COGNITIVE COMPLEXITY AND CONSTRUCT EXTREMITY IN SOCIAL AND LIFE EVENT CONSTRUING IN PERSONS WITH VARIED TRAUMA HISTORY

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The purpose of this study was to examine cognitive complexity, extremity, and the relationship between social repertory grids and life events repertory grids (LERG) in people who report a history of trauma. Effects of type of trauma on complexity and extremity scores of each type of grid were examined. Prior research into repertory grids and trauma has used only one type of grid, predominantly social grids or LERGs. Therefore, a natural, progressive step in the grid research involved investigating how individuals integrate social and life event constructs. It was hypothesized, and results show, that there is a positive correlation between complexity scores and extremity scores of social grids and LERGs. However it was not found that there was a negative correlation between trauma history and complexity scores, and that trauma acts as a moderator for cognitive complexity. Instead, it appears that the social facet of experience is key to understanding perception of traumatic experiences. Additionally, number of traumas experienced might affect social construct elaboration.

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INTRODUCTION

Personal Construct Theory and Posttraumatic Stress Disorder

Starting around two decades ago, posttraumatic stress disorder (PTSD) became somewhat of a “hot topic” and research into this disorder increased. Today interest in PTSD remains strong. Volumes of literature on the subject are present in psychological, medical, and social psychological research journals.

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (American Psychological Association, 2000), states that the fundamental feature of PTSD is:

> the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one’s physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about an unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or close associate (p. 463).

In addition, the traumatic event is persistently re-experienced, stimuli associated with the trauma are avoided and numbing of general responsiveness is often experienced, and there are symptoms of increased arousal (APA, 2000). The diagnosis of PTSD is only given when the above symptoms have been present for more than one month and when the symptoms cause significant distress or impairment in social, occupational, or other areas of functioning (APA, 2000).

Traumatic events experienced directly by the individual include incidents such as military combat, physical assault (e.g., sexual assault, physical attack, mugging, etc.), being kidnapped, being taken hostage, terrorist attack, torture, being a prisoner of war, natural or manmade disasters, serious automobile accidents, or diagnosis of a life-

threatening illness. Witnessed events include observing the serious injury or death of another person due to violent assault, accident, war, or witnessing a dead body or body parts. Learning about traumatic events experienced by others include violent assault, serious accident or injury, unexpected death or illness of a family member or close friend, and learning that one's child has a life-threatening illness. Symptoms of PTSD may be more severe if the trauma is caused by another person (e.g., rape, torture). The likelihood that one will develop PTSD increases as the intensity and physical proximity to the traumatic event increase (*DSM-IV-TR*, 2000).

The most popular methods for examining PTSD include questionnaires and structured interviews. These methods are both easy for participants to complete and can provide valuable information on severity, duration, and recovery rates. Most research studies involving PTSD utilize questionnaires and structured interviews as means for gathering data. However, few research studies incorporate one alternative method for assessment of PTSD: repertory grids (or "grids," Kelly, 1955).

Like questionnaires and interviews, the administration of grids is relatively easy and provides valuable information about how individuals perceive their environment. Grids are comprised of elements and constructs. Elements are representative of the area under investigation (Fransella & Bannister, 1977). For example, if interpersonal relationships are the focus of study, then elements might be people (e.g., mother, father, etc.). Individuals completing a grid can be asked to provide personally relevant examples of elements. For example, if elements are people, then the individual might be asked to provide first names of people who fit the roles of "mother," "father," and so on. The elements are then presented to participants in order to elicit constructs.

Constructs are verbal labels that represent the participant's understanding of the world (Fransella & Bannister, 1977). The individual completing the grid is presented with a triad of elements and is asked to consider how two of the elements are alike in some important way that is different from the third element. For example, the individual might be asked to think about the elements "mother," "father," and "self" and provide a brief description of how two of those people are alike in a way that is different from the third. The individual's response is the construct. Next, the individual can be asked to provide the opposite of their construct and prompted to indicate which of the two poles is more positive to them. When all of the constructs and their opposite poles are provided the individual might be prompted to rank order or rate elements based on the constructs. Analysis of constructs offers information about how one sees the self, other people, and the environment.

Repertory grids are unique in that they can be tailored to explore almost any aspect of experience. For example, repertory grids can offer useful information regarding an individual's different "roles" or "selves," or it can be constructed to yield social, occupational, or educational applications. Grids are so versatile that they are also used in the business world for marketing purposes (e.g., using brands as elements and product qualities as constructs).

Repertory grids provide useful information about individuals and are relevant to the study of PTSD. Two aspects of repertory grids, their complexity and their extremity, can reveal information about trauma.

Complexity

One important piece of information that repertory grids provide about an individual is cognitive complexity. Cognitive complexity might best be described as how multifaceted one sees the domain being construed (people, events, etc.). Cognitive complexity refers to the degree of intricacy involved in making assumptions about the world. For example, if one has high cognitive complexity, several different constructs might be applied in several different contexts. Low cognitive complexity implies that one uses few constructs, or several constructs that are similar in nature, to describe and predict the world.

Sewell et al. (1996) examined complexity by assessing construct elaboration of Vietnam combat veterans. Elaboration refers to how well a construct “fits” into the person’s overall construct system. For example, according to constructivist theory, an individual feels anxiety when an experience or event does not fit into his or her construct system (Kelly, 1955). The event that does not seem to have a place within the individual’s construct system might be construed via one or more constructs that are isolated, or unelaborated, in relation to other constructs. The constructivist model of PTSD (Sewell & Cromwell, 1990) posits that individuals with less elaborate construct systems are more likely to experience anxiety symptoms related to past traumas. The study included 60 Vietnam combat veterans, 30 of who were diagnosed with PTSD and 30 veterans who had combat experience but were not diagnosed with PTSD. Sewell et al. (1996) compared life events repertory grids (LERGs) of the PTSD group and the non-PTSD group, who served as the control group. It was hypothesized that the construction of traumatic events would be less elaborated for the PTSD group than for

the control group. The results supported the hypothesis. For individuals who exhibited PTSD symptoms, traumatic events were less elaborated. Also, veterans with PTSD possessed more “black and white” thinking. That is, individuals with PTSD tended to describe or rate experiences in extreme terms.

Sewell (1996) examined the effects of more recent traumatic events on individuals exposed to a mass murder in Killeen, Texas, in 1991. Eighty-two individuals (33 women and 49 men) with various degrees of exposure to the incident were interviewed and completed questionnaires designed to assess PTSD symptomology, level of functioning prior to the shooting, and perceived level of social support. During a three-month follow-up, participants who had exhibited a posttraumatic stress (PTS) response during initial testing completed a LERG. Twelve important life experiences (including the shooting) were elicited from the participants. Then, each participant was presented with triads of these experiences and 12 “constructs” were elicited, sorting the life experiences as similar or different. In this manner, a 12 by 12 repertory grid was produced. Sewell (1996) tested two sets of hypotheses. First, it was hypothesized that symptomatic response to trauma would be predicted by level of exposure, prior history of trauma response, pre-trauma anxiety, and social support. Results generally supported these hypotheses. Individuals with the most exposure to the traumatic event were likely to develop a PTS response independent of their premorbid functioning. However, individuals less exposed to the traumatic event were likely to develop a PTS response if they reported previous PTS symptoms. Secondly, Sewell (1996) hypothesized that individuals who initially exhibited a PTS response, but who had quickly resolved the distress, would exhibit greater construct elaboration than those who

remained symptomatic. Results supported this hypothesis. Construct elaboration was indeed found to be the single best predictor of recovery from the traumatic event.

Many repertory grid research studies have focused on self-complexity (Linville, 1985, 1987; Kalthoff & Neimeyer, 1993; Erbes & Harter, 1999; Cason 2001). Self-complexity is the extent to which individuals see themselves as complex and multifaceted (Linville, 1985). Linville (1987) has shown that elaboration of self-complexity can act as a “buffer” in response to stressful life events. Kalthoff and Neimeyer (1993) examined the relation between self-complexity and response to stressful life events. Kalthoff and Neimeyer (1993) evaluated three measures as a test of Linville’s buffering model. The three measures included the Linville Self-Complexity measure (1985), a repertory grid using important life roles as elements, and a text analysis measure in which participants were asked to write down as many self-descriptions as they could during a timed period. Participants also completed various measures and questionnaires that assessed life stress and intelligence. Results of Linville’s (1987) initial study were generally, although not strongly, supported by the research conducted by Kalthoff and Neimeyer (1993). Linville’s measure of self-complexity (1985) provided the strongest support for the buffering model. Support for the model provided by the repertory grid and text analysis was inconsistent and generally weak. The authors suggested that a measure of role importance, rather than just using open-ended role identification tasks, might better demonstrate the relation between self-complexity and life stress.

Erbes and Harter (1999) also examined the relation between self-complexity and response to stress. They investigated cognitive complexity in survivors of child abuse.

Participants included 81 college students who completed Linville's measure of self-complexity (1985), ratings of family vignettes, a measure of family functioning, and the Child Abuse Trauma Scale (CATS; Sanders & Becker-Lausen, 1995). The authors tested four hypotheses. First, it was hypothesized that cognitive complexity would be higher in family domains in which participants had more experience. More specifically, it was predicted that participants from abusive families would show more complexity when describing an abusive family situation. Second, it was hypothesized that participants who were recipients of abuse would have lower levels of self-complexity due to more constricted experiences in their family. Third, participants were expected to show higher levels of extremity in those domains in which they were hypothesized to have lower levels of complexity. Finally, family characteristics associated with abuse were hypothesized to be predictive of complexity. Results did not support the first, second, or fourth hypotheses; abused and non-abused participants did not differ in their levels of selfcomplexity and family characteristics associated with abuse did not predict complexity. This contradicts the hypothesis that an abusive family experience would lead to lower self-complexity. The authors warn that, due to their findings, assuming that abusive experiences limit cognitive complexity may be a mistake. Erbes and Harter (1999) attributed their results, in part, to their use of a college, and therefore, likely high-functioning, sample.

Cason (2001) used social repertory grids to examine self-complexity and posttraumatic stress disorder. Cason (2001) noted that higher self-complexity scores have been associated with improved functioning after traumatic life events. Cason's (2001) study examined the relation between self-complexity and posttraumatic

symptomatology. Sixty-four female trauma victims completed social repertory grids, the Posttraumatic Distress Scale (PDS), and the Beck Depression Inventory—II. It was hypothesized that there would be a negative correlation between overall self-complexity and symptoms of PTSD. Cason also hypothesized a negative correlation between positive self-complexity and symptoms of depression. Results supported the hypotheses; however, the significant correlations were weak. Cason (2001) did not find a robust relation between negative self-complexity and depressive symptoms.

Extremity

Repertory grids also yield important information about the "flexibility" of an individual's construct system. Extremity refers to the extent that a person views other individuals and experiences in extreme ways. For example, a person might be rigid in his or her constructs and see the environment as "black and white." Alternatively, an individual's construct system might be flexible so that he or she sees the world in "shades of gray." Previous research using repertory grids to assess trauma seem to indicate that individuals who report PTSD symptoms or trauma history are likely to have higher extremity scores than those who do not report PTSD symptoms or trauma history, but the results imply further research is needed (Sewell, et al., 1996; Erbes & Harter, 1999).

The study conducted by Sewell et al. (1996) was previously mentioned in reference to their findings on trauma and cognitive complexity. Their results revealed information about trauma and extremity scores as well. In their sample of 60 Vietnam combat veterans, those diagnosed with PTSD tended to rate experiences in more extreme terms. The PTSD patients had higher extremity scores on the LERG than the

non-PTSD group. However, regardless of the presence of PTSD symptoms, experiences after Vietnam were rated more extremely than experiences before Vietnam.

The aforementioned Erbes and Harter (1999) study examined extremity as part of their research of complexity in participants from abusive and non-abusive families. They predicted that individuals from abusive family environments would have higher extremity scores than individuals who were not from abusive family environments when rating vignettes. Vignettes either described an abusive family situation or a non-abusive family situation. The participants rated vignettes on a series of 10 bipolar constructs on a scale of +3 to -3. Two extremity scores were calculated, one for each type of vignette. A main effect was discovered with participants from abusive families rating the non-abuse vignettes more extremely than the abuse vignettes. However, there was no significant interaction when they analyzed overall complexity. Abused and non-abused participants did not differ in their levels of complexity.

THE PRESENT STUDY

Hypotheses and Research Questions

As stated above, research using repertory grids typically involves either social grids or life event grids. Assessing the construal both of life events and of social roles could yield valuable information about how individuals with a history of trauma construe their world. Making connections between individuals' social world and construal of life events would provide a more complete picture of the traumatized individual's view of his or her environment.

The purpose of the present study was to use the social repertory grid and the life events repertory grid (LERG) to examine how individuals with varying levels of trauma history construe their experiences and social roles. There were several research questions to be considered. First, how did indices from the social repertory grid compare to similar indices from the LERG? More specifically, were complexity scores of social construals and life event construals correlated? According to constructivist theory, humans are active participants in the organization of their environments (Mahoney, 1991). Humans organize their environment in order to make predictions about other people and situations, which aids in navigation of the world. It would follow, then, that complexity of social grids and LERGs would be positively correlated due to the tendency for humans to attempt to organize their surroundings, which includes people and events. Thus it was predicted that there would be a positive correlation between intensity scores from the social grids and LERGs.

Second, how did participants with a significant history of trauma compare to those who report few, if any, traumatic incidents? Differences in complexity were

hypothesized. Prior research indicates that individuals with greater trauma history should have lower complexity scores than individuals with few traumatic experiences (Cason, 2001).

Third, for people who report a significant trauma history, did the type of trauma show differential effects on the social versus life-event repertory grid? For example, would people who report a social trauma (e.g., sexual assault) show less complexity specifically on social grids? Similarly, would people who report a non-social trauma (e.g., natural disaster) show less complexity specifically on LERGs? Here, trauma type may be acting as a moderating variable. Past research suggests that people with trauma in general would have less complex LERGs (Sewell, 1996; Sewell, et al., 1996). However, this finding has failed to be replicated on sexual assault survivors (Moes & Sewell, 1994). Given that the present study used both social grids and LERGs, the possible inconsistency between grid types and trauma type was separated (Gara, Woolfolk, & Allen, 2002).

Fourth, previous findings indicate that individuals with trauma history tend to rate experiences in extreme terms (Sewell, 1996; Sewell, et al., 1996). Similar results were expected from the present study. It was predicted that type of trauma would affect extremity scores on the respective grid type.

Fifth, would there be gender differences in complexity and extremity of social grids and LERGs? Previously, repertory grid research on trauma has been gender consistent. For example, studies examining veteran populations include primarily men and sexual assault studies include primarily women. It is possible that females could have higher social grid complexity scores than males. The nature of the present study

lent itself to the investigation of other possible gender differences due to the topic in question and the population utilized.

In summary, the current hypotheses and research questions are as follows: 1) There would be a correlation between complexity scores of social grids and LERGs; 2) There would be a correlation between extremity scores of social grids and LERGs; 3) Individuals who reported greater trauma history would have lower complexity scores than individuals who showed less trauma history; 4) Individuals who reported a history of social trauma would have lower social grid complexity scores than those who did not report social trauma history; 5) Individuals who reported life event trauma would have lower complexity scores on the LERG than those who did not report life event trauma history; 6) Extremity scores on the social grid would be higher for individuals who reported a history of social trauma than for those who did not report a history of social trauma; 7) Extremity scores on the LERG would be higher for individuals who reported life event trauma than for those who did not report life event trauma and; 8) Females would have higher social grid complexity scores than males. Other possible interactions between gender, complexity, and extremity scores were explored.

METHOD

Participants

Participants included 37 male and 70 female undergraduate students enrolled in beginning level psychology courses at the University of North Texas. Inclusion criteria consisted of participants aged 17 or older and enrolled at the University of North Texas. The format of this study allowed for few exclusion criteria. If volunteers were to exhibit difficulties in manual dexterity or visual acuity, researchers were available to aid in the completion of the measures. Any person who did not volunteer to complete the measures was to be excluded from the study, although this did not become relevant during the study. Participants received credit toward their psychology courses as compensation for their cooperation in this study.

The current study is unique in that it examined cognitive complexity in relation to a social repertory grid and a life events repertory grid, a task that has not yet been attempted in previous research. Due to the nature of this study, an estimate of effect size was not made. A formal power analysis was also not feasible at this time as there was no prior literature from which to base power analysis calculations. A modest sample size was readily accessible; and data were collected from 107 participants.

Measures

Participants completed a demographic history questionnaire for the purpose of gathering data regarding age, gender, ethnicity, language, early education, year in college, marital status, and number of children under the supervision of researchers (Appendix B).

Participants completed the Traumatic Life Events Questionnaire (TLEQ; Kubany, et al., 2000; Appendix C), a self-report measure that assessed history and severity of trauma. The TLEQ consisted of 23 questions regarding traumatic events including natural disasters, accidents, war, death, illness, criminal acts, physical and sexual assault, and abortion. Participants were instructed to indicate on the TLEQ how many times they experienced each trauma. Each item contained follow-up questions regarding the experience of fear, helplessness, or horror and supplementary questions, which provide additional information about the trauma events. The TLEQ was chosen because it appeared to appropriately assess a broad range of traumatic events with a non-clinical population and because of its good reliability and validity (Kubany, 2000).

The TLEQ was validated and tested for reliability in five separate studies. The TLEQ was compared to the Traumatic Life Events Inventory (TLEI), a structured interview that assesses trauma history, to determine validity of the TLEQ items (Kubany, 1995). Kappa coefficients range from .40 on 15 of 16 items to .60 for 13 items (Kubany, et al., 2000). Kubany (2000) suggested that the kappa coefficients might result from discrepancies in reporting as the TLEI was administered in a one-on-one setting and the TLEQ was administered in a group setting. Participants might have been underreporting trauma history when in the one-on-one interview situation. Test-retest reliability kappa coefficients also ranged from .40 to .60.

Participants also completed two repertory grids, a social repertory grid and a life events repertory grid (LERG). All repertory grids were conducted under the supervision of researchers trained in computer administration of repertory grids using OMNIGRID-PC program (Sewell, Mitterer, Adams-Webber, & Cromwell, 1991). The process of

completing the social repertory grid and the life events repertory grid is detailed in the Procedures section.

Repertory grids provided information about several different aspects of elements and constructs. It was important, then, to look at reliability of the different measures within grids. Intensity scores were of importance to the present study as intensity was used to calculate cognitive complexity. Intensity tends to have low to moderate test-retest reliability (Bannister, 1962a; Honess, 1977). However, Fransella and Bannister (1977) suggest that this may reflect the grid's sensitivity to changes in an individual's construct system. Reliability of extremity ratings is also variable. More extreme ratings are typically found for constructs elicited by the person rather than for constructs that are supplied by the examiner (Fransella & Bannister, 1977). Bonarius (1971) proposes that this variability is the result of the interaction between the element being rated, the individual doing the rating, and the poles of the construct that define the rating scale.

Stability of constructs elicited by individuals provided insight into whether people tend to use the same constructs or if there is an infinite number of constructs that people draw from when thinking about their environment. Elicited constructs tend to remain stable over time (Hunt, 1951; Fjeld & Landfield, 1961). Fjeld and Landfield (1961) showed that there was a correlation of .80 between first and second sets of elicited constructs over a two-week interval (Fransella & Bannister, 1977).

Validity of psychological measures is typically established by comparing the measure in question to another measure that has been established as a valid assessment of a particular construct. Fransella and Bannister (1977) suggest that validity of repertory grids be measured in terms of their usefulness. Grids appeared to

provide useful information about an individual's experiences in different areas of his or her life. For example, regarding social relationships, Adams-Webber, Schwenker, and Barbeau (1972) found that individuals could accurately guess constructs of others when taking the viewpoint of another. Individuals were able to differentiate between their own viewpoint and the viewpoint of others and grids provided information about the participants' cognitive process (Fransella & Bannister, 1977). The aforementioned Sewell et al. (1996) study found that combat veterans diagnosed with PTSD were more likely to have higher extremity ratings than those who were not diagnosed with PTSD. Furthermore, the PTSD patients were more likely to rate events, particularly events after Vietnam, as more negative (Sewell et al., 1996). Sewell et al. (1996) also found less variability in intensity in the PTSD group than in the control group suggesting that constructs were less differentiated for the PTSD patients. Grids appear to be useful in the assessment of a variety of variables, including those relevant to PTSD. Reliability, validity, and other information, as stated above, regarding repertory grids apply to social repertory grids and not life events repertory grids. Tests of reliability and validity were conducted using data from social repertory grids only (Fransella & Bannister, 1977).

Procedure

The design of the present study did not require follow-up participation on the part of the participants. Participants remained anonymous and were not required to sign a consent form in order to maintain their anonymity. Participants received an informed consent form describing the purpose, risks, and benefits of the study and contact information (Appendix A). Participants were informed that their voluntary participation in the study is their consent. All participants completed the demographic history

questionnaire and the Traumatic Life Events Questionnaire (Kubany, et al., 2000) under the supervision of a researcher. Self-report measures were completed anonymously. Participants were assigned an arbitrary participant number for recording purposes.

Once the self-report measures were completed, participants completed two repertory grids, a LERG and a social grid. These grids were administrated by computer using OMNIGRID-PC program under the supervision of a trained researcher. Administration of the social grid and LERG was counterbalanced to control for possible order effects and maintain internal consistency. The OMNIGRID-PC computer program was easy to operate so that participants were able to complete the grids on their own. Researchers were present to answer any questions from participants regarding operation of the program and completion of the computerized grids. Each grid had 10 elements and 10 constructs. Elements for the social repertory grid included the following: mother, father, brother, sister, best friend, someone who is disliked, a liked authority figure (teacher, boss, etc.), a disliked authority figure (teacher, boss, etc.), spouse or significant other, and self. Elements for the LERG consisted of the following: earliest memory, most memorable experience during elementary school, most memorable experience during high school, most memorable experience during college, and most memorable experience during the past month. Participants were instructed to choose two experiences for each time period, resulting in a total of ten events. After each event was elicited, the participant was prompted to label each life experience as positive or negative.

Constructs were elicited from participants by presenting triads of elements. OMNIGRID-PC (Mitterer & Adams-Webber, 1988; Mitterer, Adams-Webber, & Sewell,

1989) allowed for random selection of elements for triads. The same set of triads were presented to each participant in the same order. The participant was prompted to consider each element in the triads and was asked, "How are two of these alike in some important way in which they are different from the third?" The participant typed her/his response, which was the construct pole. The participant was then asked to provide the opposite of the elicited construct pole (yielding the contrast pole) and to indicate which of the two was considered more positive.

Once constructs were elicited, participants were prompted to rate each element on a six-point scale (1 to 6) using the constructs they provided. For example, participants rated where each element lies on each construct-contrast dimension. Once all elements had been rated on every construct, the grid was complete and participants fulfilled their requirements for the study. Upon leaving the testing area, researchers answered any questions the participants had regarding the study. Participants were informed as to how they may contact the researchers or obtain results of the research study.

DATA MANIPULATIONS

Deriving Grid Indices

Complexity scores measure the overall level of intercorrelation amongst constructs. Strong, positive correlations amongst constructs indicate that they are not separate, but instead similar in nature. Complexity scores are derived when all intercorrelations are squared and added together. The resulting score is termed "intensity." Intensity is the internal association among constructs. Low intensity scores indicate more complex construct systems (Pierce, Sewell, & Cromwell, 1992).

Extremity refers to the values given to constructs based on rating scales that exceed the value of 1 to 0 (e.g. the present study uses a rating scale of 1 to 6). Extremity scores are derived as the extremity of each rating as its absolute deviation from the midpoint of the scale. Extremity scores can be interpreted as an indication of importance (or discriminatibility) to the individual of a given construct or element (Mitterer & Adams-Webber, 1988).

Traumatic Life Event Questionnaire

The structure of the Traumatic Life Event Questionnaire (TLEQ) was such that participants indicate whether or not they have experienced a number of traumatic events listed on the questionnaire, the number of times the traumatic event occurred, whether or not fear, helplessness, or horror was experienced at the time of the trauma, and whether or not serious injury occurred as a result of the traumatic event. The TLEQ is not a scored measure; therefore data could potentially be classified as dimensional or categorical. Examination of the data, once it was collected, revealed it was categorical in nature. When frequencies and means for number of social traumas reported and

number of life event traumas reported were examined, participants fell into three general categories: no trauma, one or two traumas, and many traumas. Previous assumptions about proposed analyses below assumed dimensional trauma data; however, categorization proved necessary and the types of analyses were adjusted accordingly.

Additionally, the TLEQ does not distinguish between “social” traumas and “life event” traumas. The difference between social and life event trauma was determined by the nature of the trauma via consensus of a team of researchers. For example, traumatic events that directly involved interpersonal relationships or social interaction were considered “social” traumas (e.g., childhood abuse; sexual assault; physical assault, including domestic violence; severe illness/death of loved one; life threatening illness; death of pet; robbery; witness to violent crime; witness to domestic violence; threats of harm from another individual; miscarriage; abortion). Traumatic events that involved no or limited social interaction (e.g., natural disasters; motor vehicle accidents; exposure to war zone) were considered “life event” traumas.

RESULTS

Descriptive Statistics

The total number of participants was 107 undergraduate students. The total number of male participants was 37 and the total number of female participants was 70. For some analyses, the number of participants is 105 and not 107 due to missing data. Certain analyses required a specific set of variables. If the participant did not complete all responses required to derive those variables, that participant was not used in the analysis. The age of the participants ranged from 18 years to 53 years. The mean age of the participants was 21.84 with a standard deviation of 5.65.

The total number of types of trauma, as measured by the TLEQ, ranged from zero items to 12 items. The average number of trauma items endorsed was 4.05 with a standard deviation of 2.15. Table 1 shows descriptive statistics for other study variables.

Inferential Statistics

The first and second hypotheses stated that there would be a relation between indices from the social repertory grid and those from the life events repertory grid (LERG). Specifically, it was hypothesized that there would be a positive correlation between intensity scores from the social grids and LERGs. Additionally, it was hypothesized that there would be a positive correlation between extremity scores from the social grids and the LERGs. These hypotheses were tested utilizing Pearson's product correlations. The alpha is set for all analyses at .05, unless otherwise stated. As

predicted, moderate positive correlations were found among these variables (see Table 2).

The third hypothesis stated that individuals who reported greater trauma history would have lower complexity scores than individuals who show less trauma history. Data were normally distributed; therefore, a Pearson's product moment correlation was used to test the relation between overall trauma history and cognitive complexity. Contrary to the hypothesis, no significant correlation was found (see Table 3).

The fourth and fifth hypotheses state that, for those individuals who reported trauma history, type of trauma should affect the respective grid type. For hypothesis four, participants who reported social trauma (e.g., sexual assault, physical assault, etc.) were expected to have lower cognitive complexity scores than those who did not report social trauma. Data were categorical in nature with those who reported social trauma in one group and those who did not report social trauma in another group. Similarly, for participants who reported life event trauma (e.g., natural disasters), it was expected that life event grid cognitive complexity scores would be lower than for those who did not report a history of life event trauma. Again, data were categorical in nature with participants grouped by reported presence or absence of life-event trauma history. The dependent variables were complexity scores from each type of repertory grid, the social grid and the LERG. Therefore, a two by two (type of grid, social or LERG and type of trauma, social or not social) mixed ANOVA was used for the analysis. An interaction was expected; reported social trauma was predicted to have greater impact on complexity scores of the social grid than on the LERG. Main effects were obtained for intensity scores (social or LERG) and for trauma type (social or not social). Intensity

scores on the social grid were significantly higher than those on the LERG. On average, participants endorsed significantly more social traumas than life-event traumas. Although a significant difference between intensity scores on the social grid and the LERG was expected, a main effect in the opposite direction was found.

Regarding the fourth and fifth hypotheses, significant main effects were found for trauma type and for intensity scores. Participants reported experiencing more social trauma than life event trauma and intensity scores were higher on the social grid than on the LERG. There was a significant interaction between type of grid, social or LERG, and type of trauma, social or not social (see Table 4). However, the pattern of the interaction differs from the original hypothesis. Participants reported more social trauma than life-event trauma and intensity scores were higher on the social grid. Nevertheless, intensity scores on the social grid were also higher than intensity scores on the LERG for those who reported life-event traumas.

It was hypothesized that, for individuals who reported trauma history, the type of trauma would affect the extremity of the respective grid type. The sixth hypothesis stated that extremity scores on the social grid would be higher for individuals who report a history of social trauma than for those who did not report a social trauma history. A two by two (type of grid, social or LERG and type of trauma, social or not social) mixed ANOVA was utilized to analyze the data. An interaction was expected, where extremity scores were predicted to be higher on the social grid than on the LERG for individuals who report social trauma history as compared to those who did not report a history of social trauma.

Analysis revealed main effects for extremity scores, with extremity scores from the social grid higher than those on the LERG, and for trauma type, with participants reporting more social traumas than life-event traumas. There was not a significant interaction between type of grid and type of trauma (see Table 5).

The present research study allowed for examination of possible gender differences in cognitive complexity scores and extremity scores. It was hypothesized that females would have higher social grid complexity scores than males (hypothesis 8). One-way ANOVAs were used to explore this hypothesis and explore the possible gender differences on the LERG. The results do not support the eighth hypothesis. Males and females did not differ in their complexity scores on either grid type (Table 6). Likewise, there were no differences between male extremity scores and female extremity scores on either grid type (Table 7).

Upon examination of the findings, exploratory analyses were conducted to investigate an interesting and unexpected result. Participants who reported life event trauma appeared to fall into three categories: those who reported no life event traumas, those who reported one life event traumas, and those who reported two or more life event traumas. Investigation of intensity and extremity scores for these three groups using one-way ANOVAs suggested that social intensity scores might differ (Table 8). Post hoc analyses were utilized to examine social intensity scores among the three groups (Table 9). Although the results did not reach significance, an interesting trend emerged. Those in the no life-event trauma history group had similar social grid intensity scores to those in the more than two life event trauma history group. Furthermore, the social grid intensity scores for these two groups were higher than the

social grid intensity scores for the group of individuals who reported only one life-event trauma.

DISCUSSION

The first and second hypotheses stated that there would be a relation between the indices obtained from the social repertory grid and those obtained from the life events repertory grid (LERG). As was expected, there was a positive correlation between intensity scores from the social grids and LERGs. Additionally, there was a positive correlation between extremity scores from the social grids and the LERGs. Although social repertory grids and LERGs have not been directly compared, prior research (Sewell, 1996; Sewell et al., 1996) indicates that positive correlations of intensity and extremity scores between the two could be expected.

For example, the study conducted by Sewell et al. (1996) revealed information about both construct intensity and extremity. In their sample of Vietnam veterans, those diagnosed with posttraumatic stress disorder (PTSD) tended to have less elaborate construct systems and rated experiences in more extreme terms. Because the study examined social as well as experiential aspects of life circumstances in those diagnosed with PTSD and those who did not have a PTSD diagnosis, the logical assumption would be that intensity and extremity related to social and life events would be positively correlated.

Additionally, research by Stein and Markus (1994) suggests that people are either complex or not. Those individuals who are cognitively more complex, they found, are emotionally healthier than individuals who are not as complex in their cognitive structure.

The third hypothesis stated that complexity scores of those who reported greater trauma history would be lower than individuals who showed less trauma history. The

finding that there was not a significant correlation between trauma history and complexity scores was surprising given the results of prior research (Sewell, 1996; Sewell et al., 1996). Although this result was not expected, exploratory analyses, discussed below, could provide an explanation for this particular finding. Trauma history appeared to be categorical in nature. Participants tended to fall into three categories of trauma history: no trauma, one trauma, and many traumas. Extremity scores varied across categories. It could be true that the relationship between cognitive complexity and trauma history is more complex than a positive linear relationship. The data tended to take a curvilinear pattern with those reporting no trauma and those reporting many traumas having higher intensity scores than those who reported one trauma. Although the intensity scores of the no trauma and the many traumas groups are similar, cognitive complexity might serve different functions and is discussed in more detail below.

It was hypothesized that, for those individuals who report trauma history, type of trauma should affect the respective grid type. For example, the fourth hypothesis predicted that for participants who report social trauma, such as sexual or physical assault, complexity scores would be lower than those who do not report social trauma. Similarly, the fifth hypothesis expected that for participants who report life event trauma, such as a natural disaster, complexity scores on the life event grids would be lower than those who do not report a history of life event trauma. Dependent variables included complexity scores from the social grid and the LERG.

Although there was a significant interaction between trauma type and intensity scores, the pattern of the results do not support the hypotheses. Social intensity scores

were higher for those who reported a social trauma history, but social intensity scores were also high for those who reported a life event trauma history. Thus, it appears that the findings indicate type of trauma does not affect the respective grid type. It could be that complexity, or how elaborate one's construct system appears to be, is related to the social facet of one's experience rather than dependent on what type of trauma is experienced (e.g., social or life event). If we are to understand the way in which we view experiences in our environment as occurring in different areas (social, life event), trauma appears to affect more than one aspect of experience. It is possible that the social component of experience is directly affected by a traumatic event. Social disruption might be the primary effect of a traumatic experience. Green and Berlin (1987) touched on this in their research of the effects of PTSD on psychosocial factors in Vietnam veterans. They found that psychosocial factors, such as interpersonal relationships, were most problematic for veterans with PTSD (Berlin & Green, 1987). Further research would shed more light on the direct effects of other types of trauma (trauma not related to war experience) on social aspects of experience. Traditionally, trauma research has assumed that trauma causes an anxiety reaction (e.g., nightmares, flashbacks), which in turn causes social disruption. Following this line of thought, social disruption is a secondary effect or by-product of trauma. However, given that social intensity is higher even for those with life event trauma, trauma might directly affect how individuals view themselves and others.

The same appears to be true for construct extremity, or how flexible one's construct system appears, as well. The sixth and seventh hypotheses explored construct extremity. It was predicted in the sixth hypothesis that extremity scores on the

social grid would be higher for individuals who report a history of social trauma than for those who do not report social trauma history. The present results supported this prediction. However, these results need to be understood in light of the results of the seventh hypothesis. Hypothesis seven predicted that extremity scores on the LERG would be higher for individuals who report a history of life event trauma than for those who do not report life event trauma history. Similar to the findings for the fourth and fifth hypotheses that dealt with intensity, extremity scores were higher on the social grid but this was not dependent on trauma type (social or life event). As stated above, perhaps social perception is central to traumatic experience in general and cannot be separated into social versus life event.

Although the overall results indicate hypotheses six and seven are not true, further analysis of the variables yielded an interesting piece of information. Post hoc analysis revealed a significant difference in social grid intensity scores between participants who reported no trauma history, those who reported one traumatic event, and those who reported multiple traumas. Specifically, intensity scores on the social grid were higher than intensity scores on the LERG for individuals who reported a history of life event trauma. In addition, those who reported no life-event trauma history had similar social grid intensity scores to those who reported two or more life-event trauma experiences. Both groups had intensity scores that were higher than those who reported only one life-event trauma experience.

The above findings might provide insight into why there are no significant differences in intensity scores and extremity scores between the social grid and the LERG. First, the fact that there was a significant difference in social grid intensity scores

when examining the life event trauma history variable might suggest a strong connection between the social aspect and life event aspect of our experiences. It is likely that the two cannot be separated and this could explain the findings for the current study. For example, intensity and extremity scores for the social and the LERG are positively correlated, suggesting a relation between the two. However, extremity and intensity scores are not influenced by type of trauma history, social or life event.

The findings revealed through post hoc analysis could offer additional insight into how individuals adapt to traumatic experience. Upon examination of the social intensity scores, as stated above, a trend was discovered in that those who report no history of life event trauma had similar social intensity scores as individuals who reported two or more life event traumas. These intensity scores were higher than intensity scores of those who reported only one life event trauma. Prior research indicates that lower intensity scores on repertory grids suggest greater adaptability (Sewell, 1996; Sewell et al., 1996; Cason 2001). For example, the more complex the individual's construct system, the more flexible one is in "fitting" a traumatic experience into that construct system, thereby making it easier for the individual to adapt to negative events.

Why, then, would individuals who report extensive trauma history as well as no trauma history appear to have greater intensity (and thus less complexity) than individuals who report only one traumatic experience? One possibility might lie in research conducted by Stein and Markus (1994) who suggest that more complex individuals are emotionally healthier. Individuals who report no trauma history might be better able to "afford" a simpler construct system than those individuals who have experienced and been forced to adapt to a single traumatic event. On the other hand,

those with an extensive trauma history may have been forced into a less complex outlook due to having fewer cognitive resources available to them. Fewer cognitive resources due to stress might result in the need to restrict one's construct system, which could allow the individual to focus on and protect him or herself against the traumatic event, while eliminating unnecessary and energy-consuming constructs. From this perspective, lower intensity scores, as reported by individuals who experienced one traumatic event, might indicate an adaptive response to trauma in relatively high-functioning persons.

Possible explanations have been offered for the observed trends in intensity score differences between individuals with no reported trauma history and individuals who report one traumatic event and intensity score differences between individuals who report one traumatic event and individuals who report several trauma experiences. The above explanations could provide a hypothesis regarding the trend towards similar, higher intensity scores for the no trauma history group and the group of individuals who reported two or more traumas. Although the intensity scores for the two groups appear similar, two different cognitive processes might be at work. The first group of individuals, those who report no trauma history, may have an ample amount of cognitive resources with which to maintain a complex construct system. Because this first group does not experience stress related to traumatic events, they can "afford" to view the world in a more or less simple manner. The second group of individuals, those who report two or more traumatic experiences, might have a non-complex outlook due to the demands of coping with multiple traumas. Thus, with increasing exposure to traumatic events, a trend towards a curvilinear pattern in complexity appears.

Implications

While many of the hypotheses examined in the current study did not yield the expected results, the findings could provide important insight into how PTSD is researched and treated. Exploration of the social grid intensity scored revealed an interesting trend related to the number of life event traumas individuals experienced. This curvilinear trend, with those who report no trauma history and those who report more extensive trauma history having higher intensity scores than those who report only one traumatic event, might have valuable implications for clinical practice and directions for future research.

Clinical Implications

The finding that there are positive correlations between intensity and extremity indices on social grid and LERG are not surprising given the results of prior research (Sewell, 1996; Sewell et al., 1996). However, comparison of the grids reveals important, initial information about the social grid and LERG indices. How individuals view other people and how they view life event experiences appear to be related. Clinically, this could mean that an individual who experiences a life event, such as a natural disaster, might be at immediate risk for difficulties in their interpersonal relationships. At the very least, the individual's way of experiencing others might be altered in some way. Further analysis of the social grid and LERG indices provided information that might explain this relation in more detail. For example, traumatic life events might change the way in which an individual views others; however, social trauma might not have the same impact on the manner in which the individual experiences life events. The results of the

present study seem to indicate that the social component is the most salient aspect of experience.

Possibly the most important implication of these findings is that clinicians cannot assume that increased complexity amongst constructs necessarily means greater adaptability to traumatic experience. While this may be true for some individuals, it could be, for some, that higher complexity indicates greater distress in response to trauma. Prior research indicates greater pre-morbid complexity leads to fewer PTSD symptoms after experiencing a traumatic event (Sewell, 1996; Sewell et al., 1996; Cason, 2001). What creates the difference between adaptive and maladaptive complexity? The answer could be, in part, the number of traumatic experiences in one's history as implied by the curvilinear nature of the data.

Assessment for PTSD might include specific measures to address the extent of prior trauma history. Additionally, examining repertory grids related to trauma history and intensity scores could provide important information about the individual's cognitive processes at the time of assessment and therapy. Knowing trauma history and the amount of elaboration in the individual's construct system might aid clinicians in directions for course of therapy.

Clinicians treating individuals for PTSD might need to consider therapeutic interventions for these groups (one trauma versus several traumas) differently. Instead of viewing treatment of PTSD in general terms, it might be beneficial to tailor specific interventions for each group. Therapeutic intervention for individuals experiencing one traumatic event might need to differ from therapy for those who have experienced multiple traumas. Jaycox, Zoellner, and Foa (2002) presented a cognitive-behavioral

approach to treatment of PTSD, which included education about responses to trauma, “reliving” memories of the trauma, exposure to triggers of trauma responses, and cognitive restructuring. Cognitive-behavioral therapy and narrative therapy are heavily researched and appear to be effective treatments for individuals with PTSD (Hembree & Foa, 2000; Foa & Zoellner, 1998). In utilizing the above approaches in PTSD treatment, it might be important to consider number of traumas experienced as pertinent to the treatment plan. Cognitive restructuring or re-organization of the trauma narrative with an individual who has experienced one trauma might focus on the single event. A more generalized approach encompassing several traumatic experiences might be beneficial for an individual with multiple traumas. Further research is necessary to explore how the extent of trauma history might alter the way clinicians view therapeutic intervention.

The high-functioning nature of the study sample might affect the results of the present study. Higher-functioning individuals might be less complex in general and their response to a single trauma could take a different pattern than individuals in a clinical population. If higher-functioning individuals are less complex prior to trauma, the response to trauma might include disorganization of the construct system and, with subsequent traumas, a return to a more simplified construct system as an adaptive coping mechanism. The approach to treating individuals with one trauma versus several traumas might be a matter of direction. For example, individuals reporting one trauma might need to become more “flexible” cognitively to incorporate the traumatic experience into their construct system. Those reporting several traumas might need to develop a sense of control to cope with their experiences.

Viewing traumatic experience from the perspective offered by the present study might aid in prevention of future PTSD symptomology. Often, traumatic events cannot be avoided. However, identifying individuals who are reporting their “first” traumatic event might direct the course of therapy, in part, to how they might construe possible traumatic experiences in the future. Perhaps the aforementioned idea could be used in combination with research findings that suggest cognitive-behavioral therapy, psychoeducation, and psychosocial therapy techniques are effective in treating individuals with PTSD (Jaycox, Zoellner, & Foa, 2002; Rouch, Hembree, & Foa, 2001). According to Rouch, Hembree, and Foa (2001), psychoeducation after a traumatic event allows for “normalization of post-trauma responses.” Constructivist theory of PTSD might view the “normalization of post-trauma responses” as a way to incorporate the traumatic event and its effects into the individual’s construct system. Additionally, organization of the trauma narrative is one method for integrating the traumatic experience into one’s construct system (Hembree & Foa, 2000). Working through the “post-trauma response” might affect the way individuals with PTSD view future traumatic events.

The finding that the social aspect of traumatic events appears to be most important and inseparable from trauma experiences is also helpful from a clinical standpoint. The focus of therapy should include the social domain, regardless of the level of anxiety being experienced. Discovering how the client views others after traumatic experiences will likely guide the course of therapy.

Research Implications

The results of the present study, including those that were not expected, provide direction for future research in the area of cognitive complexity and construct extremity in individuals with varied trauma history. The present study found that social and life event aspects of an individual's experience might not be separate entities and making comparisons between social grids and LERGS are difficult. Specifically, the social aspect of experience might be an integral component to life events. Complexity scores and extremity scores do not appear dependent on the type of trauma history reported by individuals. Exploratory analysis revealed an interesting trend in that social intensity scores appeared curvilinear in nature depending on number of life event traumas reported. This provides a next logical step for examination of cognitive complexity and construct extremity.

Because this finding has not fully been addressed by prior research, at least not in whole, future research should focus specifically on this unique trend. Continuing with a non-clinical population might offer a sound beginning for future studies in this area as the results indicated a trend that approached statistical significance. A college population would provide an easily accessible, diverse population. Prior to the start of the present study, formal power analysis was not feasible. Therefore, an estimate of effect size was not made. However, based on the subsequent results, the sample size should include 100 or more participants to ensure adequate power and effect size.

Measures used for the current research worked well for the purpose of the study. Although two repertory grids, social and LERG, were used to make comparisons of intensity and extremity scores, this might not be necessary in future research. The use

of two grids was specific to the goals of the current study, to examine intensity and extremity scores on both the social grid and the LERG. Future studies might only utilize one grid. Ideally, this might be a larger, perhaps 20 by 20 social repertory grid. A social repertory grid might yield particularly interesting results given the trend observed in the current study. A larger grid would provide adequate data for analysis. The Traumatic Life Event Questionnaire (TLEQ; Kubany, et al., 2000; Appendix C) provided ample information regarding several types of trauma, including number of traumas experienced and extent to which the trauma(s) currently affect the individuals reporting them (as indicated by reported level of current distress over the events endorsed by participants).

Following the observed trend in the current data, a few initial hypotheses can be formed. The first hypothesis could state that there will be a significant negative correlation between extremity scores and intensity scores. Secondly, it could be hypothesized that there will be a difference in intensity scores among three groups of participants: those who report no trauma, those who report one trauma, and those who report several (two or more) traumas. The following hypotheses would address the nature of the significant differences among the three groups. For example, the third hypothesis could state that the group of individuals who report no trauma history will have higher intensity scores than those individuals who report only one traumatic event. The fourth hypothesis, then, would state that there will be a significant difference between those individuals who report only one traumatic event and those who report more extensive trauma history (two or more traumatic events), with those reporting several traumas having higher intensity scores than those who report only one trauma.

Given, the expectations of the previous hypotheses, the fifth hypothesis would expect that the group reporting no trauma history and the group reporting extensive trauma history would have similar intensity scores on the repertory grid. Future studies could also allow for further examination of possible gender differences, for example, it could be hypothesized that females will have higher social grid complexity scores than males. Other possible interactions could also be explored using intensity and extremity scores as dependent variables.

Limitations of the Present Study

During the course of the present study, several limitations in methods and procedure became apparent, and warrant consideration before beginning future research. The nature of the research topic itself might result in a select group of individuals who might not represent an accurate sample of the general population. For example, participants were made aware that the study required them to answer questions regarding their own personal traumatic experiences. Some individuals might find this topic too distressing and choose not to participate. As a result, a portion of the population (those who might be more significantly affected by their traumatic experiences than other individuals in the sample) could have been left out and important data about their personal construct systems lost.

In addition, the number of participants for this study was only slightly above 100 with 106 individuals completing all the necessary requirements. Although this is an adequate number of participants, future studies should attempt to include more participants to ensure good estimates of power and effect size. This will serve to strengthen the results of future research.

The procedure of the current study included computer administration of the repertory grids in groups of about 15-30 individuals at one time. This procedure resulted in pros and cons for the study. Computer administration of the repertory grids allowed several participants to complete the study at once, making data collection quicker than one-on-one computer administration or paper-based administration of the grids. However, at times, participants asked questions due to confusion over how to complete the computer grid programs. It is possible that large numbers of participants in the computer labs at once resulted in some individuals being unable or unwilling to ask the researcher questions, increasing the likelihood for error in completing the grids. Therefore, it may be beneficial to provide very specific, detailed, and step-by-step instruction to participants regarding the completion of the computerized grids. Additionally, limiting the number of participants during any one administration session might reduce the likelihood for error in grid completion and make the process easier for both participants and researcher.

Finally, the sample consisted of college students, which could be considered a limitation for the study. Because the participants were college undergraduates, they are not a clinical population and assumed to be “highfunctioning.” It is possible that such high-functioning individuals view or cope with traumatic experiences differently than a clinical population. Indices on the social event and life event repertory grids might differ from the present findings given a clinical population.

Table 1

Descriptive Statistics

	n	Minimum	Maximum	Mean	*SD*
Age	107	18	53	21.84	5.56
Avg. Life Trauma	107	.00	2.50	.4019	.48
Avg. Social Trauma	107	.00	13.80	.6960	1.72
LERG Intensity	105	292.08	1720.34	1130.59	1130.59
Social Intensity	105	526.02	4500.00	2002.33	979.63
LERG Extremity	105	.66	2.74	1.93	.39
Social Extremity	105	.72	2.72	2.10	.35

Table 2

Correlations of LERG Intensity and Extremity Scores and Social Grid Intensity and Extremity Scores

	n	Mean	*SD*
LERG Intensity Score	105	1720.34	1130.59
Social Intensity Score	105	2002.33	979.63
Pearson Correlation	.439**		
Significance (2-tailed)	.000		
LERG Extremity Score	105	1.93	.39
Social Extremity Score	105	2.10	.35
Pearson Correlation	.504		
Significance (2-tailed)	.000		

Table 3

Correlation of Average Number of Traumas and Average Intensity Scores

	n	Mean	*SD*
Trauma	106	4.05	2.15
Intensity Scores	106		
Pearson Correlation	.068		
Significance (2-tailed)	487		

Table 4

Two-by-two Mixed ANOVA for Trauma Type, Intensity Scores and Interaction

Life Trauma Count

	n
No Life Trauma	28
One or More Life Traumas	77

Social Trauma Count

	n
No Social Trauma	41
One or More Social Traumas	64

Trauma Type

	n	Mean	*SD*
Life Trauma	105	.40	.47
Social Trauma	105	.71	1.7

(table continues)

Table 4 *(continued).*

	Value	*F*	*df*	Error	Significance
Pillai's Trace	.060	6.61	1	104.00	.012

Two-by-two Mixed ANOVA for Intensity Scores (GridType)

	n	Mean	*SD*
LERG Intensity	105	1720.34	1130.59
Social Intensity	105	2002.33	979.63

	Value	*F*	*df*	Error	Significance
Pillai's Trace	8.13	452.96	1	104.00	.00

Interaction: Grid Type by Intensity Score

Grid Type by Intensity Score Interaction

Pillai's Trace	.06	6.59	1	104.00	.012

	Partial *Eta* Squared	Observed Power
Pillai's Trace	.060	.721

Table 5

Two-by-two Mixed ANOVA for Trauma Type, Extremity Scores, and Interaction

Life Trauma Count

	n
No Life Trauma	28

(table continues)

Table 5 *(continued).*

Life Trauma Count

	n
One or More Life Traumas	7

Social Trauma Count

	n
No Social Trauma	41
One or More Social Traumas	64

Trauma Type

	n	Mean	*SD*
Life Trauma	105	.40	.47
Social Trauma	105	.71	1.74

	Value	*F*	*df*	Error	Significance
Pillai's Trace	.067	7.48	1	104.00	.007

Extremity Scores (Grid Type)

	n	Mean	*SD*
LERG Extremity	105	1.93	.39
Social Extremity	105	2.10	.35

	Value	*F*	*df*	Error	Significance
Pillai's Trace	.068	219.76	1	104.00	.00

Trauma Type by Extremity Score (Grid Type) Interaction

Pillai's Trace	.005	.553	1	104.00	.459

	Partial Eta Squared	Observed Power
Pillai's Trace	.005	.114

Table 6

One-way ANOVA for Gender and Social Grid Intensity Scores and LERG Intensity Scores

	n	Mean	*SD*
Male	37	1948.52	904.68
Female	69	2067.39	1058.46
Total	106	2025.90	1004.68

Social Intensity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	340339.92	1	340339.916	.335	.564
Within Groups	1.06E+08	104	1015828.613		
Total	1.06E+08	105			

	n	Mean	*SD*
Male	37	1576.77	1024.57
Female	68	1798.46	1184.28
Total	105	1720.34	1130.59

LERG Intensity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	1177644.5	1	1177644.524	.921	.340
Within Groups	1.32E+08	103	1279219.805		
Total	1.32E+08	104			

Table 7

One-way ANOVA for Gender and Social Grid Extremity Scores and LERG Extremity Scores

	n	Mean	*SD*
Male	37	2.10	.29
Female	69	2.10	.36
Total	105	2.10	.34

Social Extemity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	.001	1	.001	.005	.94
Within Groups	12.44	104	1015828.61		
Total	12.445	105			

	n	Mean	*SD*
Male	37	1.86	.37
Female	68	1.96	.39
Total	105	1.93	.39

LERG Extremity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	.22	1	.22	1.45	.23
Within Groups	15.62	103	.15		
Total	15.84	104			

Table 8

One-way ANOVA for Life Event Trauma Groups and Intensity Scores and Extremity Scores

	n	Mean	*SD*
No Trauma	29	2202.71	1258.47
One Trauma	39	1740.55	639.72
Many Traumas	38	2183.82	1053.45
Total	106	2025.90	1004.69

Social Intensity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	5029822.0	2	2514911.02	2.56	.08
Within Groups	1.01E+08	103	1015828.613		
Total	1.06E+08	105			

	n	Mean	*SD*
No Trauma	28	1902.63	1287.45
One Trauma	39	1701.29	1106.05
Many Traumas	38	1605.58	1043.01
Total	105	1720.34	1004.59

LERG Intensity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	1445040.40	2	722520.19	.56	.57
Within Groups	15.62	103	1289139.65		
Total	15.84	105			

	n	Mean	*SD*
No Trauma	29	2.14	.31
One Trauma	39	2.10	.31
Many Traumas	38	2.07	.40

(table continues)

Table 8 *(continued).*

	N	Mean	*SD*
Total	106	2.10	.34

Social Extemity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	.058	2	.029	.24	.79
Within Groups	12.39	103	.120		
Total	12.445	105			

	n	Mean	*SD*
No Trauma	28	1.91	.36
One Trauma	39	2.02	.28
Many Traumas	38	1.84	.48
Total	105	1.93	.39

LERG Extremity	Sums of Squares	*df*	Mean Square	*F*	Significance
Between Groups	.59	2	.29	1.97	.14
Within Groups	15.25	103	.15		
Total	15.84	105			

Table 9

Post Hoc Analysis for Life Event Trauma Groups and Social Grid Intensity Scores

Life Event Trauma Groups	*n*	Subset for Alpha = .05
No Life Event Trauma	29	2202.7103
One Life Event Truama	39	1740.5479
Several Life Event Traumas	38	2183.8158
Significance		.068

APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE

Please check or write your response where indicated:

Gender: M___ F___

Age: _____

Ethnicity:
_ African-American___
Asian___
Caucasian___
Hispanic___
Native American___
Other _____

Year in college:
Freshman___
Sophomore___
Junior___
Senior___
Graduate___

Major: _____

Marital Status:
Single___
Married___
Cohabitating___
Divorced/ Separated___
Widowed___
Other (Please specify)_____

First Language: _____

Other languages spoken fluently: _____

State or country of early education (e.g., Texas, U.S., Mexico, etc.):
_____

APPENDIX B

CONSENT TO PARTICIPATE IN RESEARCH

University of North Texas

Institutional Review Board

Research Consent Form

Title of Study
Cognitive Complexity and Construct Extremity in Social and Life Event Construing in Persons with Varied Trauma History

Principal Investigator: Stacey Shafenberg-Murray, University of North Texas Graduate Student
Co-Investigator(s): Kenneth W. Sewell, Ph.D.

Before agreeing to particpate in this research study, it is important that you read and understand the following explanation of the proposed procedures. It describes the procedures, benefits, risks, and discomforts of the study. It also describes the alternative treatments that are available to you and your right to withdraw from the study at any time. It is important for you to understand that no guarantees or assurances can be made as to the results of the study.

Start Date of Study	**End Date of Study**
04/24/2003	04/24/2004

Purpose of the Study
The purpose of this study is to examine the effects of trauma history on how individuals perceive people and experiences in their environment.

Description of the Study
The current study will include undergraduate participants enrolled in introductory psychology courses at the University of North Texas. Participants will complete the study requirements on the University of North Texas campus under the supervision of researchers. Completion time of this study is not expected to exceed one hour.

Procedures to be used
Participants will complete a demographics questionnaire, a questionnaire assessing past history of traumatic events, and two computer administrated repertory grids.

Description of the foreseeable risks
Risk to participants will be minimal, not exceeding the amount of risk individuals would incur during a regular week on the University of North Texas campus. Discomfort to individuals as a result of recalling past traumatic incidents is possible. Participants are encouraged to contact the University of North Texas Counseling and Testing Clinic at (940) 565-2741 or the University of North Texas Psychology Clinic at (940) 565-2631 should they experience any discomfort as a result of participation in this study.

Benefits to the subjects or others
Upon completing the study, participants will receive extra credit to be used toward grades in undergraduate psychology courses.

Procedures for Maintaining Confidentiality of Research Records
The present study will not use information that would reveal the identity of participants. Participants will be assigned a random number for data recording purposes. No consent form is necessary to further ensure the anonymity of participants. The participant's voluntary completion of the study requirements will be considered as his or her consent.

Review for the Protection of Participants
This research study has been reviewed and approved by the UNT Committee for the protection of Human Subjects, (940) 565-3940.

Research Subject's Rights
I have read or have had read to me all of the above. Stacey Shafenberg-Murray has explained the study to me and answered all of my questions. I have been told the risks and/or discomforts as well as the possible benefits of the study. I have been told of other choices of treatment available to me.

I understand that I do not have to take part in this study and my refusal to participate or to withdraw will involve no penalty, loss of rights, loss of benefits, or legal recourse to which I am entitled. The study personnel may choose to stop my participation at any time.

In case problems or questions arise, I have been told I can contact Stacey Shafenberg-Murray or Kenneth W. Sewell, Ph.D. at telephone number (940) 565-2671, UNT Department of Psychology.

I understand my rights as research subject and I voluntarily consent to participate in this study. I understand what the study is about, how the study is conducted, and why it is being performed. I understand that my voluntary participation in this study is my consent.

For the Investigator or Designee:
I certify that I have reviewed the contents of this form with the participant receiving this consent form. I have explained the known benefits and risks of the research. It is my opinion that the subject understood the explanation.

_____ _____
Signature of Principal Investigator Date

APPENDIX C

ADMINSTRATION OF REPERTORY GRIDS

Participants will complete two repertory grids, a life events repertory grid (LERG) and a social grid. Repertory grids are one method for understanding an individual's view of his or her world. Individuals create theories, or personal constructs, about the world around them. An individual's personal construct system guides behavior and helps in navigation through the individual's environment. Personal construct systems aid individuals in making predictions about the world. Repertory grids provide information about an individual's personal construct system.

The grids will be administrated by computer using OMNIGRID-PC program under the supervision of a trained researcher. The OMNIGRID-PC computer program is easy to operate so that participants will be able to complete the grids on their own. Researchers will be present to answer any questions from participants regarding operation of the program and completion of the computerized grids. Each grid will have 10 elements and 10 constructs. Elements for the social repertory grid will include the following: mother, father, brother, sister, best friend, someone who is disliked, a liked authority figure (teacher, boss, etc.), a disliked authority figure (teacher, boss, etc.), spouse or significant other, and self. The computer program will prompt participants to provide first names for each element. Elements for the LERG will consist of the following: earliest memory, most memorable experience during elementary school, most memorable experience during high school, most memorable experience during college, and most memorable experience during the past month. Participants will

be instructed to choose two experiences for each time period, resulting in a total of ten events. Again, the participants will be instructed to provide a brief description of events related to the above time periods. After each event is elicited, the participant will be prompted to label each life experience as positive or negative.

The computer grid program will then prompt the participants to provide constructs, or descriptive labels, for each element in the social grid and LERG. Constructs will be elicited from participants by presenting triads of elements. The computer administration of the grids allows for random selection of elements for triads. The same set of triads will be presented to each participant in the same order. Participants will be prompted to consider each element in the triads and will be asked, "How are two of these alike in some important way in which they are different from the third?" Participants will type their response, which is the construct pole. Participants will then be asked to provide the opposite of their elicited construct pole (yielding the contrast pole) and indicate which of the two is more positive to them.

Once constructs are elicited, participants will be prompted to rate each element on a six-point scale (1 to 6) using the constructs they provided. For example, participants will rate where each element lies on each construct-contrast dimension. Once all elements have been rated on every construct, the grid is complete and participants will have fulfilled their requirements for the study. Upon leaving the testing area, researchers will answer any questions the

participants may have regarding the study. Participants will be informed as to how they may contact the researchers or obtain results of the research study.

REFERENCE LIST

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., rev.). Washington DC: Author.

Adams-Webber, J., Schwenker, B. & Barbeau, D. (1972). Personal constructs and the perception of individual differences. *Canadian Journal of Behavioural Science, 4,* 218-224.

Ashworth, C. M., Blackburn, I. M., & McPherson, F. M. (1982). The performance of depressed and manic patients on some repertory grid measures: A cross-sectional study. *British Journal of Medical Psychology, 55,* 247-255.

Bannister, D. (1962a). The nature and measurement of schizophrenic thought disorder. *Journal of Mental Science, 108,* 825-842.

Berlin, M. A. & Green, M. A. (1987). Five psychosocial variables related to the Existence of post-traumatic stress disorder symptoms. *Journal of Clinical Psychology, 43,* 643-649.

Boeker, H., Hell, D., Budischewski, K., Eppel, A., Haertling, F., Rinnert, H., et al. (2000). Personality and object relations in patients with affective disorders: Ideographic research by means of the repertory grid technique. *Journal of Affective Disorders, 60,* 53-59.

Bonarius, J.C.J. (1971). *Personal construct psychology and extreme response style*. Amsterdam: Swetz and Zeitlinger.

Cassell, C., Close, P., Duberley, J., & Johnson, P. (2000). Surfacing embedded assumptions: Using repertory grid methodology to facilitate organizational Change. *European Journal of Work and Organizational Psychology, 9,* 561-573.

Cassell, C. & Symon, G. (Eds.). (1994). *Qualitative methods in organizational research: A practical guide.* Thousand Oaks, CA: Sage Publications, Inc.

Cason, D. R. (2001). Self-complexity and posttraumatic stress disorder: An Extension of the constructivist model of PTSD. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 62(1-B),* 539.

Damani, S., Button, E. J., & Reveley, C. H. (2001). The Body-Image Structured Interview: A new method for the exploration of body image in women with eating disorders. *European Eating Disorder Review, 9,* 167-181.

De Bonis, M., De Boeck, P., Lida-Pulik, H., Hourtane, M., & Feline, A. (1998). Self-concept and mood: A comparative study between depressed patients with and without borderline personality disorder. *Journal of Affective Disorders, 48,* 191-197.

Erbes, C. R., & Harter, S. L. (1999). Domain-specific cognitive complexity in survivors of child abuse. *Journal of Constructivist Psychology, 12,* 215-237.

Fransella, F. & Bannister, (1977). *A manual for repertory grid technique.* London: Academic Press.

Fjeld, S. P. & Landfield, A. W. (1961). Personal construct theory consistency. P*sychological Reports, 8,* 127-129.

Gara, M. A., Woolfolk, R. L., & Allen, L. A. (2002). Social cognitive complexity and depression: Cognitive complexity moderates the correlation between depression self-ratings and global self-evaluation. *Journal of Nervous and Mental Disease, 190,* 670-676.

Heesacker, R. S. & Neimeyer, G. J. (1990). Assessing object relations and social cognitive correlates of eating disorder. *Journal of Counseling Psychology, 37,* 419-426.

Hembree, E. A. & Foa, E. B. (2000). Posttraumatic stress disorder: Psychological factors and psychosocial interventions. *Journal of Clinical Psychiatry, 61,* 33-39.

Honess, T. (1977). *A comparison of the implication and repertory grid techniques.* Unpublished manuscript, University of Exeter.

Hunt, D. E. (1951). Studies in role concept repertory: conceptual consistency. Unpublished thesis, Ohio State University.

Jaycox, L. H., Zoellner, L., Foa, E. B. (2002). Cognitive-behavioral therapy for PTSD in rape survivors. *Journal of Clinical Psychology, 58,* 891-906.

Kalthoff, R. A., & Neimeyer, R. A. (1993). Self complexity and psychological distress: A test of the buffering model. *International Journal of Personal Construct Psychology, 6,* 327-349.

Kelly, G. A. (1955). *The psychology of personal constructs* (2 vols.). New York: Norton.

Kubany, E. S., Leisen, M. B., Kaplan, A. S., Watson, S. B., Haynes, S. N., Owens, J. A., & Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment, 12,* 210-224.

Kubiak, J. M. (1999). Hierarchical structure of intrapersonal and interpersonal construct systems: Assessing change in a chronic schizophrenia sample during psychosocial rehabilitation. *Dissertation Abstracts International: Section B: The Sciences & Engineering, 59 (7-B),* 3699.

Linville, P. W. (1985). Self-complexity and affective extremity: Don't put all of your eggs in one cognitive basket. *Social Cognition, 3,* 94-120.

Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology, 38,* 663-703.

Mahoney, M. J. (1991). *Human change processes.* New York: Basic Books.

Mitterer, J., & Adams-Webber, J. (1988). OMNIGRID: A program for the construction, administration, and analysis of repertory grids. In J. C. Mancuso & M. L. G. Shaw (Eds.), *Cognition and personal structure: Computer access and analysis* (pp. 91-105). New York: Praeger.

Mitterer, J., Adams-Webber, J., & Sewell, K. W. (1989). *OMNIGRID-PC: Manual for version 1.5* (Available from K. W. Sewell, Department of Psychology, P.O. Box 13587, University of North Texas, Denton, TX 76203, USA).

Moes, A. J. & Sewell, K. W. (1994). *Posttraumatic stress disorder: A symposium on constructivist findings of combat, disaster, and rape survivor*s. III. Repertory grid and rape trauma. Presented at the Sixth North American Conference on Personal Construct Psychology, Indianapolis, IN, July 20-24.

Neimeyer, G. J. & Khouzam, N. (1985). A repertory grid study of restrained eaters. *British Journal of Medical Psychology, 58,* 365-367.

Neimeyer, R. A. (1985). *The development of personal construct psychology.* Lincoln, NE: University of Nebraska Press.

Rauch, S. A. M., Hembree, E. A., Foa, E. B. (2001). Acute psychosocial preventive interventions for posttraumatic stress disorder. *Advances in Mind-Body Medicine, 17,* 187-190.

Sewell, K. W. (1996). Constructional risk factors for a post-traumatic stress response after a mass murder. *Journal of Constructivist Psychology, 9,* 97-107.

Sewell, K. W., Mitterer, J., Adams-Webber, J., & Cromwell, R. L. (1991). OMNIGRID-PC: A new development in computerized repertory grids. *International Journal of Personal Construct Psychology, 4,* 175-192.

Sewell, K. W. & Cromwell, R. L. (1990). *A personal constructs model of posttraumatic stress disorder.* Paper presented at the Fourth North American Congress of Personal Construct Psychology, San Antonio, TX.

Sewell, K. W., Cromwell, R. L., Farrell-Higgins, J., Palmer, R., Ohlde, C., & Patterson, T. W. (1996). Hierarchical elaboration in the conceptual structures of Vietnam combat veterans. *Journal of Constructivist Psychology, 9,* 79-96.

Stein, K. F. & Markus, H. R. (1994). The organization of the self: An alternative focus for psychopathology and behavior change. *Journal of Psychotherapy Integration, 4,* 317-353.