2005). The model attempts to incorporate previous models and findings from the past literature regarding the style construct, which includes cognitive style, learning style, problem solving style, and intellectual style. It is the assertion of Sternberg and colleagues that each of the previous theories and models regarding the style construct have made a unique contribution and that the Threefold Model of Intellectual Styles is a parsimonious model that more completely assess the style construct (Zhang and Sternberg, 2005).

Within the literature regarding the style construct, major controversial issues have arisen. The issues regard debate as to whether styles are trait or state dependent and whether they are value laden (Zhang and Sternberg, 2005). The Threefold Model incorporates findings showing that thinking styles are contextually guided; however individuals tend to favor some thinking styles over others or may repeatedly choose thinking styles that are not the most effective in a given context (Zhang and Sternberg, 2005). Thinking styles are developed in a culturally dependent way, because they are socialized. This socialization is believed to occur by age eight (Zhang and

Sternberg, 2005). However, findings suggest that thinking styles can be taught or guided and that individuals can learn to use thinking styles that are more adaptive in a given context (Zhang and Sternberg, 2001).

Because some thinking styles are more adaptive in a given context than others; styles have been referred to as negative or positive and thereby value laden. This description is not without merit. Empirical evidence has emerged showing that thinking style plays a role in many important aspects of wellbeing and life success. For example, findings suggest that thinking style influences academic achievement (Sternberg, Grigorenko, & Zhang, 2008; Kinshuk, Liu, & Graf, 2009; Cheng, Andrade, & Yan, 2011) and that thinking style predicts academic success as well or better than traditional measures; such as personality, motivation, and learning approach (Zhang & Sternberg, 2002). Prior research has also found that, as the students thinking style agrees with the teachers thinking style, academic achievement increases (Zhang & Sternberg, 2002; Kinshuk et al., 2009). That is, when the style of teachers and students are similar, students are more successful learners than when styles are different. Research has shown that some thinking styles may reduce anxiety (Zhang, 2009), are related to self-esteem and positive perception of self (Zhang, 2001), and may enhance mental health (Chen & Zhang, 2010).

More specifically, type I thinking styles (legislative, judicial, hierarchic, global, and liberal) are associated with higher self-esteem, cognitive complexity, openness to experience, and a sense of purposefulness (Zhang and Sternberg, 2005). Type II thinking styles (executive, monarchic, local, and conservative) are associated with lower self-esteem, cognitive simplicity, neuroticism, and a sense of lacking purpose (Zhang and Sternberg, 2005). Type III thinking styles (oligarchic, anarchic, internal, and external) appear to be flexible thinking styles that are can be expressed as either type I or type II in a given context and thus, have been found to be associated with both positive and negative factors (Zhang and Sternberg, 2005). These findings indicate that thinking styles are value laden and that type I and type III thinking styles are more adaptive than type II

thinking styles (Zhang and Sternberg, 2005). However, thinking styles are, to some degree, culturally dependent and it should be taken into account that the value placed on self-esteem, for example, may differ in China as opposed to the United States.

The Present Study

While much is known about the protective and risk factors associated with resilience and the relationship between thinking styles and positive outcomes, no research has examined the possible relationship between thinking styles and resilience. The common thread between these two separate lines of research seems to be the positive academic and mental health outcomes. The purpose of the current study is to examine the relationship between thinking style and resilience. Because prior research has shown that social skills and social resources (Connor & Davidson, 2003) as well as planning behavior and executive functioning (Williams et al., 2009) are protective factors associated with resilience, and that some thinking styles are associated with cognitive complexity (Zhang and Sternberg, 2005), lower anxiety (Zhang, 2009), and positive perception of self (Zhang, 2001), we hypothesize that some thinking styles will not only be more strongly related to, but also be more predictive of, resilience than others.

CHAPTER III

METHODOLOGY

Participants

One hundred and ninety four undergraduates (53 male, 138 female, and 3 failed to report) participated in exchange for course credit. All were enrolled in freshmen or sophomore level social science or health career classes at Oklahoma City Community College. The average age was 24.80 years old ($SD = 7.98$). The sample was 65.60 % Caucasian, 8.20% Hispanic, 7.1% Asian American, 6.6% African American, 5.4% Native American individuals, and 7.1% were either of other ethnicity or did not report.

Materials

All participants completed the following measures: the resilience scale for adults (RSA), the hospital anxiety and depression scale (HADS), the habitual index of negative thinking (HINT), the thinking styles inventory revised II (TSI-RII), and questions regarding demographic information.

Resilience Scale for Adults. We assessed resilience using the RSA (Friborg et al. 2003). The scale was designed to assess protective factors believed to predict resilience, using six subscales: social resources, family cohesion, social competence, positive perception of future, structured style, and positive perception of self. Responses are recorded on a seven-point Likert scale from not true at all to very true. Scores range from 33-165 with a high score being indicative of resilience. The reliability of the RSA has been confirmed by Friborg, Barlaug, Martinussen, Rosenvinge, and HJemdal (2005) and by Friborg et al. (2003). Internal consistency reliability values for the present study were calculated for each of the six resilience categories: Social

Resources (.91), Family Cohesion (.92), Social Competence (.92), Positive Perception of Future (.93), Structure Style (.79), Positive Perception of Self (.88).

Hospital Anxiety and Depression Scale. We assessed anxiety and depression using the HADS (Zigmond & Snaith, 1983; see also Friberg et al.(2009). The HADS contains seven items assessing symptoms of depression and seven items assessing general anxiety, and has been used extensively in medical and psychosocial research (Bjelland, Dahl, Haug, & Neckelmann, 2002). Responses are recorded on a seven-point Likert scale from not true at all to very true and there is some reverse scoring. Some items are reverse scored so that low scores indicate good mental health, less depression and less anxiety. Reliability for the HADS-anxiety has varied from .68 to .93 and reliability for the HADS-depression has varied from .67 to .90 (Friberg et al., 2009). In the present study, reliability for the HADS-anxiety was .88, and reliability for the HADS-depression was .71.

Habitual Index of Negative Thinking. We assessed negative thought processes using HINT (Verplanken & Orbell, 2003; see also Friberg et al. (2009). The HINT contains 12 items designed to assess frequency of negative thinking, whether such thinking is difficult to control, and the degree of automaticity of negative thinking. Responses are recorded on a seven-point Likert scale from not true at all to very true. Some items are reverse scored; a low score indicates good mental health and less negative thinking. Verplanken, Friberg, Wang, Trafimow, & Woolf (2007) observed .95 reliability for the HINT. In the present study, reliability for the HINT was .94.

Thinking Styles Inventory Revised II (TSI-R2). We assessed individual differences in cognitive styles using the TSI-R2 (Sternberg, Wagner, & Zhang ,2007). The TSI-R2 assesses the presence of 13 Thinking Styles, using 65 items divided among 13 subscales. Each subscale contains five items. Participants are directed to indicate how well each item describes them. Each subscale

uses a seven-point Likert scale from not at all well to extremely well. The 13 subscales are designed to assess each of the 13 Thinking Styles and consist of two opposite scopes (internal versus external) , two opposite leanings (conservative versus liberal), two levels (global versus local), functions (legislative, executive, and judicial), and four styles (monarchic, hierarchic, oligarchic, and anarchic). For example, an internal item is “I like projects that I can complete independently,” an external item is “I like situations where I interact with others and everyone works together,” a conservative item is “I like tasks and problems that have fixed rules to follow in order to complete them,” a liberal item is “When faced with a problem, I prefer to try new strategies or methods to solve it,” a global item is “I like working on projects that deal with general issues and not with nitty-gritty details,” a local item is “I like problems where I need to pay attention to details,” a legislative item is “I like situations where I can use my own ideas and ways of doing things,” and executive item is “I like projects that have a clear structure and a set plan and goal,” a judicial item is “I enjoy work that involves analyzing, grading, or comparing things,” a monarchic item is “I tend to give full attention to one thing at a time,” a hierarchic item is “When starting something, I like to make a list of things to do and to order the things by importance,” an oligarchic item is “When there are several important things to do, I pick the ones most important to my friends and colleagues,” and an anarchic item is “I tend to tackle several problems at the same time because they are often equally urgent.” Reliability for the TSI-R2 has been reported by Zhang (2000) as follows: Internal (.76), External (.64), Conservative (.83), Liberal (.86), Global (.68), Local (.63), Legislative (.77), Executive (.84), Judicial (.71), Monarchic (.51), Hierarchic (.84), Oligarchic (.66), and Anarchic (.54). In the present study, we observed the following reliabilities Internal (.78), External (.90), Conservative (.83), Liberal (.85), Global (.51), Local (.74), Legislative (.77), Executive (.67), Judicial (.84), Monarchic (.57), Hierarchic (.84), Oligarchic (.62), and Anarchic (.56).

Demographics. We also assessed demographic variables including age, sex, education level, personal/parental annual income, and ethnic/minority status.

Procedure

Undergraduate students completed the questionnaires online. All questionnaires were presented in the same order (i.e., TSI, HINT, HADS, RSA, and demographic questions). The data were collected without personal identifiers and the participants were informed of confidentiality. All participants were given the option to not respond to specific questions. The majority of questions had 100% of participants responding. At the highest, 2.7% of participants chose not to respond to the thinking style item from the judicial subscale, “I prefer tasks or problems where I can grade the designs or methods of others?”

CHAPTER IV

FINDINGS

Participants' responses were screened initially for missing data. Eleven participants were excluded because of excessive missing data. For participants failing to answer less than 5% of the total items, item means were used to replace missing data. Table 2 displays the descriptive statistics for the remaining 183 participants for the TSI-R2, the HINT, the HADS, and the RSA.

Pearson's product moment correlations were conducted for the RSA overall score and each of the RSA subscales (family cohesion, social competence, planned future, social resources, structured style, and positive perception of self). These results are displayed in Table 3. Consistent with passed research, we observed significant inter-correlations among the resilience (RSA) subscales (Friborg et al., 2009). As found by past research (Friborg et al. 2009), we found that resilience (RSA overall score) was negatively correlated with depression and anxiety (HADS) ($r = -.39, p < .05$), as well as negative thought (HINT) ($r = -.33, p < .05$).

A Pearson's product-moment correlation was conducted using the thirteen thinking styles (TSI R-2), resilience (RSA), anxiety and depression (HADS), negative thinking (HINT), grades, and demographic information. Table 4 displays a summary of the correlational results. The results were consistent with past research, indicating non-redundancy among the subscales (Black & McCoach, 2008). Further analyses showed that, resilience as measured by the RSA overall score was correlated with thinking styles. Table 5 displays the correlations between the thinking styles the RSA subscales.

A multiple regression analysis was used to test the hypothesis that some thinking styles are more strongly predictive of resilience than others. In the analysis, the 13 thinking styles were used to predict RSA. The results of this regression are displayed in Table 6. Only three of the 13

thinking styles predicted RSA: external ($\beta=.39$, $t=4.10$, $p<.01$), executive ($\beta=.17$, $t=2.04$, $p<.05$), and hierarchic ($\beta=.18$, $t=2.32$, $p<.05$). These three predictors explained 38.2 % of the variance ($R^2=.382$, $F(13,169) = 8.024$, $p<.001$).

CHAPTER V

CONCLUSION

The research tested the hypothesis that some thinking styles will not only be more strongly related to, but also be more predictive of, resilience than others. The results provided support for the hypothesis, showing that only three of the 13 thinking styles predicted resilience: a) executive, which is characterized by a preference for instruction, structure, and productivity, b) external, which is characterized by an emphasis on the social relationship and working with others, and c) hierarchic, which is characterized by a preference to prioritize tasks. Prior research has not examined the relationship between thinking styles and resilience.

The results are consistent with prior research showing that resilience is related to social skills and social resources (Connor & Davidson, 2003) as well as planning behavior and executive functioning (Williams et al., 2009). The relationship between thinking style and resilience is consistent with a variable-focused model of resilience which reveals the relationship between protective or risk factors in order to predict outcome (Masten, 2011). More specifically, social competence and social resources were most highly related to the external thinking style, positive perception of future was most highly related to the hierarchic thinking style, and structure style was most highly related to the executive thinking style. The external thinking style is indicative of a preference toward social relationships, putting the relationship before the task at hand (Sternberg, 1997). Similarly, social competence is described as an intrapersonal skill which is affirming of social relationships and social resources is described as the ability to make and use social connections in problem solving (Friborg et al., 2009). The hierarchic thinking style is described as a preference toward prioritizing tasks. Similarly, positive perception of future is described not only as positive beliefs about ones future, but as actively planning ones future

(Friborg et al., 2009). Finally, the executive thinking style is indicative of a preference toward using direction to solve problems and toward productivity (Sternberg, 1997). Similarly, Structure Style is described as a structured style in approaching tasks (Friborg et al., 2009).

The results are similar to prior results obtained by Zhang and colleagues. For example, the external thinking style has been found to be related to lower anxiety (Zhang, 2009) and higher cognitive development/complexity (Zhang and Chen, 2002). The hierarchic thinking style has been found to be related to higher self-esteem and positive perception of self (Zhang, 2001), better mental health (Zhang, 2010), and lower anxiety (Zhang, 2009). However, the results are inconsistent with previous findings showing that the executive thinking style is related to lower self-esteem (Zhang, 2001) and cognitive simplicity. Because much of the previous research regarding thinking styles has been conducted in Asia, it is possible that the executive thinking style is less adaptive in that cultural context and more adaptive within a westernized culture.

The results will have both theoretical and practical implications. Current models of resilience do not incorporate influences of thinking style. The results will increase our understanding of individual differences in resilience. On a practical level, the results may enable us to know which thinking styles are predictive of resilience and one day lead to the development of interventions that teach resilient thinking styles to adolescents at risk of dropping out of high school. Reducing the high school dropout rate may also reduce the other negative outcomes associated with low resilience, such as becoming involved in drugs, being unemployed, and going to prison.

An important question for future research is whether the relationship between thinking styles and resilience is the same or different across populations. Past research has shown that academic success has been found to be lower in children of ethnic minority (Schelble, Franks, & Miller, 2010). Within the research on thinking style, differences in optimum thinking style have emerged pertinent to culture. Zhang and Sternberg (2005), report that the optimum thinking style for

students in Asia differs from the optimum thinking style for students in America. Similar differences were found for Iran, Europe, and South America. Though more research is needed, this evidence suggests that the predominant culture may contribute to the effectiveness of student's thinking style (Schelble et al., 2008; Zhang & Sternberg, 2005). Perhaps the lower academic success and overall resilience within ethnic minority populations is related to differences in thinking style. For example, the predominant thinking style of teachers is likely to be that of the wider culture and research shows that academic success increases when the student and teacher have similar thinking styles (Zhang & Sternberg, 2005). So, if members of ethnic minorities differ in thinking style from the wider culture, they would be less likely to have a similar thinking style as their teachers (Zhang, 2008; Zhang, 2009). This could be responsible for the decline in academic success among ethnic minorities. In the present study we were not able to assess cultural differences in optimum, or resilient, thinking styles due to the underrepresentation of ethnic minorities within the sample. As the sample was mostly White, further research is needed in order to identify whether the results generalize to other racial and ethnic groups.

In the present study, the data were collected using an online survey tool. This may be viewed by some researchers as a limitation, as it is unclear whether the results would generalize to studies in which face-to-face data collections methods are used. Our lab has used the online survey tool with success in the past (Kennison & Ponce-Garcia, 2011; Popham, Kennison, & Bradley, 2011a; 2011b)). The argument has been made that online surveys may offer more accurate results because the online setting provides more privacy (Joinson, 1999; Bailey, Foote, & Throckmorton, 2000; Sproull & Kiesler, 1986). Also, past research suggests that the results obtained from in-lab surveys do not significantly differ from those obtained from online surveys (Cronk & West, 2002; Krantz & Dalal, 2000). While some studies that use online survey tools also draw upon subject pools that are made up of students enrolled in freshmen level psychology courses, our study was

made available to students enrolled in freshmen and sophomore level social science and health career classes. Also, many of our subjects were non-traditional or returning students over the age of 20. The socioeconomic range of our participants was also representative of the general population in the surrounding area. The scope of our participant demographic characteristics leads us to view the present results as likely to generalize to similar populations.

In summary, the results confirmed that three specific thinking styles are related to resilience in young adults. The three resilient thinking styles are a) executive, which is characterized by a preference toward using direction to solve problems and toward productivity (Sternberg, 1997), b) external, which is characterized by a preference toward social relationships and putting the relationship before the task at hand, and c) hierarchic, which is characterized by a preference to prioritize tasks (Sternberg, 1997). The results serve to provide a basis for future research investigating the possibility that the specific thinking styles which are most resilient may be different dependent upon ethnic and racial minority group.

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APPENDICES

APPENDIX A

Thinking Styles Inventory—Revised II (TSI-R2)

Sternberg, R. J., Wagner, R. K., & Zhang, L. F., Tufts University, 2007

This questionnaire is about the different strategies and ways people use to solve problems, to carry out tasks or projects, and to make decisions.

To respond to this questionnaire, read each statement carefully and decide how well the statement fits the way that you typically do things at school, at home, or on a job. Circle 1 if the statement does not fit you at all, that is, you never do things this way. For each statement, circle one of the 7 numbers next to the corresponding item number on the answer sheet. Circle 7 if the statement fits you extremely well, that is, you almost always do things this way. Use the values in between to indicate that the statement fits you in varying degrees.

1=Not At All Well, 2=Not Very well, 3=Slightly Well, 4= Somewhat Well,
5=Well, 6=Very Well, 7=Extremely Well

There are, of course, no right or wrong answers. Please read each statement and circle the number on the scale next to the statement that best indicates how well the statement describes you.

Please proceed at your own pace, but do not spend too much time on any one statement.

1. I prefer to deal with problems that require me to attend to a lot of details.
2. When talking or writing about ideas, I prefer to focus on one idea at a time.
3. When starting a task, I like to brainstorm ideas with friends or peers.
4. I like to set priorities for the things I need to do before I start doing them.
5. When faced with a problem, I use my own ideas and strategies to solve it.
6. In discussing or writing on a topic, I think that the details and facts are more important than the overall picture.
7. I tend to pay little attention to details.
8. I like to figure out how to solve a problem following certain rules.
9. I like to control all phases of a project, without having to consult with others.
10. I like to play with my ideas and see how far they go.
11. I am careful to use the proper method to solve any problem.
12. I enjoy working on things that I can do by following directions.
13. I stick to standard rules or ways of doing things.
14. I like problems where I can try my own way of solving them.
15. When trying to make a decision, I rely on my own judgment of the situation.
16. I can switch from one task to another easily, because all tasks seem to me to be equally important.
17. In a discussion or report, I like to combine my own ideas with those of others.
18. I care more about the general effect than about the details of a task I have to do.
19. When working on a task, I can see how the parts relate to the overall goal of the task.
20. I like situations where I can compare and rate different ways of doing things.

21. When working on a project, I tend to do all sorts of tasks regardless of their degree of relevance to the project undertaken.
22. When I'm in charge of something, I like to follow methods and ideas used in the past.
23. I like to check and rate opposing points of view or conflicting ideas.
24. I prefer to work on projects that allow me to put in a lot of detailed facts.
25. In dealing with difficulties, I have a good sense of how important each of them is and in what order to tackle them.
26. I like situations where I can follow a set routine.
27. When discussing or writing about a topic, I stick to the points of view accepted by my colleagues.
28. I like tasks and problems that have fixed rules to follow in order to complete them.
29. I prefer to work on a project or task that is acceptable to and approved by my peers.
30. When there are several important things to do, I do those most important to me and to my colleagues.
31. I like projects that have a clear structure and a set plan and goal.
32. When working on a task, I like to start with my own ideas.
33. When there are many things to do, I have a clear sense of the order in which to do them.
34. I like to participate in activities where I can interact with others as a part of a team.
35. I tend to tackle several problems at the same time because they are often equally urgent.
36. When faced with a problem, I like to solve it in a traditional way.
37. I like to work alone on a task or a problem.
38. I tend to emphasize the general aspect of issues or the overall effect of a project.
39. I like to follow definite rules or directions when solving a problem or doing a task.
40. I tend to give equal attention to all of the tasks I am involved in.
41. When working on a project, I like to share ideas and get input from other people.
42. I like projects where I can study and rate different views or ideas.
43. I tend to give full attention to one thing at a time.
44. I like problems where I need to pay attention to details.
45. I like to challenge old ideas or ways of doing things and to seek better ones.
46. I like situations where I interact with others and everyone works together.
47. I find that when I am engaged in one problem, another comes along that is just as important.
48. I like working on projects that deal with general issues and not with nitty-gritty details.
49. I like situations where I can use my own ideas and ways of doing things.
50. If there are several important things to do, I focus on the one most important to me and disregard the rest.
51. I prefer tasks or problems where I can grade the designs or methods of others.
52. When there are several important things to do, I pick the ones most important to my friends and colleagues.
53. When faced with a problem, I prefer to try new strategies or methods to solve it.
54. I like to concentrate on one task at a time.
55. I like projects that I can complete independently.
56. When starting something, I like to make a list of things to do and to order the things by importance.
57. I enjoy work that involves analyzing, grading, or comparing things.
58. I like to do things in new ways not used by others in the past.
59. When I start a task or project, I focus on the parts most relevant to my peer group.
60. I have to finish one project before starting another one.
61. In talking or writing down ideas, I like to show the scope and context of my ideas, that is, the general picture.
62. I pay more attention to parts of a task than to its overall effect or significance.

63. I prefer situations where I can carry out my own ideas, without relying on others.
64. I like to change routines in order to improve the way tasks are done.
65. I like to take old problems and find new methods to solve them.
- legislative $= (q5+q10+q14+q32+q49)/5$. executive $= (q8+q11+q12+q31+q39)/5$.
 judicial $= (q20+q23+Q42+q51+q57)/5$. global $= (q7+q18+q38+q48+q61)/5$.
 local $= (q1+q6+q24+q44+q62)/5$. liberal $= (q45+q53+q58+q64+q65)/5$.
 conservative $= (q13+q22+q26+q28+q36)/5$. hierarchical $= (q4+q19+q33+q25+q56)/5$.
 monarchic $= (q2+q43+q50+q54+q60)/5$. oligarchic $= (q27+q29+q30+q52+q59)/5$.
 anarchic $= (q16+q21+q35+q40+q47)/5$. internal $= (q9+q15+q37+q55+q63)/5$.
 external $= (q3+q17+q34+q41+q46)/5$.

APPENICS B

Resilience Scale for Adults

O. Friberg et al.: Resilience, Vulnerability, and Mental Disorder Symptoms, Journal of Individual Differences 2009; Vol. 30(3):138–151

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To respond to this questionnaire, read each statement carefully and decide to what degree you either agree with or disagree with the statement. Circle 1 if the statement does not fit you at all. For each statement, circle one of the 7 numbers next to the corresponding item number on the answer sheet. Circle 7 if the statement fits you extremely well. Use the values in between to indicate that the statement fits you in varying degrees.

1=Not At All Well, 2=Not Very well, 3=Slightly Well, 4= Somewhat Well,
5=Well, 6=Very Well, 7=Extremely Well

There are, of course, no right or wrong answers. Please read each statement and circle the number on the scale next to the statement that best indicates how well the statement describes you.

Please proceed at your own pace, but do not spend too much time on any one statement.

HINT: to think negatively about my self

The following are in reference to thinking negatively about yourself:

I don't do on purpose

I would find hard not to do

I do without further thinking

I do before realizing I'm doing it

I have been doing it for a long time

That's typically me

I do it automatically

That feels sort of natural for me

I do it unintentionally

That would require mental effort to stop

I do it every day

I do it frequently

RSA FAMILY COHESION

I feel very happy with my family

In my family we do things together

Me and my family understand things similarly

My family is characterized by coherence

Our family is loyal to each other

My family keeps a positive outlook in difficult periods

RSA SOCIAL COMPETENCE

I'm good at meeting new people

I make new friendships easily

I enjoy being with other people

I easily laugh with others

I find topics for conversation easily

It's important to be socially flexible

RSA PLANNED FUTURE

I know how to reach my future goals

I know how to accomplish my goals

My goals for the future are well thought through
I feel that my future looks very promising

HADS (ANXIETY)

I get frightened feelings, something awful will happen

I feel frightened and have butterflies in the stomach

I get sudden feelings of panic

Worrying thoughts go through my mind

I feel tense and wound up

I feel restless, as if I have to be on the move

I can sit at ease and feel relaxed (R)

RSA SOCIAL RESOURCES

When needed, I always have someone who can help me

I have friends/family members that encourage me

The bonds among my friends are strong

I can discuss personal issues with friends/family

I get support from friends/family

My close friends/family appreciate my qualities

I'm informed quickly if a family member has a crisis

HADS (DEPRESSION)

I can enjoy a good book, radio or TV program (R)

I've lost interest in my appearance

I still enjoy the things I used to enjoy (R)

I feel cheerful (R)

I can laugh and see the funny side of things (R)

I feel as if I'm slowed down

RSA STRUCTURED STYLE

I prefer a plan before starting with new things

Rules and regular routines simplify my everyday life

I'm good at organizing my time

I'm best when having a clear goal to strive for

RSA POSITIVE PERCEPTION OF SELF

I trust completely my judgments and decisions

I always find a solution to unforeseen things

I strongly believe in my abilities

In difficult periods I can thrive on something good

I accept events that I cannot influence

I know how to solve my personal problems

Table 1

Sternberg's Theory of Mental Self-Government within the Threefold Model of Intellectual Styles
 5. Dimensions 13. Thinking Preferences and Characteristics
 Styles

Function	Legislative ^(Type I)	Work on tasks that require creative strategies; Choose one's own activities.
	Executive ^(Type II)	Work on tasks with clear instructions and structures; implement tasks with established guidelines.
	Judicial ^(Type I)	Work on tasks that allow for one's evaluation; Evaluate and judge the performance of other people.
Form	Hierarchical ^(Type I)	Distribute attention to several tasks that are prioritized according to one's valuing of the tasks.
	Monarchic ^(Type II)	Work on tasks that allow complete focus on one thing at a time.
	Oligarchic ^(Type III)	Work on multiple tasks in the service of multiple objectives, without setting priorities.
	Anarchic ^(Type III)	Work on tasks that would allow flexibility as to what, where, when, and how one works.
Level	Global ^(Type I)	Pay more attention to the overall picture of an issue and to abstract ideas.
	Local ^(Type II)	Work on tasks that require working with concrete details.
Scope	Internal ^(Type III)	Work on tasks that allow one to work as an independent unit.
	External ^(Type III)	Work on tasks that allow for collaborative ventures with other people.
Leaning	Liberal ^(Type I)	Work on tasks that involve novelty and ambiguity.
	Conservative ^(Type II)	Work on tasks that allow one to adhere to the existing rules and procedures in performing tasks.

Note. Descriptive note. Adapted from "A threefold model of intellectual styles," by Zhang, L. and Sternberg, R. J., 2005, *Educational Psychology Review*, 17 (1), p. 1. Copy right 2005 by Springer Science + Business Media, Inc. Adapted.

Table 2

Descriptive Statics for Thinking Styles Inventory Revised II, Habitual Index of Negative Thinking, Hospital Anxiety and Depression Scale, and Resilience Scale for Adults.

	N	Mean	SD	Variance	Skewness	Kurtosis	Min.	Max.
LEG	183	5.01	1.03	1.07	-.02	-.50	2.60	7.00
JUD	183	4.50	1.22	1.48	-.34	.15	1.00	7.00
EXE	183	5.17	.87	.76	-.11	-.47	3.20	7.00
LOC	183	4.55	1.04	1.08	.05	-.04	2.00	7.00
GLO	183	4.50	.88	.77	.13	1.04	1.20	7.00
LIB	183	4.55	1.26	1.60	-.40	-.24	1.00	7.00
CON	183	4.72	1.08	1.17	-.17	-.22	1.60	7.00
HIE	183	5.09	1.06	1.13	-.14	-.33	2.00	7.00
MON	183	4.78	.91	.84	.10	-.16	2.40	7.00
ANA	183	4.81	.90	.81	.02	.10	2.40	7.00
OLI	183	5.14	.93	.88	-.63	.77	1.50	7.00
INT	183	4.79	1.16	1.34	-.08	-.66	1.80	7.00
EXT	183	4.92	1.34	1.81	-.69	.24	1.00	7.00
HINT	183	3.94	1.56	2.45	.14	-.78	1.00	7.00
HADS	183	3.74	.72	.53	.02	-.39	2.09	5.74
HADSA	183	4.65	.99	.99	.04	-.47	1.87	6.91
HADSD	183	2.83	.99	.99	.21	-.53	1.00	5.42
RSA	183	5.20	1.01	1.03	-.55	.70	1.13	7.00
FC	183	4.97	1.61	2.61	-.62	-.50	1.00	7.00
PF	183	5.49	1.35	1.84	-1.06	1.03	1.00	7.00
PP	183	4.92	1.26	1.58	-.53	.09	1.00	7.00
SS	183	5.03	1.31	1.72	-.54	.41	1.00	7.00
SC	183	5.23	1.47	2.16	-.55	-.54	1.00	7.00
SR	183	5.52	1.32	1.75	-.93	.28	1.28	7.00

Note. LEG = Legislative; JUD = Judicial; EXE = Executive; LOC = Local; GLO = Global; LIB = Liberal; CON = Conservative; HIE = Hierarchic; MON = Monarchic; ANA = Anarchic; OLI = Oligarchic; INT = Internal; EXT = External; HINT = Habitual Index of Negative Thinking; HADS Hospital Anxiety and Depression Scale; HADSA = Hospital Anxiety and Depression Scale (Anxiety Subscale); HADSD = Hospital Anxiety and Depression Scale (Depression Subscale); RSA = Resilience Scale for Adults; FC = Family Cohesion; PF = Positive Perception of Future; PP = Positive Perception of Self; SS = Structure Style; SC = Social Competence; SR = Social Resources.

Table 3

Summary of Results from Correlational Analyses for 13 Thinking Styles and Resilience.

	LEG	JUD	EXE	LOC	GLO	LIB	CON	HIE	MON	ANA	OLI	INT	EXT	HINT	HADS	RSA
LEG	-															
IUD	.43 ^{**}	-														
EXE	.13	.09	-													
LOC	.39 ^{**}	.39 ^{**}	.45 ^{**}	-												
GLO	.27 ^{**}	.23 ^{**}	.28 ^{**}	.17 [*]	-											
LIB	.60 ^{**}	.46 ^{**}	.13	.37 ^{**}	.32 ^{**}	-										
CON	.04	.12	.69 ^{**}	.40 ^{**}	.17 [*]	-.16 [*]	-									
HIE	.42 ^{**}	.29 ^{**}	.48 ^{**}	.45 ^{**}	.14	.29 ^{**}	.48 ^{**}	-								
MON	.25 ^{**}	.16 [*]	.48 ^{**}	.39 ^{**}	.24 ^{**}	.03	.56 ^{**}	.41 ^{**}	-							
ANA	.48 ^{**}	.27 ^{**}	.33 ^{**}	.48 ^{**}	.31 ^{**}	.29 ^{**}	.28 ^{**}	.35 ^{**}	.35 ^{**}	-						
OLI	.37 ^{**}	.53 ^{**}	.22 ^{**}	.23 ^{**}	.20 ^{**}	.31 ^{**}	.17 [*]	.30 ^{**}	.23 ^{**}	.28 ^{**}	-					
INT	.58 ^{**}	.20 ^{**}	.19 [*]	.38 ^{**}	.35 ^{**}	.33 ^{**}	.15 [*]	.31 ^{**}	.30 ^{**}	.38 ^{**}	-.01	-				
EXT	.13	.33 ^{**}	.25 ^{**}	.19 [*]	.22 ^{**}	.26 ^{**}	.16 [*]	.13	.22 ^{**}	.30 ^{**}	.62 ^{**}	-.29 ^{**}	-			
HINT	.03	-.09	-.06	.01	-.03	-.10	.06	.12	.01	.12	-.13	.12	-.23 ^{**}	-		
HADS	.08	.01	-.14	.12	-.01	.05	-.03	.03	-.03	.02	-.16 [*]	.13	-.26 ^{**}	.54 ^{**}	-	
RSA	.20 ^{**}	.17 [*]	.40 ^{**}	.27 ^{**}	.30 ^{**}	.16 [*]	.25 ^{**}	.33 ^{**}	.35 ^{**}	.27 ^{**}	.39 ^{**}	.09	.47 ^{**}	-.33 ^{**}	-.39 ^{**}	-

Note. LEG = Legislative; JUD = Judicial; EXE = Executive; LOC = Local; GLO = Global; LIB = Liberal; CON = Conservative; HIE = Hierarchic; MON = Monarchic; ANA = Anarchic; OLI = Oligarchic; INT = Internal; EXT = External; HINT = Habitual Index of Negative Thinking; HADS Hospital Anxiety and Depression Scale; RSA = Resilience Scale for Adults. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

Summary of Results from Correlational Analysis of the Resilience Scale for Adults and the Resilience Scale for Adults Subscales

	RSA	FC	PF	PP	SS	SC	SR	HINT	HADS
RSA	-								
FC	.73**	-							
PF	.74**	.35**	-						
PP	.81**	.54**	.52**	-					
SS	.47**	.18*	.35**	.35**	-				
SC	.77**	.41**	.52**	.52**	.32**	-			
SR	.76**	.56**	.39**	.35**	.20**	.58**	-		
HADS	-.39**	-.28**	-.07	-.46**	-.08	-.36**	-.46**	-	
HINT	-.33**	-.29**	-.12	-.40**	-.02	-.29**	-.30**	.54**	-

RSA = Resilience Scale for Adults; FC = Family Cohesion; PF = Positive Perception of Future; PP = Positive Perception of Self; SS = Structure Style; SC = Social Competence; SR = Social Resources; HADS Hospital Anxiety and Depression Scale; HINT = Habitual Index of Negative Thinking.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5

Summary of Results from Correlational Analysis of the Resilience Scale for Adults Subscales and the three predictive thinking styles

	RSA	FC	PF	PP	SS	SC	SR	EXE	EXT	HIE
RSA	-									
FC	.73**	-								
PF	.74**	.35**	-							
PP	.81**	.54**	.52**	-						
SS	.47**	.18*	.35**	.35**	-					
SC	.77**	.41**	.52**	.52**	.32**	-				
SR	.76**	.56**	.39**	.35**	.20**	.58**	-			
EXE	.40**	.28**	.23**	.32**	.32**	.22**	.23**	-		
EXT	.47**	.31**	.26**	.34**	.17*	.54**	.42**	.25**	-	
HIE	.33**	.22**	.30**	.22**	.20**	.24**	.15**	.46**	.13	-

RSA = Resilience Scale for Adults; FC = Family Cohesion; PF = Positive Perception of Future; PP = Positive Perception of Self; SS = Structure Style; SC = Social Competence; SR = Social Resources; EXE = Executive; EXT = External; HIE = Hierarchic.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Multiple Regression Results with Thinking Styles Predicting Resilience.

Predictors	B	SE	β	p-value
Intercept	.803	.526		.129
EXT	.301	.074	.399	.000
HIE	.177	.076	.185	.022
EXE	.205	.101	.176	.043
GLO	.153	.084	.133	.071
CON	-.120	.085	-.128	.162
OLI	.135	.098	.125	.170
INT	.112	.087	.128	.199
LIB	-.094	.075	-.117	.209
JUD	-.085	.068	-.102	.210
MON	.103	.090	.093	.255
LOC	.052	.083	.053	.532
ANA	-.053	.090	-.047	.557
LEG	-.014	.099	-.014	.891

Note. LEG = Legislative; JUD = Judicial; EXE = Executive; LOC = Local; GLO = Global; LIB = Liberal; CON = Conservative; HIE = Hierarchic; MON = Monarchic; ANA = Anarchic; OLI = Oligarchic; INT = Internal; EXT = External.

VITA

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Candidate for the Degree of

Master of Science

Thesis: THE RELATIONSHIP BETWEEN THINKING STYLES AND RESILIENCE

Major Field: Psychology

Biographical:

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Completed the requirements for the Master of Science in Psychology at Oklahoma State University, Stillwater, Oklahoma in December, July, 2012.

Completed the requirements for the Bachelor of Science in Psychology at the University of Science and Arts of Oklahoma, Chickasha, Oklahoma in 2012.

Experience:

Ponce-Garcia, E., & Kennison, S. M. (in preparation). Measuring resilience with the Resilience Scale for Adults (RSA): Evidence from a United States Sample.

Kennison, S. M., & Ponce-Garcia, E. (in preparation). The relationship between ageism, death anxiety, and eating behavior. *Journal of Eating Behaviors*.

Ponce-Garcia, E., & Kennison, S. M. (under review). The relationship between thinking styles and resilience. *Journal of Adult Development*.

Ponce-Garcia, E. and Kennison, S.M. (in press). Cognitive style. In Keith's (Ed.) Cross Cultural Encyclopedia. Hoboken, NJ: Wiley.

Kennison, S.M. and Ponce-Garcia, E. (2012). The role of childhood relationships with older adults in reducing risk-taking by young adults. *Journal of Intergenerational Relationships*, 10(1), 22-23.

Kennison, S. M., & Ponce-Garcia, E. (2011). A philosopher's view of children's cognitive development. Review of R. Bogdan's *Our Own Minds: Sociocultural Grounds for Self-Consciousness*. *PsycCritiques: Contemporary Psychology – APA Review of Books*, 56, np.

Professional Memberships:

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The present research investigated the relationship between thinking styles and resilience. We tested the hypothesis that some thinking styles would be more strongly related to resilience than others. We report the results of a study involving 194 community college students (53 male, 138 female, and 3 failed to report). We assessed students' thinking styles using the Thinking Styles Inventory Revised II (TSI-R2; Sternberg, Wagner, & Zhang, 2007), which identifies a total of 13 distinct thinking styles. We assessed resilience using the Resilience Scale for Adults (RSA; Friborg, Hjemdal, Rosenvinge, & Martinussen 2003), which assesses six aspects of resilience. The results showed that only three of the 13 possible thinking styles predicted resilience. These were: a) executive, which is characterized by a preference for instruction, structure, and productivity, b) external, which is characterized by an emphasis on the social relationship and working with others, and c) hierarchic, which is characterized by a preference to prioritize tasks. Implications for future research in educational settings are discussed.

ADVISER'S APPROVAL: Dr. Shelia Kennison
