

## ABSTRACT

Title of Thesis: THE RELATIONSHIP OF FALL 2001  
TRAUMATIC EVENTS AND THE  
RETENTION AND INVOLVEMENT OF  
FIRST-YEAR STUDENTS

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This thesis sought to determine the relationship of a series of traumatic events occurring in Fall 2001, specifically the events on September 11<sup>th</sup> and a local tornado, as measured by the Impact of Events Scale – Revised (Weiss & Marmar, 1997), with the retention and involvement of first-year students from the University of Maryland class entering in Fall 2001 who resided in the Denton residence hall community. This study measured differences in the two key variables – retention and involvement – between the class entering in Fall 2000 as compared to the class entering in Fall 2001. Data for this study was collected from the University’s Beginning Student Survey, and from a survey administered to a random sample of students who resided in the Denton community in Fall 2001.

THE RELATIONSHIP OF FALL 2001 TRAUMATIC EVENTS AND THE  
RETENTION AND INVOLVEMENT OF FIRST-YEAR STUDENTS

by

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Thesis submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park, in partial fulfillment  
of the requirements for the degree of  
Master of Arts  
2005

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## ACKNOWLEDGEMENTS

While my name appears as the author of this thesis, so many individuals went into making this accomplishment a reality. My source of strength came from a network of loving, supportive, and compassionate individuals.

First and foremost, I would like to thank my Mom for always loving me and supporting me, even on the most stressful of days when I was ready to give in. I am where I am today because you believed in me and were willing to let me live out whatever dream I could come up with. You have sacrificed so much for me, and for that I am eternally grateful. Nisha – my best friend – you have been a source of love and encouragement for me since I began graduate school. Thank you for being by my side as I worked on this thesis. From keeping me company as I typed to calling me late in the night to encourage me to keep going, I could always count on you to be there. Your friendship will forever mean so much to me.

I would like to extend a sincere thank you to my thesis committee: Dr. Susan R. Komives, Dr. Vivian Boyd, Dr. Mary Ann Hoffman, and Dr. James Osteen. To Susan, my thesis chair, thank you for stepping up to take on my thesis at a time when many other faculty were too overwhelmed with advisees of their own. Your guidance, honesty, expertise, and undying support made this process run so smooth. I will always be grateful for the amount of time you devoted to making my thesis the best it could be. You are simply inspirational. I hope that we always keep in touch. Dr. Boyd, thank you for believing in me and affording me the opportunity to mesh the counseling that I love with the work I am doing in CSP. Your expertise and encouragement to publish means so much. I feel like there is so much more that I can

learn from you. Dr. Hoffman, your knowledge of the IES instrument and traumatic events was such an asset to my committee. Thank you for taking the time to explore this topic with me in the midst of your own research. Dr. Osteen, your willingness to serve on my committee despite your promotion within the division is commendable. I appreciate everything you have done for me as an advisor over the last two years. You have always taken the time to listen – and I always appreciate the opportunity to talk! Your knowledge of Maryland students and the issues that are affecting them today was really a key reason why I pursued this topic. Thank you all for making this a great experience!

My deepest gratitude goes to a number of staff members at the University of Maryland who provided me with the data essential to making this thesis a reality. Words cannot express my gratitude toward Dr. Joann Prosser (Resident Life), Eowyn Ellison (Office of Institutional Research and Planning), Dan Symonds (Office of the Registrar), and Debbie Thomas (Office of the Registrar). Thank you!

To Marylu McEwen, you are an amazing student affairs professional. Thank you for supporting my entire cohort through some difficult conversations. I will always remember you for your compassion and dedication to including graduate students in your research. To Karen Inkelas, thank you for giving me the confidence that I needed to take on EDMS 646. Before I entered your EDCP 615 class, I was sure that I was authoring a seminar paper. When I left your class, I had a genuine interest in making a contribution to research in the field of student affairs.

Lastly, but certainly not least, I would like to thank a number of my colleagues for their support throughout the process. Tiki – thank you for offering up

your home for thesis support group and your ear when I needed to vent. You have been such a wonderful friend. I am going to miss you terribly. Marcus – thank you for all the nights at Applebees and the encouragement as I headed down the homestretch. Paul – your drive and determination carried me when I doubted myself. Thank you for always pushing me to keep going and for reminding me that I was smart enough to do it, even when I did not feel the same way. Gina, Sarah, Yen Ling, Joy, Jill Neppel, and John – your inspiration as my fellow thesis writers was so appreciated. We made it through this process together, and I could not have chosen a better group to go through it with. Steve – you are an outstanding supervisor. Your understanding of what it means to be a Maryland CSP'er was so helpful as I worked toward this accomplishment. Thank you for the time off, the extensions, and the many kind words of encouragement. Marlena and Sean – my first-year soul mates – thank you for being two of the best friends anyone could ask for. Your encouragement made me smile, even on the days when I did not think I was ever going to finish. Best of luck to you in this process next year!

The completion of this thesis, and thus my Master's degree, is dedicated to each of you. Thank you for your support. I will never forget you.

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## CHAPTER I – INTRODUCTION

The terrorist attacks of September 11, 2001 had a tremendous impact on the people of the United States. In all, 3,212 people were killed (U.S. Department of State, 2002). Approximately 1,609 men and women were left widowed by the trauma (New York Metro, 2002). A staggering 3,051 children, including 2,172 minors, lost a parent in the attacks (Dalton, Fresno, & McGinty, 2002). Beyond the death toll, there were many economic and psychological implications. The collapse of the World Trade Center destroyed 12 million square feet of office space and damaged an additional 18 million square feet of office space in downtown Manhattan, which is equivalent to all of the office space in Atlanta or Miami (Rubin & Renda-Tenali, 2002). Business interruption costs in New York are estimated to be \$21 billion dollars, and in the Washington, D.C. area, the shut-down cost the Dulles International Airport and surrounding Northern Virginia businesses approximately \$330 million dollars per day (Rubin & Renda-Tenali).

Psychological factors have been devastating, as United States citizens were forced for the first time in their country's history to face the reality of large-scale terrorist attacks on U.S. soil. The sense of overall national security and of being safe from attacks of such a nature was instantly shattered as people realized that American was now a viable terrorist target. Students were "caught in a kind of limbo between patriotism and protest, a place where neither the fervent Americanism that followed Pearl Harbor nor the bitter sentiments evoked by the Vietnam War seemed appropriate" (Brownstein & Hoover, 2001, p. A35).

The media continued to show footage of the jets crashing into the North and South towers of the World Trade Center and their subsequent collapse, the destroyed

wing of the Pentagon, and the Pennsylvania crash site of United Airlines Flight 93 for weeks after the events took place, making it an ever present incident that is still prevalent in our media today. The United States public was also exposed to the sights and sounds of the attacks via firsthand viewing of the aftermath near one of the three locations.

Research on the mental health consequences of natural versus man-made disasters indicate that events involving intentional violence are more likely to produce severe symptoms of psychological distress, including posttraumatic stress disorder (PTSD) (Schlenger, Caddell, Eert, Jordan, Rourke, Wilson, et al., 2002). PTSD includes symptoms that fall into three categories: intrusion, avoidance, and hyperarousal (American Psychiatric Association, 1999).

Intrusion is characterized by memories of a trauma reoccurring unexpectedly. This happens in sudden, vivid memories that are accompanied by painful emotions that take over the victim's attention. This re-experience, or "flashback," of the trauma is a recollection. It may be so strong that individuals almost feel like they are actually experiencing the trauma again or seeing it unfold before their eyes and in nightmares (American Psychiatric Association, 1999).

Avoidance is characterized by the avoidance of close emotional ties with family, colleagues, and friends (American Psychiatric Association, 1999). At first, the person feels numb, has diminished emotions, and can complete only routine, mechanical activities. Later, when re-experiencing the event, the individual may alternate between the flood of emotions caused by re-experiencing and the inability to feel or express emotions at all. The person with PTSD may avoid situations or activities that are reminders of the original traumatic event because such exposure may cause symptoms to

worsen. The inability of people with PTSD to work out grief and anger over injury or loss during the traumatic event means the trauma can continue to affect their behavior without their being aware of it. Depression is a common product of this inability to resolve painful feelings. Some people also feel guilty because they survived a disaster while others, particularly friends or family, did not.

Hyperarousal is characterized by sudden irritable or explosive behavior, even when unprovoked. A trauma victim may have trouble concentrating or remembering current information, and, because of their terrifying nightmares, they may develop insomnia. Many people with PTSD also attempt to rid themselves of their painful re-experiences, loneliness, and panic attacks by abusing alcohol or other drugs as a self medication that helps them to blunt their pain and forget the trauma temporarily (American Psychiatric Association, 1999). A person with PTSD may show poor control over his or her impulses and may be at risk for suicide.

According to a random-digit-dialing survey of 560 Americans conducted three to five days after the attacks by Schuster, Stein, Jaycox, Collins, Marshall, Elliott, et al. (2001), 44% of the national sample was “bothered quite a bit” or “extremely” by at least one of five selected symptoms from the PTSD Checklist. Additionally, 35% reported that their children had one or more stress symptoms. Another study conducted weeks later reported an increase in the number of people who showed depression, trouble in sleeping, nightmares, or difficulty concentrating (Disaster and Trauma, 2002).

Schuster et al. (2001) concluded that after the September 11 terrorist attacks, citizens across the United States, including children, had substantial symptoms of stress. Schlenger et al. (2002) studied the prevalence of “probable PTSD” throughout the

country as related to geographical proximity to the attacks, finding that probable PTSD among those in New York City on the day of the attacks was 11.2% compared to 4.3% among the rest of the country. They also found that nationally, 11.1% of Americans reported experiencing clinically significant distress as a result of the September 11 attacks including 16.6% of New York City citizens and 14.9% of Washington, D. C. citizens who reported experiencing clinically significant distress (Schlenger et al.).

A study by Blanchard, Kuhn, Roswell, Hickling, Wittrock, Rogers, Johnson, and Steckler (2004) looked at the vicarious traumatization of college students by the September 11 terrorist attacks. The study found that those who experience a traumatic event firsthand, and who have a visceral response to the event, are likely to be more affected than those who experience the event secondhand and have no visceral response. Therefore, students living further away from the terrorist attacks, and who only saw the events transpire through the media, are less likely to be traumatized.

Despite this fact, however, the lifetime prevalence of major traumatic events is high for all students. In one study of 1,000 adults in four cities in the southeastern United States, 21% of the sample reported a traumatic event (such as a robbery, assault, or traumatic death of a loved one) during the previous year, and 69% reported the occurrence of at least one such event in their lifetimes (Norris, 1992). Although the frequencies of reported events vary across studies, “it is clear that exposure to ‘traumatic’ events is common in the lifetime of individuals, at least in the United States” (Green, 1994, p. 344).



## Background of the Study

Growing up in the 1990s, United States citizens witnessed horrific events like the shootings at Columbine high school, a bombing at the World Trade Center, a sniper preying on the metropolitan Washington D. C. region, and the terrorist attack on the Oklahoma City Federal Building. With September 11, 2001, and the cumulative effect of these and other events, it is likely that many young Americans felt extremely vulnerable. Not since the Japanese attack on Pearl Harbor had a foreign nation attacked United States citizens on their own soil. The perceived safety net that protected the United States was no longer impenetrable. This instilled fear in many college students, a majority living away from home for the first time. These terrible events were compounded on the University of Maryland campus by the appearance of a devastating tornado that ripped through North Campus, particularly the Denton residence hall community, just 14 days after September 11. The menace damaged residence halls, destroyed vehicles, and killed two sisters driving away from campus in their car just moments after visiting their father at the Maryland Fire and Rescue Institute. ("Maryland Campus Reels," 2001). For a campus community in the metropolitan Washington region, this event may have added to the feelings of loss and insecurity stirred by the terrorist acts of September 11.

The traumatic events of the Fall of 2001 provided due cause for college administrators at the University of Maryland to wonder what the long-term effects would be for first-year students entering in Fall 2001 (J. Osteen, personal communication, August 2004). Of particular interest was how student retention and involvement would be effected. While these students represent only a small portion of the college-going population, and an even smaller portion of the general public, better understanding of the

long-term effects of these traumatic events on the lives of students will help to better comprehend the impact of multiple traumas on society as a whole. Professionally, understanding this impact will help student affairs practitioners learn how to better assist students coping with traumas. Academically, understanding how students are effected by multiple traumas will assist in the development of refined student development theories.

### Statement of the Problem

All college students undergo a tremendous amount of psychosocial and cognitive development during their undergraduate experience (McEwen, 2003). This development is often influenced by a student's environment (Strange, 2003). While coping with everyday life issues can be daunting, many students seemingly unaffected by large-scale traumatic events may also experience traumatic incidents -- events that impede upon normal everyday functioning. Major events like the death of a parent, a sexual assault, verbal or physical abuse, a chronic illness, or a violent crime like a robbery or carjacking, are common examples that may have long-term effects on college participation and student satisfaction with the college experience (Purves & Irwin, 2002). It is imperative for administrators to understand how traumatic events affect the college participation and satisfaction of first-year students. Therefore, the focus of this thesis is to determine if traumatic events affect the retention and involvement of first-year students.

Research questions of interest to answer the initial question include:

1. Is there a difference in the level of retention or involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community?

2. Does the level of impact of a traumatic event relate to retention or involvement?

### Significance of the Study

There is a great deal of both practical and theoretical professional significance surrounding this topic. According to a study conducted by Seo, Blair, Torabi, and Kaldahl (2004), a majority of college students have become more concerned over personal safety (61%), safety of family members (74%), mode of travel (52%), future of country (80%), and world peace (81%) since September 11, 2001. These extreme attitudinal shifts signal social, political, and economic change for college administrators.

This data will show what effect the events of Fall 2001 had on students in the University of Maryland community answering questions that have only been hypothesized about over the past four years. Since few studies have been conducted on this topic, it is also a potential source of research for the field of student affairs. Further, while this study deals with a topic that is heavily linked to theory, the issues this thesis addresses manifest themselves in a practical way. Very few institutions feel the wrath of multiple traumas that affect the community in one year, specifically in one month, such was the case of the University of Maryland in 2001.

To date, much of the research on trauma survivors in college student samples has not examined constructs of retention and involvement as evidence of resilience, but rather has focused on links between trauma exposure and the presence of symptoms of depression or suicide (Banyard & Cantor, 2004). By better understanding how multiple traumas impact a campus community of students, student affairs practitioners will be better prepared to respond.

## Concepts and Definitions

### *Trauma*

Several terms are used interchangeably in current literature to describe an occurrence that is traumatic. For the sake of this paper, “trauma” will be used to describe all traumatic experiences and critical incidents. Random House Webster’s College (2001) dictionary defines trauma as “any wrenching or distressing experience causing a disturbance in normal functioning.” In the fourth text-revised edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychological Association, 2000), no direct definition exists for trauma; however, under Posttraumatic Stress Disorder the following is stated:

The essential feature of Posttraumatic Stress Disorder is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involved 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. (p. 463)

According to Tedeschi and Calhoun (1995), the word “trauma” indicates that an event is a shock – something unexpected and sudden. In addition to being unforeseen, there are several other factors that contribute to an event being traumatic. Perceived lack of control over an event can serve to make an event traumatic (Tennen & Affleck, 1990). Loss of loved ones through death, divorce, or separation, major illness, economic hardship, and natural disasters can cause people to experience powerlessness and are therefore more likely to challenge psychological well-being (Tedeschi & Cahoun). In

addition to events that make people feel powerless, events that are out of the ordinary are also likely to be difficult (McCann & Pearlman, 1990). Tedeschi and Calhoun explain that unexpected situations contribute to an event being traumatic because people have a difficulty bringing their own experiences to bear on unfamiliar events. Another factor making an event traumatic is the degree to which it creates long-lasting problems, such as a permanent physical disability (Calhoun & Tedeschi, 1999). Finally, impacts of trauma can vary depending upon when the event occurs in a person's life cycle, as "crises that occur during adulthood will be a threat to an already established identity, whereas those experienced during childhood are more likely to be integrated into an identity that is then carried throughout life" (Tedeschi & Calhoun, p. 18). Therefore, for the purpose of this study, a trauma is an experience that is out of the ordinary, shocking, distressing, and uncontrollable. In this study, the two traumas examined are the Maryland tornado and the terrorist events of September 11, 2001.

Whereas certain traumas can threaten a person's life or safety, or that of others, fear for the physical well being of oneself or others is not a prerequisite for an event to be considered traumatic. Additionally, an event does not have to be witnessed firsthand in order to be considered traumatic. The terrorist attacks of September 11 are an example of this. While statistics show that those people in New York City and Washington, DC were most impacted by the attacks, people across the nation were fearful for their well being, fearing that their hometown would be the next target for terrorists. While people from Seattle, Washington, were far from Ground Zero, the attacks had some psychological effects, though current research proposes that those closer in physical proximity to the event were more affected. Similarly, while a University of Maryland student may not

have seen the tornado approaching campus, seeing the aftermath of the tornado and being on campus to hear others' accounts of the event may also have a traumatic effect.

### *Retention*

For the purpose of this study, two variables are being examined – retention and involvement. Retention will be measured in two distinct ways, as both one-semester and one-year persistence from first-year to sophomore year for the classes entering in the Fall 2000 and 2001 at the University of Maryland.

### *Involvement*

Involvement will be defined as a student's participation in any organized student activities during Fall semester of their first year of enrollment. This is the data collected by the Office of Institutional Research at the University of Maryland through the Beginning Student Survey instrument. A limitation of this definition is that it does not clearly specify what the organized activity is. It is unclear if recognition by the Student Government Association is necessary for the activity to count. It is also possible that some activities create a larger support network than other activities. An example of a supportive network is a structured religious organization or sports team. An example of a potentially less supportive network is a group that meets only monthly.

## CHAPTER II – REVIEW OF LITERATURE

This chapter begins with a review of the major theoretical foundations surrounding trauma and traumatic growth, retention, involvement, and the effects of the intersection of these factors. The breadth and depth of traumatic growth theory will frame the context of this study. An examination of research specific to the traumatic growth of college students will complement the theories to draw forth connections between trauma and its relationship to retention and involvement. A review of retention and involvement theory and how it applies to students who have experienced a trauma will follow. The chapter will culminate with a summary of the research and a rationale to support the research questions addressing the relationship between traumatic growth and the retention and involvement of first-year students.

### Trauma and Traumatic Growth

Given the heavy toll of lost lives, financial costs, and psychological impacts resulting from the September 11 terrorist attacks, it may seem impossible to find anything positive resulting from the events of that day. Tedeschi and Calhoun first coined the term posttraumatic growth (PTG) in the early 1980s and, with Park (Tedeschi, Park, & Calhoun, 1998), have been the primary contributors in the study of PTG. Posttraumatic growth was defined as “a significant beneficial change in cognitive and emotional life that may have behavioral implications as well” (p. 3). Posttraumatic growth was experienced in different ways among groups and within individuals.

From their research, Tedeschi and Calhoun (1995) describe seven principles that form a theoretical framework, and are involved in personal growth in the aftermath of a trauma (Figure 2.1).

Figure 2.1

*Principles of Personal Growth Following a Trauma*

---

<u>Principle</u>	
1	Growth occurs when schemas are changed by traumatic events.
2	Certain assumptions are more resistant to disconfirmation by any events, and therefore reduce possibilities for schema change and growth.
3	The reconstrual after trauma must include some positive evaluation for growth to occur.
4	Different types of events are likely to produce different types of growth.
5	Personality characteristics are related to possibility for growth.
6	Growth occurs when the trauma assumes a central place in the life story.
7	<u>Wisdom is a product of growth.</u>

Tedeschi and Calhoun (1995) summarized these principles by asserting:

Psychological growth is perceived when (a) some change has taken place in the view of self and/or the world; (b) this change is perceived to have resulted in a more profound understanding of the self and world; (c) this understanding allows for changes in behavior that are seen to be effective in warding off future distress, engaging in activities previously unconsidered or untried, or providing rewards previously unattained; (d) what is lost is devalued or transformed into a more valuable present and future; and (e) the changes that occurred appear to be possible because of the struggle with challenges presented by trauma, and perhaps



*only* because of the trauma. As a result, survivors of trauma perceive themselves as wiser and blessed, although this is paradoxically the result of loss and suffering. (p. 87-88)

Tedeschi and Calhoun (1996) identified three broad categories of perceived benefits resulting from trauma: changes in self-perception, changes in interpersonal relationships, and a changed philosophy of life. Ryff and Heidrich (1997) and Lopez and Snyder (2003) have also focused on the design and compilation of measures that assess the presence of competencies like sense of self-worth, engagement with others, and the development of life goals. These are similar to the three competencies devised by Tedeschi and Calhoun.

Ryff and Heidrich (1997) sampled 308 participants, 155 men and 153 women, divided among young, middle, and older adults. Life event inventories were constructed by the researchers to assess past life experiences in three domains: the educational and occupational realm, the relationship realm, and the activities realm. The researchers hypothesized that the enactment of normative experiences in these domains contributed positively to self-assessed well being, particularly one's sense of environmental mastery, purpose in life, personal growth, and self-acceptance. Results indicated substantial associations between life experiences and psychological well being. The research suggested that the study of psychological functioning across adulthood and aging can be meaningfully connected to the experiential substance of an individual's life history. What happens in life matters, but that nature of what it and how it matters varies by where one is located in the course of life (Ryff & Heidrich).

Luthar, Cicchetti, and Becker (2000) noted that, due to the multidimensionality of

resilience, individuals may exhibit a grasp one competency, but not another. While there appears to be some uniformity across theoretically similar domains, the same uniformity does not exist for domains that are conceptually distinct (Luthar et al.). This supports that many people are able to function despite an uneven balance of these resilient competencies.

Change in self-perception referred primarily to changes in attitudes about the self, level of self-reliance, and awareness of vulnerability (Tedeschi et al., 1998). One of the most important steps in PTG, according to Tedeschi, Park, and Calhoun (1998), was the change in the labeling of the self as a “victim” of trauma to be “survivor” of trauma. People experienced growth when they are able to change their view of themselves from that of a helpless, powerless victim to a supported, empowered survivor. Self-reliance addressed the notion that surviving a trauma can make future hardships, including traumatic events, seem like they can be handled. Those experiencing a trauma often reported a heightened awareness of how vulnerable they are; when coinciding with positive changes in views of self, heightened vulnerability can enhance appreciation for life and an appreciation for and prioritization of one’s interpersonal relationships (Tedeschi et al.). Feeling vulnerable can be a reminder that relationships are precious and can be taken away at any time and therefore should not be taken for granted. This is highly reflective, and is an example of a beneficial emotional and cognitive change (Tedeschi et al.). This may manifest itself in college students in the form of reconnecting with family.

The interpersonal relationship category was comprised of (1) self-disclosure and emotional expressiveness and (2) compassion and giving to others (Tedeschi et al., 1998).

People who experienced positive growth from trauma recognize the importance of opening up to others and sharing information about themselves. Many may have chosen to seek help from professional counselors. They became emotionally expressive and recognize their interdependence and interconnection with others. Self-disclosure and emotional expressiveness involved an increase in the expression of feelings and the disclosure of important personal information. Compassion and giving to others was the recognition of one's own vulnerability and the vulnerability of others. Tedeschi et al. described this recognition process as a kind of empathy training.

The final category, philosophy of life, referred to the cognitive changes that can occur in PTG. They included changed priorities and appreciation of life, existential themes and sense of meaning, spiritual development, and religious changes (Tedeschi et al., 1998). Traumas that have endangered a person's life can create a sense of having been spared and given a second chance at life that should be treated with care (Tedeschi, et al.). In the category of existential themes and sense of meaning, questions were raised about the meaning and purpose of life and death (Yalom & Lieberman, 1991). Spiritual development may have included an increased sense of the presence of God, of one's commitment to a chosen religion, or of one's religious beliefs. Wisdom involved an increased understanding about basic lessons in living life with a sense of integrity and awareness, which were learned through suffering or adversity.

### *The Posttraumatic Growth Process*

Posttraumatic growth is set in motion by the same sets of events that produce psychological distress and that can place an individual at increased risk for psychological difficulties. This growth begins after an individual experiences what constitutes an event

of “seismic” proportions (Calhoun, 1996; Calhoun & Tedeschi, 1998). The circumstances which the individual has had to face must have been capable of at least shaking the foundations of the individual's assumptive world, and in some instances some shattering of fundamental assumptions may have occurred (Janoff-Bulman, 1992). The traumatic set of circumstances typically causes high degrees of psychological discomfort and a major invalidation, or at least major disruption, of important cognitive elements. The trauma typically lead to a questioning and reevaluation of many important assumptions previously held. It is in the reevaluation, modification, or rebuilding of one's general assumptions about, and views of, the world that posttraumatic growth may be most readily addressed. Precisely because of the violation of fundamental assumptions that have provided structure and meaning to life, both distress and growth coexisted in persons in the aftermath of trauma. Persons who have struggled with the death of a loved one provide a good example of this.

In translation to a college setting, this may be manifested in the form of a suicide. Such persons' grief was typically characterized by sadness, anxiety, somatic complaints, considerable loneliness, and varying degrees of yearning for the person who has died (Weiss & Richards, 1997). Although for many persons the pain diminishes with time, this was not the case with everyone (Wortman & Silver, 1989). Persons who faced bereavement may also experience significant psychological growth (Calhoun & Tedeschi, 1989-1990; Yalom & Lieberman, 1991), but the psychological pain associated with the loss persisted.

Two major questions arose from current literature regarding length of time and PTG. The first involved whether PTG occurs gradually or abruptly. Determining whether

the transformations associated with PTG occur gradually or abruptly was difficult, because there is little research on this topic (Tedeschi et al., 1998).

There may have been circumstances in which change was abrupt (Premack, 1970), yet the researchers suspect that such change was gradual, and that the current conceptualizations best explained gradual, intentional change. Abrupt transformations that occurred unintentionally probably involved different personality characteristics than did gradual, intentional transformations, and may have involved aspects of personality that did not necessarily enhance individual functioning in the absence of adversity (p. 90). What could be gathered from Tedeschi et al. was that while there were instances of abruptly occurring PTG, in general, PTG was a gradually occurring process.

Somewhat related to the first, the second question has to do with the course of PTG over time. Tedeschi et al. (1998) said that:

Most often, PTG is the outcome of a developmental process that follows an initial stage of emotional distress and disorganization. Months or years of struggle may ensue before divorced or chronically ill people or disaster survivors find meaning in their plight and grow from their experiences. (p. 199)

This was not to say that coping and other forms of resilience did not occur sooner. In a study by DeRoma, Saylor, Swickert, Sinisi, Marable, and Vickery (2003), college students reported a reduction in posttraumatic stress disorder symptoms just one day after the September 11 attacks. This was attributed to the use of cognitive and emotional coping strategies. A sample of 420 college students in the Charleston, South Carolina area was given a battery of four instruments to identify changes in PTSD symptoms in

the first and second weeks following the September 11<sup>th</sup> events. The Past Traumatic Experiences Scale (DeRoma et al.) measured the number and type of prior traumas a person has undergone. The Davidson Trauma Scale (Davidson, Book, Colket, Tupler, Roth, David, Hertzberg, Mellman, Beckham, Smith, Davison, Katz. R., & Feidman, M. E., 1997) diagnosed PTSD, particularly for symptoms experienced within the two time brackets of 24 hours after the trauma and from the second day on. The Charleston Coping Questionnaire (DeRoma et al.) assessed coping efforts following the stressor of terrorism. Subjects were also asked to identify the top ten coping strategies used in the first 24 hours to cope. Finally, the Perceived Benefits Scale (McMillen & Fisher, 1998) assessed positive life changes occurring after exposure to traumatic stress. The results of the study reflect the resilience of coping skills of the college-age population. Correlations between level of PTSD symptoms and coping in the first 24 hours were positive and significant. This suggests that the more subjects were immediately impacted by the threat of terrorism, the higher likelihood that they used both cognitive and emotional strategies to cope. In summary, the significant reduction in PTSD symptoms after one day supports the notion that, although we fear that people will never recover from a trauma of horrific proportions, symptoms are reduced over time (DeRoma et al.).

#### *Measuring the Impact of a Traumatic Event*

In a survey of adults from the United States, Elliot and Briere (1995) found that 76% reported being exposed to extreme stress at some point in their lives. Breslau, Davis, Andreski, and Peterson (1991) found, in a survey of 1, 007 young adults in the United States, that 39.1% of the group had experienced a trauma, of which 23% went on to

develop PTSD. The study revealed a lifetime prevalence rate for PTSD of 9.2%. Resnick, Kilpatrick, Dansky, Saunders, and Best (1993) found that lifetime exposure to a traumatic stressor was 69%, leading to lifetime prevalence rates for PTSD of 12.3%.

Over the course of the last decade, a significant number of research studies have been conducted that suggest that it is common for people to experience multiple traumatic events in the course of their lives (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Additional studies suggest that prior exposure to traumatic events may affect subjects' responses to later events (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Another battery of studies suggests that the effects of traumatic experiences might be cumulative (Goodman, Dutton, & Harris, 1997). In a study investigating the relationship between trauma symptoms and a history of child sexual abuse, adult sexual assault, and physical abuse by a partner as an adult, Follette, Polusny, Bechtle, and Naugle (1996) found that victimization and re-victimization experiences are frequent. The group also found that the level of trauma specific symptoms are significantly related to the number of different types of reported victimization experiences.

*The Impact of Event Scale.* Given the prevalence of traumatic events over the course of a lifetime, it is important to find a method of measuring the impact these occurrences inflict. The Impact of Event Scale (IES) was developed by Horowitz, Wilner, and Alvarez (1979) to measure current subjective distress related to a specific event. It is one of the most commonly used instruments to measure this impact. Horowitz observed that the most commonly reported responses to traumatic stressors fell into two major response sets: intrusion and avoidance (Horowitz, et al, 1979; Weiss & Marmar, 1997). The IES is considered one of the earliest self-report measures of posttraumatic

disturbance (Briere, 1997). Many studies conducted during its development build a strong foundation of literature for the importance of measuring the impact of a traumatic event.

Briere (1997) noted that several studies involving combat veterans, natural disaster survivors, emergency services personnel, victims of crime, and adults sexually abused as children have shown that the IES discriminates a variety of traumatized groups from their non-traumatized cohorts. This was also shown in the Horowitz et al. (1979) study comparing the IES scores from a sample of patients who had experienced specific traumatic life events with a sample of medical students exposed to cadaver dissection. The major difference in effects was between the groups ( $F=212.1$ ,  $p< 0.0001$  for intrusion;  $F=73.0$ ,  $p< 0.001$  for avoidance;  $F=170.8$ ,  $p< 0.0001$  for the total stress score). Gender differences were also significant, but with much lower size of effect, with females scoring higher than males.

A general population study by Briere (1997) found that Blacks scored substantially higher than Whites on the IES. Although this difference decreased when the relative degree of violence experienced by Whites versus Blacks was controlled for, it did not disappear. Briere suggests that interpretations of IES score differences should always take race into account.

In a 1982 study by Zilberg, Weiss, and Horowitz (as cited by Weiss & Marmar, 1997) of a group of outpatients with pathological grief ( $n=35$ ) and a group of bereaved field subject volunteers ( $n=37$ ), it was demonstrated that all items in the IES were endorsed frequently, with a range from 44% to 89% of the pooled sample. The comparison of the rank order of items based on frequency of endorsement between this study and the initial publication of the IES produced a Spearman rank correlation of .86



( $p = .001$ ). This suggests that the content of experience following traumatic events, as represented in the IES item pool, was similar across types of events and patient or non-patient populations.

### *The Role Others Play in Posttraumatic Growth*

One element of recovery from a traumatic experience was the social support system (Tedeschi & Calhoun, 1995). Friends and family played a substantial role in posttraumatic growth. However, the quality of these relationships before and after a trauma influenced the role friends and family can play; if good relationships have been maintained or even improved, growth may have been possible (Tedeschi & Calhoun). In a study of husbands of women with breast cancer, Weiss (2000) found that the more sources of social support available to a person, such as good relationships with friends and family, as well as access to and utilization of community resources, the more posttraumatic growth the person experienced. In translation to a college setting, this social support could come from a number of resources, including peers, the counseling center, residence hall staff, professors, or any student affairs administrator. The role of clinicians was also emphasized in posttraumatic growth. Tedeschi and Calhoun (1995) made this claim:

People facing traumas sometimes find benefits because the event puts them into contact with professional helpers whom they would not otherwise have met. Professional helpers can have a powerful effect on survivors' perceptions of themselves, their values, and their goals in life because they become aware of general life issues beyond the traumatic event itself that may need to be addressed to speed recovery. (p. 100)

Professional helpers are not the only source for aiding in trauma recovery and growth. Equally important to survivors is the presence of others who have experienced the same or similar trauma. Student affairs practitioners, particularly residence hall staff members ranging from resident directors to resident assistants, may take on this role since many have experienced similar traumas in their lives. Tedeschi and Calhoun (1995) found that people who experienced similar difficulties often provide a useful way of understanding the coping process. The ability to discuss specific emotional concerns allows a greater connection to the experience of the victim. This creates a new way to cope.

Another important factor in posttraumatic growth was the attendance of support groups. These groups are helpful in encouraging people to search for positive changes in others before they begin to experience them themselves. In support groups, experienced peers play a key role. For example, in a group of veterans, it is useful to include people who are veterans of the struggle with the crisis as well as those who are relatively new to the crisis (Tedeschi & Calhoun, 1995)

#### *The Role Memory Plays in Posttraumatic Growth*

The possibility exists that trauma survivors may have very distorted memories of traumatic events. Brown and Kulik (1977) developed a hypothesis about flashbulb memories that attempts to explain why people vividly remember a momentous event. They argued for a three-stage process: “First comes the recognition of high novelty or unexpectedness; then comes a test for biological meaning for the individual; if this second test is met, there follows the permanent registration not only of the significant novelty, but of all recent brain events” (p. 76).

While many researchers have found the flashbulb memory process to hold true,

some researchers argued that flashbulb memories for the most emotional events were subject to reconstructive error. McCloskey, Wibble, and Cohen (1988) found this to be true with memories of the *Challenger* space shuttle explosion. Details were inconsistent over time and subject to error. Winningham, Hyman, and Dinnel (2000) reported that consistency in autobiographical reports increased as the delay between the event and an initial report of the memory increased. A series of studies yielded empirical evidence that recollection is poorer for details of violent events than for details of non-violent versions of those events (Clifford & Hollin, 1981; Clifford & Scott, 1978; Loftus & Burns, 1982). Easterbrook (1959) attributed this to the impact of emotionality on the selectivity of attention. Therefore, higher levels of consistency reported in some studies of flashbulb memories may be a result of a long initial delay between the event and the first autobiographical report, rather than from the veracity of the initial report.

This empirical work contrasts with the observation that certain violent traumatic events seem well remembered. Most individuals born before 1956 can remember where they were when they heard about the assassination of President Kennedy (Brown & Kulik, 1977). They often remember their location upon first hearing, what they were doing, how they found out, and how they felt. Images of public events were found to persist with little subjectively experienced loss of clarity (Pillemer, 1984). This would likely hold true for the traumatic events of September 11<sup>th</sup>, as well as events surrounding a natural disaster, such as a tornado.

Christianson and Loftus (1987) conducted a study in which they explored the hypothesis that, compared to a non-emotional event, people were better able to remember that an emotional event did occur, and to remember aspects of the event that were

focused upon and rehearsed. Sixty undergraduate students from the University of Umea in Sweden were divided up into two groups. Each group was shown a series of 15 color slides, with one set being a neutral series of a mother and son walking safely to school, and the other being a traumatic series of the son getting hit by a car. Half of each group was sampled 20 minutes after seeing the slides, while the other half was sampled two weeks after seeing the slides. The study concluded that those students who viewed the traumatic event and were induced to focus and rehearse the critical features of the event were better able to later recall those rehearsed features than were subjects who viewed a neutral event. This focusing did come at a cost, however. Those subjects who saw the traumatic event were less able to recognize the specific slides they had seen. While mundane experiences may not be readily accessible long after they occur, small subsets of specific, highly important episodes do persist (Christianson & Loftus).

#### *Posttraumatic Growth Research*

Tedeschi and Calhoun (1996) created the Posttraumatic Growth Inventory (PTGI) to measure posttraumatic growth. No general measure of the perception of benefits following a trauma that was applicable to a wide variety of traumatic events existed to this point (Tedeschi & Calhoun, 1996).

Weiss (2000) examined posttraumatic growth, using the PTGI, in husbands of women with breast cancer in relation to social support, perception of the marital relationship, and the existence in the social network of others who perceived benefits from the struggle with breast cancer. She found that those with the most posttraumatic growth were husbands who indicated their social environment provided support, that they were in a supportive and committed relationship, and whose wives also reported high

levels of posttraumatic growth.

Windows (2001) used the PTGI to study individual differences in posttraumatic growth following bone marrow transplantation. She found that 97% of participants reported at least one positive change as a result of their cancer and its treatment and that the most prevalent areas of reported change involved greater appreciation of life, strengthened religious or spiritual beliefs, and closer or stronger relationships with family.

A story appearing in the *Atlanta Journal and Constitution* (Joyner, 2002) chronicled the lives of several men and women who left their high-pressure jobs after September 11 in search of more family time. “Sept. 11 struck a universal chord: People are rethinking their lives and work, weighing what’s important and what no longer matters. Obsessing over status-symbol careers seems almost shallow now” (p. Q1).

In a survey of 2,532 participants who were United States citizens, it was found that, in response to September 11, 40% of participants designated more time to family than prior to September 11, 2001 (Gardyn, 2001). In this same study, 87% of 18-24 year olds, 81% of 25-34 year olds, and 83% of 35-44 year olds agreed with the statement, “The attacks have fundamentally increased my appreciation for my family” (p. 36).

### *Summary*

Research on trauma and traumatic growth indicates that people may face multiple traumatic events that affect their functioning over the course of a lifetime. People grow from these experiences differently. For some growth may occur abruptly, while others may experience growth more gradually. Social supports and memory are variables that play a role in how resilient a person is. Additional research should be conducted to

connect the relationship between the impact of a traumatic event and how quickly growth is experienced.

### College Student Retention

There is a vast amount of salient literature on the topic of college student departure. Each piece of scholarship contributes something different to the body of research on this important topic. This section will highlight a few of the many pieces that offer differing perspectives on the college student departure problem, what promulgates it, and what decreases it in relation to its intersection with traumatic events. While this may appear to be a study of college student attrition, the topic is corollary to college student retention and not opposite from it.

#### *Tinto's Theoretical Perspectives*

Tinto (1986) identified four theoretical perspectives on college student departure: economic, organizational, psychological, and sociological. Each perspective offered a way to view student departure, each with a set of forces that took different factors influencing departure into consideration.

*The Economic Perspective.* The economic perspective was focused on weighing the costs and benefits of continued attendance at a particular college or university (Tinto, 1986). This perspective was deeply rooted in human capital theory, advanced by Becker (1964). At its core, human capital theory postulated that education, training, or other types of learning represented personal investments that result in returns on the investment, such as financial earnings. If the return on the investment in education outweighed the cost of the investment, then an individual was motivated to expend the

necessary effort to acquire an education.

Placing this directly into the framework of student departure, students will depart from a particular institution if they perceive that the costs of continued attendance outweigh the benefits of continued attendance. Perceived costs could be defined as tuition and foregone earnings, whereas benefits could be defined as future earnings and prestige gained from earning a degree. Financial aid represents one consideration in the calculation, as well. St. John, Cabrera, Nora, and Asker (2000) conducted extensive research into the role of financial aid and other economic factors in the departure process. For those students suffering the loss of a parent or guardian who serves as the primary source of familial financial income, departure from college over financial concerns was a reality.

There are limitations in the economic perspective's ability to account for student departure. Tinto (1986) asserted that the economic perspective neglected social and nonmonetary factors internal and external to the individual student and to the college or university. The perspective also ignored psychological characteristics and organizational forces that influenced a student's decision to persist. While the economic perspective offers limited explanations, it does account for the role of economic forces, forces that seem to be neglected in many of the other student departure models used today.

*The Organizational Perspective.* The organizational perspective concentrated on the role of organizational structure and organizational behavior in influencing student departure. Different dimensions of organizational structure that may have influenced student departure decisions include institutional size, institutional admissions selectivity, institutional resources and goals, faculty-student ratios, and the bureaucratic structure of

colleges and universities (Tinto, 1986).

The behavior of individuals in leadership positions within an institution may also have affected the departure decisions of students. Such individuals include the president, provost, senior student affairs officers, and academic deans. The mode of organizational functioning of these individuals could have affected a student's departure decision (Braxton, 2000). These modes of functioning included rational-bureaucratic, the collegial, the political, and the anarchical (Birnbaum, 1988; Kuh, 2003). Each form of organizational functioning espoused different goals, values, and methods of decision making. Students at the University of Maryland sought counsel and support from their institution in the Fall of 2001. While some students may have found that supports necessary to nurture posttraumatic growth, others may not have. This could be attributed to the institution's organizational structure.

Institutional communication, fairness in the administration of institutional rules and regulations, and the students' ability to participate in decision making were additional forms of organizational behavior posited to have a positive impact on student departure decisions (Bean, 1983; Berger & Braxton, 1998; Braxton & Brier, 1989). One strength of the organizational perspective on explaining student departure was that it focuses attention on the influence institutional structure and organizational behavior may exert on a student (Tinto, 1986). This perspective, however, ignored economic, psychological, and social forces.

*The Psychological Perspective.* The psychological perspective centered attention on the role that student psychological characteristics and processes play in the student departure process (Tinto, 1986). These characteristics and processes transpired at two



main levels: at the level of the individual student and at the level of the college environment.

*The Individual Level.* At the individual level, Bean and Eaton (2000) advanced a psychological model of student departure that uses constructs derived from attitude-behavior theory, coping behavioral theory, self-efficacy theory, and attribution theory (locus of control) as a foundation. This model assumed that behavior was a choice. A student's entry characteristics, such as past behavior, initial self-efficacy, initial locus of control, and initial coping strategies, influenced student interactions with the institutional environment. In this instance, self-efficacy pertained to an individuals' perceptions of their ability to engage in activities necessary to achieve a particular outcome (Bandura, 1986, 1997). Bean and Eaton asserted that a strong sense of self-efficacy builds confidence in a student to adapt to a particular institution. Locus of control referred to whether an individual attributes experiences and outcomes to causes internal or external to themselves (Rotter, 1966). Therefore, people with an internal locus of control attributed outcomes they have experienced to their own skills or abilities.

In contrast, people with an external locus of control believed outcomes are outside of their control, and were due to luck or fate (Weiner, 1986). Self-efficacy and locus of control shaped students' reactions to their interactions with institutional bureaucracy, the academic system, the social system, and the external environment. These reactions, in turn, required students to make new psychological assessments pertaining to their level of self-efficacy, locus of control, and ways of coping with stress (Weiner). These assessments have been based, in part, on past behaviors and have offered a revised view of their status on these psychological characteristics. If positive self-efficacy, reduced

stress, and an internal locus of control resulted in an outcome of such personal assessments, academic and social integration would result (Weiner). This, in turn, would lead to institutional fit and loyalty to the institution. Institutional fit and institutional loyalty result in an intent to persist, which in turn, results in the decision to remain at the institution.

Students who faced traumatic incidents could have developed easily an external locus of control, feeling that life events were due to fate and they had no hand in controlling them. This could lead to negative self-efficacy, increased stress, and departure from an institution. Banyard and Cantor (2004) found that an internal locus of control, higher levels of social support, and meaning making about traumatic events were linked to positive adjustment. Turner and Lloyd (1995) found that cumulative trauma is predictive in explaining variance in psychological distress in a community sample. Turner and Butler (2003) noted similar findings in a college sample. These studies provided empirical evidence that posttraumatic growth and adjustment were highly connected. Positive adjustment may lead to satisfaction, and, therefore, retention.

*The Environmental Level.* At the environmental level, psychological entities like residence halls were predicted to influence student outcomes, and influenced college student departure. Moos (1979) demonstrated the effects of the environments of residence halls on student outcomes like involvement in the student body, academic orientation, and academic achievement. He identified ten domains that comprise the environments of residence halls. These domains of social climate arrayed themselves into three broad categories: relationships, personal growth, and system maintenance and change. If these domains influenced student outcomes, then they have also affected the interpretations

students make of their college experiences. Such interpretations, in turn, may influence student departure decisions.

Climates at the level of the college or university also influenced student departure. Baird (2000) and Strange (2003) postulated that the behaviors of college students were based upon their perceptions of the climates of their college or university. Such behaviors influenced their judgments of their collegiate experiences, and such judgments affected departure decisions. Baird identified the dimensions of the psychological climate identified by Pace (1984) as important in departure decisions because they affected student satisfaction: friendliness, supportiveness, helpfulness, and intellectual satisfaction.

Identifying psychological characteristics that students hold at entrance to college and the delineation of psychological environmental dimensions represent a clear strength of the psychological perspective of student departure. Student entry characteristics represent an important element in the student departure process. Nevertheless, the neglect of economic factors, organizational structure, and social forces diminish the explanatory power of the psychological perspective to account for student departure decisions.

*The Sociological Perspective.* The last of Tinto's four theoretical perspectives was the sociological perspective. Three sets of theoretical formulations that were, at base, sociological in their orientation were cultural capital and retention, student culture, and Tinto's interactionist theory of student departure.

Cultural capital was a symbolic form of capital and was the type of knowledge valued by the elite members of society (McDonough, 1997). This knowledge, which was not taught in schools, took the form of habits, manners, styles of speech, educational

credentials, and lifestyle preferences (Bourdieu, 1973). Therefore, cultural capital was able to manifest itself in the form of social interactions among peers in conversations about studying abroad and attending cultural events like the symphony or ballet.

Cultural capital played an important role in the student departure process. Berger (2000) asserted that both individual students and institutions possessed varying degrees of cultural capital. Therefore, Berger postulated that students were more likely to persist in a given institution if their level of cultural capital matches the level of cultural capital embedded in the social and organizational systems of the institution. A likelihood of student departure resulted from widespread discrepancies in these levels of cultural capital.

Further, the culture of a student peer group was a defining characteristic of that group. Student peer groups played an important role in the social communities of institutions. The culture of the peer group influenced the development of the group, as well as the attitudes, values, norms, and behaviors endorsed by the group (Kuh & Whitt, 1988; Kuh, 1995).

#### *Tinto's Interactionalist Theory*

Tinto's Interactionalist Theory of student departure enjoyed paradigmatic status among theoretical perspectives on the issue (Braxton, Sullivan, & Johnson, 1997). Paradigmatic status signified that considerable consensus around the potential validity of Tinto's theory exists and was indexed in the large number of citations to Tinto's theory by late 1994, over 400, and the number of doctoral dissertations addressing his theory by 1995, approximately 170. This was the longitudinal theory Tinto laid out in his book, *Leaving College: Re-thinking the Causes and Cures of Student Attrition* (1993).

Tinto's theory regarded student departure as a consequence of the individual student's interaction with the college or university as an organization. The meanings the individual student ascribed to such interactions with the formal and informal dimensions of the college or university at the level of the institution played an important role in student departure decisions (Braxton, et al., 1997; Tinto, 1986, 1993). The process of student retention was viewed as longitudinal, unfolding over time as the student interacted with the college or university as an institution.

Tinto (1975) posited that students enter college with various individual characteristics, such as family background, individual attributes, and pre-college schooling experiences. Socioeconomic status, parental education level, and parental expectations were family characteristics identified by Tinto. He delineated academic ability, race, and gender as individual student attributes. According to Tinto, pre-college schooling experiences included the characteristics of the student's secondary school, the student's high school academic achievement, and social attainment of the student. These clusters of individual entry characteristics were presumed to directly influence student departure decisions, as well as students' initial commitments to the institution and to the goal of college graduation. Initial commitment to the institution, and initial commitment to the goal of graduation, influenced the level of a student's integration into the academic and social systems of the college or university.

Academic integration consisted of structural and normative dimensions. Structural integration entailed the meeting of explicit standards of the college or university, whereas normative integration pertained to an individual's identification with the normative structure of the academic system.

Tinto (1975) suggested student academic performance as an index of a student's degree of structural integration into the academic system of a college or university, as grades signified the degree to which a student has met the values and objectives for student academic achievement set by a given college or university. He contended that the intellectual development of a student indicated the level of a student's normative integration because intellectual development reflected the student's appraisal of institution's academic system. Tinto also asserted that normative integration took the form of congruency between the individual's intellectual development and the intellectual environment of the college or university.

Social integration referred to the extent of congruency between an individual student and the social system of a college or university. Tinto posited that informal peer group associations, extracurricular activities, and interactions with faculty and administrators are mechanisms of social integration (1975). Moreover, Tinto carefully pointed out that social integration occurs both at the level of the college or university and at the level of a subculture of the institution.

Academic and social integration affected the subsequent commitments of students. Specifically, the greater the student's level of academic integration, the greater the level of subsequent commitment to the goal of college graduation. In addition, the greater the student's level of social integration, the greater the level of subsequent commitment to the college or university (Tinto, 1975). The student's initial level of commitments – institutional and graduation goal – also influenced their level of subsequent commitments. In turn, the greater the levels of both subsequent institutional commitment and commitment to the goal of college graduation, the greater the likelihood

the individual will have persisted in college. Tinto offered two additional propositions. First, high levels of commitment to the goal of graduation from college compensated for low levels of institutional commitment. Second, high levels of social integration compensated for low levels of academic integration, and vice versa.

The sociological perspective focused attention on the influence of social structure and social forces on student departure decisions. However, this perspective generally neglected the importance of economic, psychological, and organizational influences on such decisions. However, economic factors, psychological characteristics and processes, organizational structure and behavior, and social structure and social forces served as helper theories to increasing understanding of Tinto's core constructs of academic and social integration.

#### Student Involvement Theories and Research

A variety of studies have explored the developmental effects of college student participation in co-curricular programs. Pascarella and Terenzini (1991), in their summary of the psychosocial affects of college, identified involvement in campus life as positively affecting such psychosocial or affective areas as identity and self-esteem. Astin (1977, 1984, 1988, 1993) likewise detailed a number of different ways in which student involvement enhances psychosocial student growth.

Astin's Theory of Student Involvement (1984) provides a theoretical basis for investigating student involvement in the educational experience. Astin stated that involvement or active engagement in academic and other activities is positively related to student learning and development. The theory also holds that both the quantity and quality of involvement are important in determining student outcomes and development.

Quantity refers to the actual amount of time a student invests in the overall academic and co-curricular endeavor; while quality refers to the intensity of the commitment the student devotes to the involvement. Astin defines a highly involved student as one who “devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students” (p. 297).

#### *Astin's Theory of Student Involvement*

Alexander Astin has studied and written extensively in the area of student involvement in higher education (Astin, 1968, 1975, 1984, 1985, 1987; 1993; Astin, Korn & Green, 1987). Perhaps his most significant work in this area is his theory of student involvement. This theory defines involvement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984, p. 297). Astin refers to the academic experience in a broad sense that encompass both classroom learning and out-of-class experiences. The theory is based on five postulates:

1. Involvement refers to the investment of physical and psychological energy in various objects.
2. Involvement occurs along a continuum.
3. Involvement has both quantitative and qualitative features.
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement.



(Astin, 1984, p. 298)

Astin's theory presented a paradigm for viewing student participation in co-curricular activities, stressing the concepts of commitment and time. Commitment referred to the qualitative or content dimension of involvement, and time referred to the quantitative dimension. Learning and development were primarily a factor of the degree of effort and energy committed by students to a particular learning experience, whether a chemistry course or a student affairs-sponsored developmental program. In Astin's view, involvement was an active concept which required the student to invest time and energy. In *Achieving Educational Excellence*, Astin (1985) makes the point that students are primarily interested in the “existential benefits” of the college experience, meaning, among other things, the “subjective satisfaction associated with...extracurricular and academic involvement, recreational activities...” (p 21). This interest sets the stage for student co-curricular involvement.

This theory served as a connector between pedagogical theory and student outcomes by providing “a link between the variables emphasized in these theories ... and the learning outcomes desired by the student and the professor” (Astin, 1984, p. 300). Astin stated that any program, whether academic or co-curricular, must provide students with intrinsic motivation to commit both time and effort to it. Those programs that motivate students to make such a commitment are the most successful. The focus is on the student and his or her reaction to the program, rather than just on the program itself. Even a well-funded, sophisticated, co-curricular program will only meet its stated objectives if students are motivated to commit the time and energy necessary to succeed. In this model, students are seen as active, committed participants in the learning process.

Astin's other works, particularly his study of college dropouts (1975) and his studies of the impact of college on students (1977, 1993) also relate to his theory of involvement. In his 1977 work, Astin determined that student involvement was a prime factor in keeping students in school. In his 1993 study, he determined that a number of factors related to college attendance, including involvement in academic honors programs, student government, and athletic programs, had an overall positive impact on student development. Astin, Korn, and Green (1987) determined that involvement was directly related to students' satisfaction with college and with retention. Therefore, it is evident that involvement and retention are linked variables, and both may be highly affected by influences, such as a traumatic event.

#### *Student Involvement Studies*

Numerous researchers have investigated student participation in extracurricular activities. While the term involvement means many different things to researchers, the definition offered by Kuh, Schuh, Whitt, and Associates (1991) defined the term most clearly as, “active participation in activities and events that are not part of the curriculum but nevertheless complement the institution's educational purposes” (p. 7). While some researchers have taken a more general approach to the issue of student involvement, others have looked at very specific types of involvement and specific student outcomes. This section will offer an overview of general involvement studies.

*General Involvement Studies.* A report issued in 1984 by the National Institute of Education Study Group on the Conditions of Excellence in American Higher Education stressed as one of its major themes that student involvement is one of the keys to learning. Six years later, a Carnegie Foundation report (Boyer, 1990), also stressed the

importance of student involvement in the overall academic enterprise.

Utilizing data from a sub-sample of the 1970 survey of college freshman conducted by the Cooperative Institutional Research Project, Kapp (1979), in an unpublished doctoral dissertation, found that over 80% of the college graduates studied had participated in some type of co-curricular activity. Those who did participate tended to be more satisfied with the social life at their college and with their involvement with faculty and staff (Kapp). The sample consisted of 6,108 White, Bachelor's degree recipients. Kapp also found that these involved students tended to have more confidence in their leadership ability, thinking ability, and their ability to get along with people. Despite the large sample size, value and validity of the study is limited by the fact that Kapp only looked at White, Bachelor's degree recipients, and did not define involvement. While this study provides useful results linking involvement and satisfaction, the data is from a different generation of college student and may not be applicable to today's college student population.

In a study conducted at Harvard University (Angelo, 1988; Light, 1990) it was found that 86% of the women and 76% of the men participated in co-curricular activities. In Light's 1990 study, similarly to Kapp's study, no clear definition of involvement was stated, nor was the amount of time involved in the activity specified.

Pascarella and Terenzini (1991) in their comprehensive review of the literature titled, *How College Affects Students*, indicated that the research literature supports the claim that student involvement has a "significant and positive influence on various dimensions of general cognitive development" (p. 147). The literature also clearly indicated that student's social and academic self-images are positively related to

“involvement in the formal and informal academic and social systems of their institutions” (p. 192).

In presenting their findings, the authors conducted a “narrative or explanatory literature review” (Pascarella & Terenzini, 1991, p. 9), utilizing a relatively subjective “weight of evidence” standard to compare the results of various studies. In analyzing their data, the authors chose to organize and structure their work around the different types of outcomes resulting from the college experience rather than around the factors in the collegiate environment which cause the various outcomes. The outcomes they chose to focus on were: cognitive-psychological, cognitive-behavioral, affective-psychological, and affective-behavioral. The authors also used six guiding questions to assist in their analysis. These questions were: What changes occur during college?; Is the change the result of attending college?; What are the differential effects of different kinds of post-secondary institutions?; What are the different outcomes within institutions?; What are the different outcomes between institutions?; and What are the long-term outcomes of college attendance?

This study was a comprehensive effort to summarize and synthesize the available data on college impact and, in general, gave credence to the widely-held belief that college attendance has an overall positive impact on students in a variety of ways. The authors themselves, however, acknowledge certain limitations in their findings resulting from limitations in the literature itself (Pascarella & Terenzini, 1991). Most of the studies reviewed dealt with traditional college students, and many of the studies presented data from only one program or one institution, which, consequently, may not be generalizable to the student population-at-large. Further, the researchers note that some of the

instruments utilized in the studies were of questionable validity.

Kuh, Schuh, Whitt, and Associates (1991) conducted the Involving Colleges Study. The theme of this qualitative study was the importance of student involvement to the overall educational experience. The authors of this report identified, after a review of the literature, nine guiding questions that they used in their study. These questions focused on such factors as: institutional philosophy, culture, student body makeup, faculty involvement with students, co-curricular resources, institutional support for the co-curricular activities, the nature and extent of student involvement, availability of on- and off-campus student employment, and other factors related to student involvement and student development. The authors then assembled a panel of experts to nominate colleges and universities that fit, in the panel's opinion, the criteria established by the authors for "involving colleges," that is, institutions which provided "high-quality out-of-class learning and personal development experiences for undergraduate students" (Kuh et al., 1991, p. 25). The list of colleges and universities was narrowed to fourteen institutions which the researchers felt were a representative sample, including colleges that were large and small, urban and rural, public and private, single sex and coeducational, and church-affiliated and non-sectarian.

Once the institutions were selected, a team of researchers conducted over 1,200 interviews with faculty, staff, and students at these colleges. The primary focus of the study was student involvement in the life of the college, both curricular and co-curricular. In their report the authors defined a "high quality out-of-class experience" as one that, although not part of the formal curriculum, nevertheless "complements the institution's educational purposes" (Kuh et al., 1991, p. 7). The authors also stated unequivocally that

these experiences contributed to the learning and personal development of students. This study reiterated the importance of student involvement in the educational experience and also stressed the importance that the role of community plays on campus.

By the authors' own admission, the institutions studied did not represent a scientific sample, and they acknowledged that the schools studied were not necessarily the most successful, nor the "most involving" colleges and universities in the country. Nevertheless, the depth of detail and the objective analysis of each institution, combined with the diversity of the sample of institutions studied, provide very practical and valuable insights into the full fabric of student life and campus culture at these institutions. The study provided many examples of practices, programs, policies, and procedures that are easily transferable to other institutions.

The Harvard Assessment Seminars (Angelo, 1988, Light, 1990) published a number of major findings that are directly related to this study. The researchers found that participation in volunteer work, as well as part-time work, did not negatively affect grades and had a positive effect on overall student satisfaction. Additionally, the researchers found that participation in intercollegiate athletics had a somewhat negative effect on academic success, particularly for first-year students and sophomores, but that participation in athletics is positively related to both academic and social satisfaction. Finally, the researchers found that involvement in other types of co-curricular activities, even among those who invested a great deal of time in these activities, did not have a negative effect on grades. Overall, when combining a variety of co-curricular activities, such as work, athletics, and extracurricular, no negative effect on academic achievement was determined.

This study went beyond issues of student involvement in the co-curricular life of the institution to include other issues such as relationships with significant others, foreign language study, and hobbies. The sample for the study was drawn to include 388 randomly selected Harvard undergraduates, representing approximately six percent of the total population. Of this total, 365 were interviewed by the research team during the Fall 1987 semester. During the Spring 1988 semester, 359 of the original sample participated in follow-up interviews. While this study portrayed a comprehensive view of Harvard students, its generalizability to other colleges and universities is limited due to the academic eliteness of Harvard and the resulting academic and, frequently, economic selectivity of its student body. Nevertheless, the study provides a very valuable, in-depth look at the effects of a number of different factors of student life at a major institution.

#### *Involvement and Academics*

A number of studies have focused specifically on the relationship between student involvement and academic success. As is prevalent in the review of this literature, the definition of involvement varies from study to study. It is used here in the generic sense to mean participation in any of a wide variety of campus, or even off-campus, activities.

Going back as far as 1947, Stright recognized a positive relationship between involvement in co-curricular activities and academic performance. Hartnett (1965) found, however, no significant relationship between degree of involvement in co-curricular activities and academic performance in a study of over 600 students at a Midwestern university. Pike (1991), after an analysis of the literature investigating the relationship between student involvement and grades, found the results so inconsistent that he assumes the two to be unrelated.

A number of older studies have investigated the issue of participation in college athletics and its impact on such issues as academic achievement, student satisfaction, and developmental growth. The relationship between athletic participation, social participation, and grade point average and retention was explored by Hanks and Eckland (1976). While no definitive positive correlation was found between participation in college athletic programs and academic performance, there was a positive effect on educational attainment. Social participation in college, defined in this study as participation in the extracurricular program of the college not including athletics, however, had direct, positive effects on both grades and academic attainment.

Ballantine (1981) in his review of the literature on athletic participation and academic achievement found, in general, a positive correlation between athletic participation and academic achievement. He also found that participation in athletics was associated positively with the participant's aspirations and income, and that a greater percentage of high school athletes versus non-athletes attend college.

Hood, Craig, and Ferguson (1992) conducted a detailed study of the academic achievement of freshman student athletes at the University of Iowa between 1980 and 1986. Their methodology was such that each freshman athlete in their sample was matched with a non-athlete based upon entering ACT score or composite SAT score, gender, ethnicity, year of entrance to the University, and resident or nonresident status. The results of this study indicated that when entering characteristics are controlled, there is no significant difference in academic achievement during the first year for athletes and non-athletes. The researchers determined, however, that the average grade point average for athletes was significantly below that of the typical university student. This study



indicates that the reason for this is not participation in athletics, but the significantly lower entering academic characteristics of the athlete population (Hood et al.).

Ryan (1989), utilizing data from the 1985 Cooperative Institutional Research Project Follow Up Survey, investigated the relationship between participation in intercollegiate athletics and satisfaction with the overall college experience, motivation to earn a college degree, increased interpersonal skills, and leadership abilities. The results of the study indicated that participation in intercollegiate athletics was positively associated with all four of these dependent variables, but most strongly with increased leadership abilities and satisfaction. No distinction was made in this study as to the particular sport, size of the athletic program, or scholarship status.

In another study of student athletes, Pascarella and Smart (1991) utilized Cooperative Institutional Research Project (CIRP) freshman data from 1971 and the CIRP Follow Up Study from 1980 to analyze ten dependent variables including: college academic achievement, satisfaction with college, and intellectual and social self-esteem. The results of this study indicated that “net of other factors, intercollegiate athletic participation has a positive impact on social involvement during college, satisfaction with college, interpersonal and leadership skills, and motivation to complete one's degree” (p. 127). In addition, participation in intercollegiate athletics was found to have a modest positive effect on academic achievement.

While comprehensive, this study does have some limitations. First, the study only looks at male student athletes. Second, this study, as those above, does not take into account the differences that may be associated with different types of sports (revenue-producing versus non-revenue-producing for example), and the differences that may exist

between highly recruited scholarship athletes and non-scholarship athletes. Lastly, there was no attempt made in this study to match or control for entering student characteristics, such as high school rank, SAT scores, or socioeconomic level.

The relationship between involvement and academic performance appears to be positive. Though the studies present certain limitations that impute either their credibility or their generalizability, it is clear that academic success and persistence are influenced by involvement in co-curricular activities. Therefore, students who are involved are often academically successful and, generally, persist at an institution.

#### *Involvement and Satisfaction*

Involvement is consistently linked with college satisfaction. Holland and Huba (1991) found that students who served as volunteer orientation advisors exhibited greater satisfaction with the overall campus environment than a comparison group of non-participants. In this particular study, the experimental group was comprised of students who applied and were accepted to be orientation leaders; the comparison group was comprised of students who applied but were not accepted. Consequently, the experimental and comparison groups both exhibited motivation to become involved in the program. Although the two groups were assumed to be similar, assignment to the two groups was not random, but the result of a subjective interview process. The results of this study would not be generalizable to the student body at large. It is also conceivable that the very reason the members of the experimental group were selected as advisors, such as exhibiting enthusiasm during the interview process, is a factor which could significantly differentiate them from the comparison group.

Cosgrove (1986), in an experimental study of student participants in a mentoring-

transcript program for first-year students, found that the members of the experimental group, in this study those who participated in the program, exhibited a higher level of satisfaction with the overall university environment. Pascarella, Terenzini, and Wolfle (1986) demonstrated that a higher level of satisfaction was found among first-year students who participated in first-year seminar programs. In a study of social isolation of college students, Keegan (1978) found a positive correlation between participation in extracurricular activities and student satisfaction with social life, living environment, and undergraduate major. This study, conducted at Hampshire College in Amherst, Massachusetts, was designed to explore the reason for the high attrition rate of nearly 40% at the innovative, small college. While the study focused on the 407 students who withdrew from Hampshire between 1973 and 1975, only 31 students were actually interviewed by telephone, resulting in a small sample size.

Astin (1977, 1985) found that students who participated in co-curricular activities of virtually any type were more likely to be satisfied with their overall college experience than students who were uninvolved. In his 1977 study, he found that member of Greek social fraternities and sororities were more satisfied with their college experience than non-members. In his latest work, Astin (1993) concludes that involvement is associated with satisfaction with the college experience.

The Institute for Research on Higher Education (1994) found in a study of over six thousand graduating seniors at 20 private colleges and universities, that “satisfaction does matter: in general, a greater level of senior satisfaction is associated with a higher return rate for students after their first year” (p. 31). While this study did not investigate the relationship between involvement and satisfaction, it does support the notion that

satisfaction is important and is related to student retention rates.

In the area of student satisfaction, the evidence seems to be most compelling. Involvement appears to be positively related to satisfaction. Virtually every type of involvement studied: athletics, student government, co-curricular activities, work, and volunteerism positively correlates with student satisfaction. This correlation shows that involvement is influenced by the overall student experience at an institution both inside and outside of the classroom. Traumatic events may be part of this experience, and may negatively influence involvement. Therefore, further research should be conducted to measure the relationship between the impact of a traumatic event and involvement.

#### Summary of Literature

This chapter reviewed the major theoretical foundations surrounding trauma and traumatic growth, retention, involvement, and the effects of the intersection of these factors. The examination of research specific to the traumatic growth, retention, and involvement of college students was included to draw forth connections between trauma and its relationship to student development. While few studies have been conducted to tie retention, involvement, and the intersection of traumatic events, the literature review reveals that the three topics are all interconnected. Traumatic events disrupt the lives of college students. The impact of this traumatic event varies. Those who are involved often find support systems that aid in retention, while those students who are not involved are not often retained. In an effort to address the gaps in the literature, the following chapter will discuss the methodology used in this study to measure the relationship between the impact of a traumatic event and the involvement and retention of first-year students.

## CHAPTER III - METHODOLOGY

This study sought to identify the relationship between the impact of traumatic events, specifically September 11<sup>th</sup> and a tornado that touched down on campus, during the Fall 2001 semester and the retention and involvement of first-year students in the Denton Residence Community at the University of Maryland, College Park. This chapter outlines and explains the methodology to answer the overall research question and secondary questions.

### Research Questions

The focus of this thesis was to determine if traumatic events affect the retention and involvement of first-year students. Research questions of interest to answer the initial question included:

1. Is there a difference in the level of retention or involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community?
2. Does the level of impact of a traumatic event relate to retention or involvement?

### Hypotheses

The following hypotheses were proposed in the null form:

1. There is no difference in the retention of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.

2. There is no difference in the involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.
3. There is no difference in the level of impact of a traumatic event for first-year students in Fall 2001 not retained into Fall 2002 than those retained into Fall 2002.
4. There is no relationship between level of impact of a traumatic event and involvement for first-year students in Fall 2001.

#### Sample of the Study

The primary population for this study was all first-year students who resided in the Denton residence hall community (Denton, Easton, and Elkton Halls) at the University of Maryland, a large, Research I institution in the Middle Atlantic region, during the Fall 2000 and 2001 semesters. A random sample of first-year students (n = 300) who resided in the Denton Community during the Fall 2000 semester was used. This sample served as a comparison group to a random sample of first-year students (n = 300) from the same community during the Fall 2001 semester (Table 3.1).

Table 3.1

#### *Samples To Be Drawn for Study*

Sample	Description	Hypothesis Tested
1	Random Sample of Denton Community Students from Fall 2000	Hypothesis 1, Hypothesis 2
2	Random Sample of Denton Community Students from Fall 2001	Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4

## Instrumentation

Two instruments were used to collect data for this study. The first instrument used was the University of Maryland Beginning Student Survey. This instrument was used to measure involvement. The second instrument used was the Impact of Events Scale – Revised (Appendix A). This instrument measured the level of impact of a trauma.

### *University of Maryland Beginning Student Survey*

The Beginning Student Survey (BSS) is administered to all first-year students at the University of Maryland in the Fall semester of each academic year. To ensure a high response rate, the survey is administered by professors and instructors in classes required of all first-year students regardless of major or academic college. In 2000, the survey was potentially distributed to 3,350 students (Campus Assessment Working Group, 2001). Students were instructed to take the survey even if they had already completed it in another class. The multiple submissions were used to test the reliability of the instrument. In 2000, 2,898 surveys were returned. Of these, 2,184 were first surveys from first-time, full-time first-year students. Reliability and validity data, as well as data collection information for Fall 2001, is unpublished by CAWG and was not provided for this study.

The survey asks students to self-assess their adjustment to college, engagement in academics, understanding of the University, involvement in campus life, and acclimation to social life at Maryland. The survey also addresses how well students are meeting a set of prescribed learning outcomes and a self-assessment of study skills and habits. Students are asked to provide information on off-campus and on-campus employment, Spring semester enrollment plans, and overall satisfaction with the University.

For the purpose of this study, the instrument was used to measure the variable of

involvement (Table 3.2). Involvement was assessed through a one-item measure on the survey. The question asked students to indicate how many hours per week they participate in organized student activities. Participants chose from a scale with ranges from 0 (No) hours to more than 30 hours. Responses to this item provided insight into how involved first-year students in the Denton community were in Fall 2000 and 2001. Since the instruments for the Fall 2000 and Fall 2001 semesters were identical, this data allowed for a comparison of the responses of a similar sample that did not face potentially adverse trauma as compared to a sample that did face potentially adverse trauma.

Table 3.2

*Beginning Student Survey Variable Measures*

Variable	Item(s)	Scale	Code
Involvement	#81: Please indicate how many hours per week you typically do each of the following: Participate in organized student activities	0 – No Hours	0
		01 – 10 Hours	1
		11 – 20 Hours	2
		21 – 30 Hours	3
		More than 30 Hours	4

*Impact of Event Scale*

The Impact of Event Scale (IES) was developed by Horowitz, Wilner, and Alvarez (1979) to measure current subjective distress related to a specific event. It is one of the most commonly used instruments to measure this impact. Horowitz observed that the most commonly reported responses to traumatic stressors fell into two major response sets: intrusion and avoidance (Horowitz, et al, 1979; Weiss & Marmar, 1997). The IES is considered one of the earliest self-report measures of posttraumatic disturbance (Briere, 1997). The instrument laid the foundation for the creation of the Impact of Event Scale –



Revised, which is the instrument used in this study. This section presents the development of the IES followed by the IES-R.

*Instrument Classification.* The IES is a broadly applicable self-report measure designed to assess current subjective distress for any specific life event (Corcoran & Fischer, 1994; Horowitz et al., 1979). It is an instrument that can be used for repeated measurement over a period of time. Its sensitivity to change renders it useful for monitoring the client's progress in therapy (Corcoran & Fischer).

The IES scale consists of 15 items, seven of which measure intrusive symptoms (intrusive thoughts, nightmares, intrusive feelings and imagery), eight items tap avoidance symptoms (numbing of responsiveness, avoidance of feelings, situations, ideas), and, combined, provide a total subjective stress score (Table 3.3). All items of the IES are anchored to a specific stressor (Briere, 1997; Horowitz et al., 1979). An example of a specific stressor could be the terrorist events of September 11 or a natural disaster, such as a tornado. Respondents were asked to rate the items on a 4-point scale according to how often each has occurred in the past seven days. The 4-points on the scale are: 0 (not at all), 1 (rarely), 4 (sometimes), and 5 (often). The values for feelings of greater traumatic impact were weighted.

Table 3.3

*Impact of Event Scale Sample Items*

Variable	Sample Items
Avoidance	<p>I avoided letting myself get upset when I thought about it or was reminded of it.</p> <p>I tried to remove it from my memory.</p> <p>I stayed away from reminders of it.</p> <p>I felt as if it had not happened or was not real.</p> <p>I tried not to talk about it.</p> <p>I was aware that I still had a lot of feelings about it, but I didn't deal with them.</p> <p>I tried not to think about it.</p> <p>My feelings about it were kind of numb.</p>
Intrusion	<p>I thought about it when I did not mean to.</p> <p>I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my mind.</p> <p>I had waves of strong feelings about it.</p> <p>I had dreams about it.</p> <p>Pictures about it popped into my mind.</p> <p>Other things kept making me think about it.</p> <p>Any reminder brought back feelings about it.</p>

*Scoring Method.* Each item was scored 0, 1, 4 or 5, with the higher scores being weighted to reflect a more stressful impact. The scores for the intrusive subscale range from 0 to 35, and is the sum of the scores for items 1, 4, 5, 6, 10, 11, and 14. The scores for the avoidance subscale range from 0 to 40, and is the sum of the scores for items 2, 3, 7, 8, 9, 12, 13, and 15. (Table 3.4) The sum of the two subscales is the total stress score. It is suggested that the cut-off point is 26, above which a moderate or severe impact is indicated (Horowitz et al., 1979).

Horowitz et al. (1979) suggested that the IES could be interpreted according to the following dimensions:

00 - 08	Sub-clinical range
09 - 25	Mild range
26 - 43	Moderate range
44 +	Severe range

Table 3.4

*Impact of Events Scale Variable Measures*

Variable	Item(s)	Scale
Avoidance	2, 3, 7, 8, 9, 12, 13, 15	0 – Not at All 1 – Rarely 4 – Sometimes 5 – Often
Intrusion	1, 4, 5, 6, 10, 11, 14	0 – Not at All 1 – Rarely 4 – Sometimes 5 – Often

*Reliability.* Corcoran and Fischer (1994) found that the subscales of the IES show very good internal consistency based on two separate sample groups. The coefficients ranged from .79 to .92, with an average of .86 for the intrusive subscale and .90 for the avoidance subscale.

In Horowitz et al.'s (1979) original study, their calculations on the data of 66 subjects with stress response symptoms on the 15-item IES gave a mean total stress score of 39.5 (SD=17.2, range 0-69). The mean intrusion subscale score (items 1, 4, 5, 6, 10, 11, 14) was 21.4 (SD = 9.6, range 0-35). The mean avoidance subscale score (items 2, 3, 7, 8, 9, 12, 13, 15) was 18.2 (SD = 10.8, range 0-38)

The split-half reliability of the IES scale was high ( $r = 0.86$ ). Internal consistency

of the subscales, calculated using Cronbach's Alpha, was also high (Intrusion,  $\alpha = 0.78$ , Avoidance,  $\alpha = 0.82$ ). A correlation of 0.42 ( $p < 0.0002$ ) between the intrusion and avoidance subscales indicates that the two subsets are associated, but do not measure identical dimensions.

To determine test-retest reliability, Horowitz et al. (1979) administered the 15-item IES to a new sample ( $n = 30$ ) twice with an interval of one week between each rating. Results indicated a test-retest reliability of 0.87 for the total stress scores, 0.89 for the intrusion subscale, and 0.79 for the avoidance subscale.

*Validity.* The IES was found to be sensitive to change, in terms of detecting changes in clinical status over time, and in terms of detecting the relevant differences in the response to traumatic events of varying severity by different groups (Corcoran & Fischer, 1994; Weiss & Marmar, 1997). Corcoran and Fischer noted the significant changes in the IES subscales scores of outpatients being treated for bereavement over the course of treatment. This sensitivity to movement was reported by Horowitz et al. (1979) in their study of 32 subjects with stress response syndromes. The IES was administered twice to each subject with a mean time of 11 weeks between first and second administration. The significant change in the scores on the IES confirmed the prediction of a marked decline in item, subscale, and overall scores, and supports its validity as a sensitive reflection of change.

The instrument was determined to have content validity. In the original study, Horowitz et al (1979) developed 20 items in the questionnaire. The items most often endorsed, including “Things I saw or heard suddenly reminded me of it,” were

acknowledged by 85% of the subject sample (n=66), and the item with the lowest endorsement was acknowledged by 38% (Horowitz et al., 1979). Six items that were most frequently reported had a mean weighted score of three or more, indicating that as a group, these subjects experienced such events at a high level of intensity or frequency.

It is acknowledged that the 15 items of the IES captured the level of intrusive and avoidance symptomatology in response to a specific stressor as they manifested in the past seven days (Briere, 1997; Weiss & Marmar, 1997). However, Briere (1997) suggested that the brevity of the scale, its potentiality limited content domain, and its non-clinical focus rendered it useful only as a screen for the presence of non-arousal-related posttraumatic stress, especially if used in isolation from other, more fully validated instruments.

Cluster analysis was applied to the original 20 items in the IES to determine construct validity. Clusters were determined by a correlational measure of association and an average linkage algorithm. The primary and secondary clusters included 15 of the 20 items. Clusters 3 and 4 contained the five remaining items. The primary cluster contained items from the clinically derived intrusion subset, while the secondary cluster contained the clinically derived avoidance subset. This finding was found to support the use of intrusion and avoidance subscales (Horowitz et al., 1979). The number of items was reduced by selecting only those that empirically clustered and had significant item-to-subscale correlations beyond the 0.01 level of significance. Measure of intensity was discarded in favor of a single measure by frequency since scores derived by these variables indicated a degree of similarity that made a dual response for each item unnecessary. As well, subjects seemed able to score frequency more accurately than

intensity.

Zilberg, Weiss, and Horowitz (as cited by Weiss & Marmar, 1997) used factor analysis to assess the validity of the items assigned to the intrusion and avoidance subscales. Two factors were extracted via a varimax rotation. The first factor was defined by the avoidance items, with coefficients ranging from .39 to .86 while the intrusion items produced coefficients ranging from .09 to .34. The second factor had higher loadings of intrusion items, with coefficients ranging from .58 to .75, while the avoidance items had coefficients ranging from .11 to .35. This was seen to show the strong coherence of the two subscale item sets.

*Norms.* Normative data cited by Corcoran and Fischer (1994) were derived from two samples. Sample 1 (n=35) comprised of outpatients who sought treatment to cope with the death of a parent. Sample 2 was a field sample (n=37) of adult volunteers who had a recently deceased parent. The mean age for Sample 1 was 31.4 years (SD = 8.7). The mean score for the intrusive subscale was 21.02 (SD = 7.9). The mean score on the avoidance subscale was 20.8 (SD = 10.2). For Sample 2, the mean score for the intrusive subscale was 13.5 (SD = 9.1). The avoidance subscale mean was 9.4 (SD = 9.6). All of the data were assessed two months after the stressful event had occurred.

#### *Impact of Event Scale - Revised*

The Impact of Event Scale – Revised (IES-R) was developed by Weiss and Marmar (1997) to parallel the DSM-IV criteria for PTSD. The original IES was developed prior to the adoption of Posttraumatic Stress Disorder as a legitimate diagnosis in the DSM-III, originally published in 1980, and only tap two of the four criteria set out for PTSD in the DSM-IV: intrusion and avoidance (Weiss & Marmar, 1997). IES-R was

intended to tap the hyperarousal cluster of symptoms, the fourth criterion for PTSD. In this study, this instrument will be used to measure the initial impact of the traumatic events of the Fall 2001 semester on the random sample from that semester. This data will be used to determine if the level of traumatic impact positively or negatively affected retention and involvement.

*Instrument Classification.* The IES-R is similar to IES in that it is a self-report measure designed to assess current subjective distress for any specific life event. The IES-R has 22 items, seven items having been added to the original 15-item IES (Weiss & Marmar, 1997). The seven items comprise six that tap hyperarousal symptoms such as anger and irritability, heightened startle response, difficulty concentrating, hypervigilance. One new intrusion item taps the dissociative-like -experiencing when experiencing true flashbacks. The hyperarousal subscale and the new intrusion item, along with the existing intrusion and avoidance subscales, better parallel the DSM-IV criteria for PTSD (Table 3.5).

The seven items were randomly interspersed with the existing seven intrusion and eight avoidance items. The only modification to the IES items was the bifurcation of the item “I had trouble falling asleep or staying asleep” into “I had trouble falling asleep,” assigned to the hyperarousal subscale, and “I had trouble staying asleep,” retained in the intrusion subscale. Respondents are asked to rate each item in the IES-R on a scale of 0 (not at all), 1 (a little bit), 2 (moderately), 3 (quite a bit) and 4 (extremely) according to the past seven days. Unlike the original IES instrument, which had a weighted scale, each item was scored 0, 1, 2, 3, or 4, with all scores being weighted evenly. The score for the intrusive subscale is the mean of the scores for items 1, 2, 3, 6, 9, 14, 16, and 20. The

score for the avoidance subscale is the mean of the scores for items 5, 7, 8 11, 12, 13, 17, and 22. The score for the hyperarousal subscale is the mean of the scores for items 4, 10, 15, 18, 19, and 21 (Table 3.6).

Table 3.5

*Impact of Event Scale- Revised Sample Items*

<u>Variable</u>	<u>Sample Items</u>
Avoidance	<p>I avoided letting myself get upset when I thought about it or was reminded of it.</p> <p>I felt as if it had not happened or was not real.</p> <p>I stayed away from reminders about it.</p> <p>I tried not to think about it.</p> <p>I was aware that I still had a lot of feelings about it, but I didn't deal with them.</p> <p>My feelings about it were kind of numb.</p> <p>I tried to remove it from my memory.</p> <p>I tried not to talk about it.</p>
Intrusion	<p>Any reminder brought back feelings about it.</p> <p>I had trouble staying asleep.</p> <p>Other things kept making me think about it.</p> <p>I thought about it when I did not mean to.</p> <p>Pictures about it popped into my mind.</p> <p>I found myself acting or feeling as though I was back at that time.</p> <p>I had waves of strong feelings about it</p> <p>I had dreams about it.</p>
Hyperarousal	<p>I felt irritable and angry.</p> <p>I was jumpy and easily startled.</p> <p>I had trouble falling asleep.</p> <p>I had trouble concentrating.</p> <p>Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.</p>



Table 3.6

*Impact of Events Scale - Revised Variable Measures*

Variable	Item(s)	Scale
Avoidance	5, 7, 8, 11, 12, 13, 17, 22	0 – Not at All 1 – A Little Bit 2 – Moderately 3 – Quite a Bit 4 – Extremely
Intrusion	1, 2, 3, 6, 9, 14, 16, 20	0 – Not at All 1 – A Little Bit 2 – Moderately 3 – Quite a Bit 4 – Extremely
Hyperarousal	4, 10, 15, 18, 19, 21	0 – Not at All 1 – A Little Bit 2 – Moderately 3 – Quite a Bit 4 – Extremely

*Predictive Validity.* Weiss and Marmar (1997) noted that the hyperarousal subscale had good predictive validity with regard to trauma. The intrusion and avoidance subscales, which are original IES components, have been shown to detect change in participants' clinical status over time and detect relevant differences in the response to traumatic events of varying severity (Horowitz et al., 1979; Weiss and Marmar, 1997).

*Construct Validity.* Weiss and Marmar (1997) utilized the item to-subscale correlation with that item removed from the subscale generated by the standard alpha coefficient analyses. These were then compared to the cross-subscale Pearson correlations. The results showed that only 1 item (“I had trouble falling asleep”) showed a stronger relationship between it and a different subscale. The corrected correlation of this item with its assigned hyperarousal subscale was .71, and its correlation with the

intrusion subscale was .79. Nineteen items showed a correlation with their assigned subscale that was higher than with the other subscales; and 2 items (“I had trouble staying asleep” and “I avoided letting myself get upset when I thought about it or was reminded of it”) showed a correlation that was equal.

The explanations given by Weiss and Marmar (1997) for these results are that the two sleep items are very highly correlated, driving a relationship between them in terms of intrusion and hyperarousal. Regarding the equal relationship of the avoidance item with the avoidance and intrusion subscales, this may have occurred because the presentation of the thought or the reminder invokes intrusion, and the not dealing with it invokes avoidance. A modified version of the IES-R is used. Therefore, no reliability or validity data exist for this new, non-standard measure in the standard IES-R literature. Internal consistency will be used to establish validity for the modified instrument.

*Reliability.* In their study of four different population samples, Weiss and Marmar (1997) reported that the internal consistency of the three subscales was found to be very high, with intrusion alphas ranging from .87 to .92, avoidance alphas ranging from .84 to .86, and hyperarousal alphas ranging from .79 to .90 (Briere, 1997).

Test-retest data were available for two of the samples in the Weiss and Marmar (1997) study. Data from sample 1 (n = 429) yielded the following test-retest correlation coefficients for the subscales: intrusion = .57, avoidance = .51, hyperarousal = .59.

From sample 2 (n = 197) the correlation coefficients were considerably higher: intrusion = .94, avoidance = .89, hyperarousal = .92. It is believed that the shorter interval between assessment and the traumatic event for Sample 2 contributed to the higher coefficients of stability. In this study, a modified version of the IES-R is used. Therefore,

no reliability or validity data exist for this new, non-standard measure in the standard IES-R literature. Inter-item consistency for the sample in this study was calculated using Cronbach’s Alpha.

The version of the Impact of Event Scale – Revised used in this study was altered from the format recommended by the author in that the instrument was administered outside of the timetable established by the authors. Therefore, local reliability values were calculated for the instrument and each of its three subscales utilizing Cronbach’s alpha. Reliability coefficients are presented in Table 3.7

Table 3.7

*Reliability of Impact of Event Scale – Revised Subscales (n=129)*

	September 11		Maryland Tornado	
	Alpha	Standardized Item Alpha	Alpha	Standardized Item Alpha
Avoidance	.75	.78	.70	.76
Intrusion	.74	.76	.89	.89
Hyperarousal	.86	.86	.91	.91

*Additional Items.* An additional battery of demographic questions was posed following the IES-R instrument (Appendix A). These questions addressed gender, race, religion, most recent semester of enrollment at the University of Maryland, and participation in first-year living learning programs. This information provided insight into specific descriptive characteristics of the sample. The selection choices for race and religion are the same as those provided to students on the New Student Census.

Two additional questions addressed the visceral response of what the respondents actually saw on September 11 and the day of the Maryland tornado. Each question

offered respondents a series of five potential scenarios gauging their relationship to the events (Tables 3.8 and 3.9).

Table 3.8

*Personal Experience Response Choices – September 11*

Variable Number	Variable
1	I was in New York City, near the Pentagon, or in Pennsylvania and saw the events unfold in person
2	I was traveling and had my trip interrupted with a mandatory landing of my flight, a stopped train, or the like.
3	I observed the events of the day live on television and knew someone who was involved.
4	I observed the events of the day live on television and did not know anyone involved.
5	I did not see any of the day’s events unfold live. I saw it for the first time by watching the news.

Table 3.9

*Personal Experience Response Choices – Maryland Tornado*

Variable Number	Variable
1	I was on North Campus when the tornado struck and actually saw the funnel cloud from outside of a building.
2	I was on North Campus when the tornado struck and actually saw the funnel cloud from inside of a building.
3	I did not actually see the tornado, but did see the aftermath of overturned cars and flattened trees.
4	I was in College Park, but was unaware that a tornado actually hit campus until I heard the news.
5	I was not in College Park at the time of the tornado.

A panel of seven expert raters, composed of faculty and administrators, were given the individual items and directions to order them ranging from what they considered to be most traumatic to least traumatic. The following tables present their interrater agreement on this ranking of the items (Tables 3.10 and 3.11). Though there

was a disagreement in the September 11 choices, the majority of raters believed that variable two and variable three should be reversed. While variable “I observed the events of the day live on television and knew someone who was Involved” describes a scenario in which respondents watched on television and knew someone involved, the variable I was traveling and had my trip interrupted with a mandatory landing of my flight, a stopped train, or the like” describes a scenario in which the respondent himself or herself was involved. Therefore, the two variables were swapped.

Table 3.10

*Interrater Agreement – September 11*

Variable Number	Rater	Rater	Rater	Rater	Rater	Rater	Rater	Average Rating
1	1	1	1	1	1	1	1	100%
2	2	2	2	3	2	2	3	71.4%
3	3	3	3	2	3	3	2	71.4%
4	4	4	4	4	4	4	4	100%
5	5	5	5	5	5	5	5	100%

Table 3.11

*Interrater Agreement – Maryland Tornado*

Variable Number	Rater	Rater	Rater	Rater	Rater	Rater	Rater	Average Rating
1	1	1	1	1	1	1	1	100%
2	2	2	2	2	2	2	2	100%
3	3	3	3	3	3	3	3	100%
4	4	4	4	4	4	4	4	100%
5	5	5	5	5	5	5	5	100%

## Procedures

The Department of Resident Life provided hall rosters containing specific identifying information of the students who resided in these particular halls during the two semesters of interest. From the total populations, two random samples of first-year students were chosen. One random sample of 300 students was drawn from the Fall 2000 population, and the other from the Fall 2001 population.

The Office of Institutional Research and Planning (OIRP) provided data collected from the members of the Fall 2000 and 2001 random samples from the Beginning Student Survey administered in October 2000 and 2001, respectively, by using a student's randomly assigned UM identification number (UID) as a reference. The UID numbers were transmitted through the authorized administrative personnel of these respective offices. The data from the Beginning Student Survey, when transmitted to the researcher, was coded with UID numbers and student names. Any paper copy or disk containing this data was kept in a locked file cabinet. Analyzing the data collected on this instrument provided information on student involvement, and offered a sense of how students were feeling about their college experience during the month immediately following September 2001.

To measure retention, the Office of the University Registrar provided the first-to-second year enrollment and attrition data of the students chosen from each of the two random samples. This allowed the researcher to know at what point students may have departed from the institution. This accounts for students who were enrolled in Fall 2002 but departed the institution after that semester. Anyone who did not enroll in classes in a semester later than Spring 2002 or Fall 2002 was considered as retained for the

consideration of one-year retention.

The University Registrar also provided a list of current electronic mail addresses for those students from the Fall 2001 sample still enrolled at the University, as well as the last known permanent home addresses for all those students who were not currently enrolled at the University. No electronic mail addresses were available for those non-matriculated students. Using the current electronic mail addresses, an electronic survey was administered to students from the Fall 2001 sample who were still currently enrolled at the University of Maryland during the Spring 2005 semester using the secure University of Maryland web-based survey system administered by the Office of Information Technology (OIT).

The researcher planned to mail a paper and pencil survey to the attention of the parents at the last known permanent address of all those students from the Fall 2001 sample who did not enroll in classes in Fall 2002, or in any later semester prior to Spring 2005. The mailing was to contain a pre-stamped envelope containing the survey materials and an instruction letter (Appendix E). A cover letter was to prompt the parents to re-address the enclosure and send on to their student (Appendix D).

The number of non-enrolled students in Fall 2002 represented a population too small to pursue data collection with. Of the 300 randomly sampled students who completed the Beginning Student Survey in Fall 2001, only five did not return in Fall 2002. Further, the remaining 295 students in the sample appear to have persisted to graduation and are still at the institution. The data was, therefore, not collected.

The survey instrument used in this study contained two sets of the Impact of Event Scale – Revised and a battery of demographic and ancillary questions (Appendix

A). To use the University of Maryland web-based survey system, a participant had to login using his or her UM Directory ID and pin code. The students' UID was automatically tagged to the survey responses as a way to match this data to data from the BSS, but was not stored and was not used to identify the student by name. Participants were informed of this when they are asked to provide informed consent. As survey responses were received electronically, they were stored in a secure electronic file in the Office of Information Technology until such time that the data was matched with the Fall 2001 BSS data by the researcher. Participants were asked to provide their name as the final question of the survey only as means of obtaining the incentive for participating in the survey, an option that could have been declined by the participant if so desired (Appendix I).

The surveys were distributed in early March 2005 and were due back by the middle of the month. Two electronic reminders were sent during this collection time period to encourage students who had not done so to complete the survey (Appendix H). The initial response to the survey garnered 74 responses. The first reminder garnered 39 additional responses. The final reminder garnered 16 responses. Once a participant completed the survey or declined to provide consent, he or she was removed from the electronic mailing list. This was done by comparing the UID numbers on the completed surveys with the listing of names and UID numbers provided with the BSS data.

Incentives were also used to attract a favorable response rate from the survey. All participants who were current students were given the option of providing a mailing address to receive one free pass to the Hoff Theater, the campus movie theater located in the Stamp Student Union. Providing this information also entered all participants into a



drawing, held April 18, 2005, for a \$100.00 gift certificate to Best Buy. All participants who were not currently enrolled, and completed the paper and pencil survey, were to be sent a coupon for a free coffee from Starbucks, and also be entered in the drawing for the Best Buy gift certificate.

## Data Analysis

### *Hypothesis One*

There is no relationship in the retention of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community. In the analysis of this hypothesis, retention was the dependent variable being studied. A comparison was made for the one-year retention of students from the random sample drawn from the Denton community residents in the class entering in Fall 2000 as compared to those from the random sample of Denton Community residents in the class entering in Fall 2001. Chi-square distributions were calculated on the descriptive data, specifically percentages, of those who were retained by year.

### *Hypothesis Two*

There is no relationship in the involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community. In the analysis of this hypothesis, involvement was the dependent variable being studied. A comparison was made with the involvement data obtained through the Beginning Student Survey for the sample of Denton

Community residents in the class entering in Fall 2000 as compared to those Denton Community residents in the class entering in Fall 2001. Involvement was converted to ordinal ranges in the Beginning Student Survey and treated as interval data. Therefore, a one-way ANOVA was calculated with the year serving as the categorical independent variable and the Beginning Student Survey involvement response as the dependent variable.

### *Hypothesis Three*

There is no difference in the level of impact of a traumatic event for first-year students not retained into Fall 2002 than those retained into Fall 2002. In the analysis of this hypothesis, the impact of the traumatic event was to be the independent variable. The dependent variable was to be retention. This hypothesis was to be tested by analyzing differences in the students who were retained, as compared to those students who were not retained there by entering the categorical data of retained or not as the independent variable and using the scales of the IES-R as the dependent variable. Given the presence of three subscales on the Impact of Event Scale – Revised, this comparison was to be conducted by calculating a MANOVA for each of the two traumatic events. If significance was found, a post hoc analysis would be calculated using Tukey’s Honestly Significant Difference test. This is a widely used test that allows for the comparison of all possible pairs.

### *Hypothesis Four*

There is no relationship between level of impact of a traumatic event and involvement for first-year students in Fall 2001. In the analysis of this hypothesis, the level of impact of the traumatic event was the independent variable. The dependent

variable was involvement. This hypothesis was tested by calculating a Pearson R between the level of impact of the traumatic event and involvement.

### Summary

In this chapter, hypotheses were proposed in response to the research questions posed in this study. A sample was drawn, and a methodology was established to test these hypotheses. A plan was devised to analyze the data collected. In Chapter Four, the actual data collected for this study will be presented and analyzed.

## CHAPTER IV - RESULTS

The overall purpose of this study was to determine if traumatic events affect the retention and involvement of first-year students. Primarily, this study sought to determine if there was a difference in the level of retention or involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community. This study also sought to determine if the level of impact of a traumatic event related to retention or involvement. To assess the variables aforementioned, the following hypotheses were tested:

1. There is no difference in the retention of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.
2. There is no difference in the involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.
3. There is no difference in the level of impact of a traumatic event for first-year students not retained into Fall 2002 than those retained into Fall 2002.
4. There is no relationship between level of impact of a traumatic event and involvement for first-year students in Fall 2001.

This chapter presents results of the hypotheses above in response to the proposed research questions. The chapter will begin with a description of the sample population.

The results of the statistical analyses for each hypothesis will be presented thereafter. The chapter will conclude with ancillary analyses, which will help to inform the study.

### Sample Characteristics

The samples for this study consisted of 300 students in Fall 2000 and 300 students in Fall 2001 who attended the University of Maryland, a large, Research I institution in the Middle Atlantic region of the United States. Characteristics of both samples appear in Tables 4.1a and 4.1b. Both samples appear to be similar in gender and race.

Table 4.1a

*Characteristics of the Fall 2000 and Fall 2001 Samples*

Year	N	Male (%)	Female (%)	Retained Into Second Year (%)
2000	300	170 (57%)	130 (43%)	271 (90%)
2001	300	157 (52%)	143 (48%)	295 (98%)

Table 4.1b

*Racial Characteristics of the Fall 2000 and Fall 2001 Samples*

Racial Group	2000 (%)	2001 (%)
Native American	03 (1%)	01 (1%)
African American/Black	24 (8%)	31 (10%)
Asian/Pacific Islander	40 (13%)	31 (10%)
Latino/a or Hispanic	10 (3%)	09 (3%)
White/Caucasian	215 (72%)	219 (73%)
Race Not Included	08 (3%)	09 (3%)

## Findings

This study sought to determine if there was a difference in the level of retention or involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community. This study also sought to determine if the level of impact of a traumatic event related to retention or involvement. Findings will be presented for each hypothesis.

*Hypothesis One:* There is no difference in the retention of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.

*Result One:* The chi-square test found there to be a significant difference in retention based upon year. Therefore, the null hypothesis was rejected (Table 4.2). Examining the crosstabulation table, the standard residual for those students who withdrew in the year 2000 is greater than the critical value of 1.96 associated with the level of significance of 0.05. Therefore, significantly more students withdrew from the Fall 2000 sample than did the Fall 2001 sample.

Table 4.2

*Chi-Square Results: Percentage of Students Retained From First-to-Second Year in a Fall 2000 (n = 300) and Fall 2001 (n = 300) Samples*

	Total Percent Retained (N)	Total Percent Not Retained (N)	$\chi^2$ (df) =
2000	90.0% (271)	10.0% (29)	17.96 (1)
2001	98.0% (295)	2.0% (5)	

*Hypothesis Two:* There is no difference in the involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.

*Result Two:* The one-way analysis of variance (ANOVA) was conducted to explore the level of involvement of students based upon their class standing in Fall 2000 or Fall 2001. Subjects chose from five interval ranges of hours of involvement. These intervals were coded 0-4 and treated as interval data. This frequency data is presented in Table 4.3. There was no significant difference in involvement based upon year. Therefore, we fail to reject the null hypothesis (Table 4.4).

Table 4.3

*Overall Involvement of Denton Community Students in Fall 2000 (n=300) and Fall 2001(n=300) as Self-Reported on the UM Beginning Student Survey*

Intervals	2000	Percentage	2001	Percentage
0 Hours	91	15.2	84	14.0
1-10	174	29.0	184	30.7
11-20	27	4.5	21	3.5
21-30	6	1.0	8	1.3
More Than 30	2	0.3	3	0.5

Table 4.4

*One-Way Analysis of Variance with Means and Standard Deviations for Involvement of Denton Community Students in Fall 2000 (n=300) and Fall 2001(n=300)*

Year	Mean (SD)	F Statistic (df)	Sig.
2000	.87 (.73)	.204 (1, 598)	.651
2001	.85 (.72)		

*Hypothesis Three:* There is no difference in the level of impact of a traumatic event for first-year students not retained into Fall 2002 than those retained into Fall 2002.

*Analysis Three:* Because there were too few students ( $n = 5$ ) who were not retained into the Fall 2002 semester, this hypothesis was not tested. Of the 295 remaining students in the sample, the entire sample had electronic mail addresses on file with the University and were sent the survey instrument.

The characteristics of this sample help understand this group of fourth year students still enrolled who completed the survey. Of those 295 retained students surveyed from Fall 2001 sample, 285 received the on-line survey. Ten students never received the survey, as their electronic mail messages were returned to the researcher in error. In all, 129 students completed the on-line survey, yielding a sample size of  $n=129$  (44%).

Tables 4.5a through 4.5c represent a demographic profile of those students who participated in traumatic events portions of this study. Of those returning surveys, 57 students were male (44.20%), while the remaining 71 students were female (55.0%). One student identified as transgender (0.80%). Respondents' ages varied from 20 to 22 years of age (Mean = 21), showing that the sample consisted of traditional-aged college students (Table 4.5a). Male students are slightly underrepresented in the respondent sample as compared to the total population, while female students are sampled at a higher rate.



Table 4.5a

*Demographic Profile of Respondents by Gender and Age (n=129)*

	Sample Frequency	Sample Percentage	Cumulative Percentage
<b>Gender</b>			
Male	57	44.20	44.20
Female	71	55.00	99.20
Transgender	01	0.80	100.00
<b>Age</b>			
20	02	1.60	1.60
21	82	63.60	65.10
22	44	34.10	99.20
23	01	0.80	100.00
24	00	00.00	100.00
Other	00	00.00	100.00

Racially, 100 White students represent a majority of the sample (77.50%), while the remainder is represented by five African-American/Black (3.90%), 14 Asian-American/Pacific Islander (10.90%), one Latino(a)/Hispanic (0.80%), three biracial or multiracial (2.30%), and no Native American students. One student indicated that his or her race was not included in the listing. Five students (3.90%) chose multiple races, but did not identify as biracial or multiracial (Table 4.5b).

Table 4.5b

*Demographic Profile of Respondents by Race (n=129)*

	Sample Frequency	Sample Percentage	Cumulative Percentage
Native American	00	0.00	0.00
African American/Black	05	3.90	3.90
Asian/Pacific Islander	14	10.90	14.70
Latino/a or Hispanic	01	0.80	15.50
White/Caucasian	100	77.50	93.00
Multiracial/ Biracial	03	2.30	95.30
Race Not Included	01	0.80	96.10
Multiple Selections	05	3.90	100.00

The sample consisted of students from a variety of religious denominations. In the majority were 36 students (27.90%) who indicated that they did not practice a religion, while 29 students (22.50%) practiced Roman Catholicism, 26 students (20.20%) practiced Protestantism, 26 student (20.20%) practiced Judaism, 11 students (8.50%) practiced a religion not listed, and one student (0.80%) practiced a combination of religions (Table 4.5c).

Table 4.5c

*Demographic Profile of Respondents by Religion (n=129)*

	Sample Frequency	Sample Percentage	Cumulative Percentage
Roman Catholicism	29	22.50	22.50
Protestantism	26	20.20	42.60
Judaism	26	20.20	62.80
None	36	27.90	90.70
The Religion I Practice Is Not Listed	11	8.50	99.20
Multiple Selections	01	0.80	100.00

Of those 129 students who responded to the survey instrument, 114 (88.4%) report being currently enrolled as of Spring 2005. An additional six students (4.7%) report that Fall 2004 was their last semester of enrollment, possibly because they graduated from the University earlier than their classmates given the option of a mid-year commencement. Eight students (6.2%) report that Fall 2001 was their last semester of enrollment. However, the University Registrar indicated that they were enrolled in Fall 2002. Therefore, this data was taken to be an error on the part of the respondents. One student (0.8%) reported that Spring 2004 was his or her last semester of enrollment.

Descriptive statistics for each of the three subscales of the IES-R for each of the two traumatic events used in this study (Table 4.6) were gathered from the group of students who persisted past the Fall 2002 semester. This descriptive data is interesting in understanding the role of trauma on those who did persisted past the first year. The mean represents the average score that a respondent received on that subscale of the IES-R

instrument. When scoring the instrument, mean scores close to zero indicate little to no traumatic effect, close to one indicate a little traumatic effect, close to two indicate a moderate traumatic effect, close to three indicate quite a bit of traumatic effect, and close to four indicate an extreme traumatic effect.

Table 4.6

*Descriptive Statistics for the Impact of Event Scale – Revised Subscales (n=129)*

Subscale	September 11 Mean (SD)	Maryland Tornado Mean (SD)
Avoidance	.98 (.58)	.56 (.49)
Intrusion	1.20 (.70)	1.10 (.89)
Hyperarousal	.73 (.59)	.60 (.79)

*Hypothesis Four:* There is no relationship between level of impact of a traumatic event and involvement for first-year students in Fall 2001.

*Analysis Four:* In calculating a Pearson R correlation, there are no significant ties between involvement and the level of impact of a traumatic event based upon individualized mean scores for each of the three subscales of the IES-R for each traumatic event used in this study. Therefore, we fail to reject the null hypothesis (Tables 4.7 and 4.8). However, the three subscales of the IES-R were correlated. While the psychometrics of the instrument speak to the correlation of items to their respective subscales with factor loading between other subscales, the differences in the level of correlation between September 11 and the Maryland tornado is notable. The correlations are greater for the tornado, possibly because of the intense personal experience of living the traumatic event in person as opposed to through third party sources.

Table 4.7

*Pearson R Correlation of Involvement with IES-R Subscale Means – September 11  
(n=129)*

Variables	Involvement	Avoidance	Intrusion	Hyperarousal
Involvement	1.00			
Avoidance	.100	1.00		
Intrusion	.145	.227**	1.00	
Hyperarousal	.096	.193*	.775**	1.00

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Table 4.8

*Pearson R Correlation of Involvement with IES-R Subscale Means – Maryland Tornado  
(n=129)*

Variables	Involvement	Avoidance	Intrusion	Hyperarousal
Involvement	1.00			
Avoidance	.111	1.00		
Intrusion	.026	.580**	1.00	
Hyperarousal	-.081	.545**	.819**	1.00

\*\* Correlation is significant at the 0.01 level (2-tailed)

### Additional Analyses

Two additional questions on the survey instrument addressed the visceral response of what the respondents actually saw on September 11 and the day of the Maryland tornado. Each question offered respondents a series of five potential scenarios gauging their personal experience in relation to the traumatic events. Correlating these responses with involvement and IES-R mean subscale scores allows us to see if the visceral response to a traumatic event plays a role in determining how involved a student would be and how affected a student would be traumatically.

Table 4.9

*Frequency Distribution of Personal Experience Responses – September 11*

<u>Variables</u>	<u>Frequency</u>	<u>Percent</u>
I was in New York City, near the Pentagon, or in Pennsylvania and saw the events unfold in person	0	0.0%
I was traveling and had my trip interrupted with a mandatory landing of my flight, a stopped train, or the like.	0	0.0%
I observed the events of the day live on television and knew someone who was involved.	49	38.0%
I observed the events of the day live on television and did not know anyone involved.	53	41.1%
I did not see any of the day's events unfold live. I saw it for the first time by watching the news.	24	18.6%
<u>Multiple selections</u>	<u>3</u>	<u>2.3%</u>

Table 4.10

*Frequency Distribution of Personal Experience Responses – Maryland Tornado*

<u>Variables</u>	<u>Frequency</u>	<u>Percent</u>
I was on North Campus when the tornado struck and actually saw the funnel cloud from outside of a building.	14	10.9%
I was on North Campus when the tornado struck and actually saw the funnel cloud from inside of a building.	83	64.3%
I did not actually see the tornado, but did see the aftermath of overturned cars and flattened trees.	23	17.8%
I was in College Park, but was unaware that a tornado actually hit campus until I heard the news.	0	0.0%
I was not in College Park at the time of the tornado.	0	0.0%
<u>Multiple Selections</u>	<u>9</u>	<u>7.0%</u>

Table 4.11

*Pearson R Correlation of Involvement with Personal Experience – September 11 (n=129)*

Variables	Mean (SD)	Involvement	Personal Experience
Involvement	.84 (.69)	1.00	.008
Personal Experience	2.47 (1.24)	.008	1.00

Table 4.12

*Pearson R Correlation of Involvement with Personal Experience – Maryland Tornado (n=129)*

Variables	Mean (SD)	Involvement	Personal Experience
Involvement	.84 (.69)	1.00	.063
Personal Experience	1.35 (1.14)	.063	1.00

Table 4.13

*Pearson R Correlation of Personal Experience with IES-R Subscales– September 11 (n=129)*

Variables	Personal Exp.	Avoidance	Intrusion	Hyperarousal
Personal Experience	1.00			
Avoidance	-.103	1.00		
Intrusion	-.172	.227**	1.00	
Hyperarousal	-.155	.193*	.775**	1.00

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Table 4.14

*Pearson R Correlation of Personal Experience with IES-R Subscales– Maryland Tornado (n=129)*

<u>Variables</u>	<u>Personal Exp.</u>	<u>Avoidance</u>	<u>Intrusion</u>	<u>Hyperarousal</u>
Personal Experience	1.00			
Avoidance	-.103	1.00		
Intrusion	-.162	.580**	1.00	
Hyperarousal	-.110	.545**	.819**	1.00

\*\* Correlation is significant at the 0.01 level (2-tailed)

The significantly large correlation between the Intrusion and Hyperarousal subscales suggests that the two subscales may be measuring the same construct. The IES-R differs from the original IES instrument in that the IES had no items measuring Hyperarousal. In the process of altering the instrument, some of the new questions are very similar to existing questions. While the subscales measure different aspects of PTSD, they seem to be highly redundant. Given the data presented there is no significant relationship between level of personal experience with either traumatic event and level of trauma response. Likewise, there is no relationship between involvement and level of personal experience with either traumatic event.

Given this large correlation between subscales, additional analyses were conducted on the IES-R data. While the IES-R is scored by taking the average of each subscale, the original IES instrument is scored by taking the total sum of all questions. The total sum of all questions of the IES-R was calculated for each respondent and correlated with involvement and personal experience to determine if there was significance (Tables 4.15, 4.16, 4.17 and 4.18).



Table 4.15

*Pearson R Correlation of Involvement with IES-R Total Scale– September 11 (n=129)*

Variables	Mean (SD)	Involvement	IES-R Score
Involvement	.84 (.69)	1.00	
IES-R Score	21.74 (10.7)	.161	1.00

Table 4.16

*Pearson R Correlation of Involvement with IES-R Total Scale– Maryland Tornado (n=129)*

Variables	Mean (SD)	Involvement	IES-R Score
Involvement	.84 (.69)	1.00	
IES-R Score	16.83 (14.03)	.017	1.00

Table 4.17

*Pearson R Correlation of Personal Experience with IES-R Total Scale– September 11 (n=129)*

Variables	Mean (SD)	Personal Exp.	IES-R Score
Personal Experience	2.47 (1.23)	1.00	
IES-R Score	21.74 (10.7)	-.198*	1.00

\* Significant to the .05 level (2-tailed)

Table 4.18

*Pearson R Correlation of Personal Experience with IES-R Total Scale– Maryland Tornado (n=129)*

Variables	Mean (SD)	Personal Exp.	IES-R Score
Personal Experience	1.35 (1.14)	1.00	
IES-R Score	16.83 (14.03)	-.151	1.00

Utilizing this alternate form of analyses, no significant correlation exists between involvement and the traumatic impact of September 11 or the Maryland tornado. Similarly, no significant correlation exists between the traumatic impact of the Maryland tornado and the lived personal experiences of the subject. A slight negative correlation exists between the traumatic impact of September 11 and the lived personal experiences of the subjects. This signals that, while subjects lived through less traumatic scenarios, they still experienced an increasingly greater traumatic impact. However, the low level of the correlation makes it not meaningful, although significant. Observing the frequency distribution (Table 4.9), no students report experiencing the two most traumatic scenarios, while 78% of students surveyed report viewing the events of the terrorist attack live on television. While this was not the most traumatic option to choose from, this data provides evidence that students viewing large-scale traumatic events through a third-party medium may still experience significant levels of traumatic impact.

## CHAPTER V – DISCUSSION

This study examined if traumatic events affected the retention and involvement of first-year students. The study sought to determine if there was a difference in the level of retention or involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community. This study also sought to determine if the level of impact of a traumatic event related to retention or involvement.

A review of literature of involvement and retention theories led the researcher to formulate the following hypotheses:

1. There is no difference in the retention of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.
2. There is no difference in the involvement of first-year students from the University of Maryland entering class in Fall 2000 who resided in the Denton Community as compared to first-year students from the entering class in Fall 2001 who also resided in the Denton Community.
3. There is no difference in the level of impact of a traumatic event for first-year students not retained into Fall 2002 than those retained into Fall 2002.
4. There is no relationship between level of impact of a traumatic event and involvement for first-year students in Fall 2001.

Two random samples of students residing in the same residence hall community in Fall 2000 and Fall 2001 were examined. In addition, an on-line survey consisting of two sets of the Impact of Event Scale – Revised (Weiss & Marmar, 1997) instrument and seven demographic questions was made available to a random sample of 300 students who resided in the Denton Community in Fall 2001. The survey was distributed to 295 of those students still on campus, though 10 students did not receive the electronic mail notification. One hundred twenty nine of the 300 completed the survey. Due to the IES-R being administered outside of its recommended time frame of seven days after a traumatic event, reliability tests were conducted.

This chapter provides a discussion of the findings with regard to the research questions presented in the previous chapter. After a discussion of the researcher's insight, limitations associated with the study, implications for practice, and suggestions for future research will be presented.

## Discussion of Findings

### *Retention*

Statistical analysis showed that those students residing in the Denton Community in Fall 2001 were retained at a significantly higher rate than those residing in the Denton Community in Fall 2000. This pattern is consistent with University-wide data. University data shows that approximately 91.2% of first-time first-year students from Fall 2000 were retained into their sophomore year (Office of Institutional Research & Planning, 2005). Approximately 91.7% of first-time, first-year students from Fall 2001 were retained into their sophomore year (Office of Institutional Research & Planning).

This data shows that the traumatic events of Fall 2001 seemingly had no adverse

affect on retention. Indeed, student persistence increased. As noted in the review of literature, some people experience large amount of personal growth following a traumatic event. It is possible that the students who were party to the September 11 terrorist attacks and the Maryland tornado in Fall 2001 experienced such growth. This growth might have been both personal growth leading to goal clarity and focus, as well as growth in community bonding and community identification. The growth may have brought the students closer together, creating last bonds and community as opposed to fear and desire to separate or retreat. An extended discussion of how student development theories might inform this higher retention in the face of trauma is included later in this chapter.

Posttraumatic growth is set in motion by the same sets of events that produce psychological distress and that can place an individual at increased risk for psychological difficulties. This growth begins after an individual experiences what constitutes an event of “seismic” proportions (Calhoun, 1996; Calhoun & Tedeschi, 1998). The circumstances which the individual has had to face must have been capable of at least shaking the foundations of the individual's assumptive world, and in some instances some shattering of fundamental assumptions may have occurred (Janoff-Bulman, 1992). Both the terrorist attacks of September 11 and the Maryland tornado would qualify.

The traumatic set of circumstances typically causes high degrees of psychological discomfort and a major invalidation, or at least major disruption, of important cognitive elements. The trauma typically lead to a questioning and reevaluation of many important assumptions previously held. It is in the reevaluation, modification, or rebuilding of one's general assumptions about, and views of, the world that posttraumatic growth may be most readily addressed. Precisely because of the violation of fundamental assumptions

that have provided structure and meaning to life, both distress and growth coexisted in persons in the aftermath of trauma. This adversity may push students to develop emotionally, psychosocially, and cognitively at a faster rate. For those students who cannot overcome the adversity alone, the experience may force them to become interdependent and seek out support networks – even at a time when they are not yet comfortable in their setting, such as when they are a new student in the first year of college. It is possible that the residents of the Denton Community underwent this growth in the aftermath of the traumatic events of the Fall of 2001.

Two major questions arose from current literature regarding length of time and PTG. The first involved whether PTG occurs gradually or abruptly. Determining whether the transformations associated with PTG occur gradually or abruptly was difficult, because there is little research on this topic (Tedeschi et al., 1998). Using the Fall 2001 sample from this study, it would seem that posttraumatic growth may happen abruptly given that a large percentage of students were retained into their second year at the University of Maryland.

Somewhat related to the first, the second question has to do with the course of PTG over time. Tedeschi et al. (1998) said that:

Most often, PTG is the outcome of a developmental process that follows an initial stage of emotional distress and disorganization. Months or years of struggle may ensue before divorced or chronically ill people or disaster survivors find meaning in their plight and grow from their experiences. (p. 199)

While it may appear that the students from Denton Community experienced

posttraumatic growth, as evidenced by their retention, these students may still have been undergoing extreme emotional and psychological distress. While retention does not automatically become the equivalent to growth, it is an indicator that signals that growth may have occurred.

Tinto (1986) noted that student departure may be influenced by organizational dimensions of institutions. After September 11, the University Counseling Center played a visible role on campus. Clear support systems were set into place that let students know that assistance was present. It is possible that this awareness led to more students utilizing counseling and support services, thereby increasing the likelihood of positive adjustment. Positive adjustment may lead to satisfaction and, therefore, greater levels of retention (Banyard & Cantor, 2004; Turner & Butler, 2003; Turner & Lloyd, 1995).

### *Involvement*

Statistical analysis showed that those students residing in the Denton Community in Fall 2001 were involved at the same rate as those residing in the Denton Community in Fall 2000. Astin (1984) provides a theoretical basis linking active involvement to positive adjustment and retention.

Data collected from students in Fall 2001 asked students to indicate how many hours per week they participated in organized student activities. The question neglected to ask about both informal activities on campus, such as socializing with other students, and involvement with off-campus activities, such as civic or religious organizations.

### *Impact of Events*

Examining the mean scores on the Impact of Event Scale – Revised for each of

the three subscales, for both September 11 and the Maryland tornado, it is apparent that all scores are clustered around 1.0, which represents that respondents felt a little bit disturbed by the traumatic events. This provides insight that students did feel some level of impact as a result of the traumatic events. Respondents scored the Intrusion subscale highest for both traumatic events. This indicates that students thought about the incidents when they did not mean to, always coming back to the visual and sensory images in day dreams, while sleeping, and while performing everyday activities. Respondents scored high on the Avoidance subscale in reference to September 11. This indicates that students attempted to pretend like the terrorist attack never happened, as if it were a bad dream or a fictional event. This could be evidenced by students attempting to live life as if nothing had changed in the nation and world. It must be noted that this data came from those students who are still enrolled in their fourth year; these students may have had a different adjustment pattern than those who were retained into Fall 2002, but who are currently no longer enrolled and, therefore, were not surveyed.

#### *Involvement and the Intersection of the Impact of Traumatic Events*

When correlating the level of student involvement with the individual mean scores for the three subscales of the Impact of Event Scale – Revised, there was no correlation between involvement and any subscale measures of traumatic events.

However, it is evident that there is a high level of correlation between the subscales. In reference to September 11, the correlation between the intrusion and avoidance subscales is highly significant at the 0.01 level, as is the correlation between the intrusion and hyperarousal subscales. Hyperarousal and avoidance are also significantly correlated at the 0.05 level. This may mean that as students are faced



consistently with images of September 11, they actively work to avoid and escape those thoughts. Similarly, the correlation between intrusion and hyperarousal means that as the images of the terrorist attacks were conjured up, strong emotions and physical reactions, some of which may have been debilitating, were caused.

In relation to the Maryland tornado, similar correlations appear between intrusion and avoidance, intrusion and hyperarousal, and hyperarousal and avoidance, all significant at the 0.01 level. This signals that similar reactions are bound to occur. As images of the tornado protrude, those experiencing the traumatic event are likely to avoid confronting the emotion and reality. The subscales for this traumatic event were correlated at a much greater level than those for September 11. This may be due, in part, to the personal experience respondents had with the tornado as opposed to the more third party experience most respondents had on September 11.

When the method of analysis is altered and the total IES-R score is analyzed, little significant correlation between involvement and traumatic impact is found. Similarly, little significant correlation is found between the Maryland tornado and the lived personal experience of the subjects. However, a slightly significant negative correlation is found between the traumatic impact of September 11 and the lived personal experience of the subjects. This signals that as subjects experienced less traumatic scenarios, their level of traumatic impact continued to grow. Observing the frequency distribution (Table 4.9), 78% of students surveyed report viewing the events of the terrorist attack live on television. While this was not the most traumatic option to choose from, this data provides evidence that students viewing large-scale traumatic events through a third-party medium may still experience significant levels of traumatic impact.

## Limitations of the Study

An effort to expand the body of literature about trauma and its relationship to retention and involvement has its benefits and challenges. The benefit of such a study is that it is likely to yield new information and be a catalyst for future research. The challenge of taking on research of any kind is that there are no prior studies to replicate. Therefore, anticipating limitations and controlling or minimizing their impact on the front-end of the study is more difficult. This study included several limitations that will be addressed in this section.

*Technological Limitations.* Only 129 (43.0%) of the 295 students randomly selected from the Fall 2001 Denton Community population who were retained to Fall 2002 responded back to the on-line survey. While college students are using technology at an increasing rate, many are still unwilling to complete a survey. Students may have disregarded the initial e-mail message, as well as the two reminder messages, believing that they were unsolicited junk mail. Other students may have received the e-mails and attempted to log into the survey instrument. However, if a student did not know his or her UM Directory ID and password, he or she would not have been able to complete the instrument. While the survey instrument was available for two weeks, the middle of March contains both Spring Break and the mid-term examinations for many classes. Some participants may not have had the time to complete the survey.

*No Contact Information.* In collecting data, it was the intent of the researcher to contact those students who were no longer enrolled at the University of Maryland to administer the IES-R instrument via paper copy both to those who were not retained in Fall 2002 and to those retained that semester but not subsequently. The random sample of

300 students from Fall 2001 proved to have a very high persistence rate with 295 students still enrolled making this analysis difficult. Further, the Office of Institutional Research and Planning and the Department of Resident Life were unable to provide the researcher with all of the information necessary to distribute these surveys. The collaboration of so many University offices slowed this process and made certain parts of data collection difficult to accomplish in a short time frame.

*Small category.* Even if the researcher could have obtained contact information for those who were not retained into Fall 2002, there were only 5 individuals in that category making it not statistically wise to pursue.

*Generalizability* While this study helped to better understand how college students are affected by trauma, it is important to note that not all college students across the nation felt the same traumatic impact of the September 11 terrorist attacks. Colleges outside of the New York City or metropolitan Washington, DC area are likely to have felt less of a direct impact than those with students residing near the incident sites in New York, Virginia, Maryland, or the District of Columbia. (Blanchard et al., 2003).

It should also be noted that not every student at the University of Maryland was equally effected by September 11 and the tornado that struck North Campus. In fact, students living on South Campus did not even know that a tornado hit until news spread. Further, not every student who resided on North Campus may have been affected equally. The narrative hypothesis of Neisser, Winograd, Bergman, Schreiber, Palmer, and Weldon et al. (1996) is corroborated by a recent study by Pezdek (2003) that people more involved in a stressful event remember their experiences better than people less involved in the event.

*Time Delay from Time of Event.* The possibility existed that students may have had very distorted memories of the traumatic events of September 11<sup>th</sup> and the Maryland tornado. Brown and Kulik (1977) developed a hypothesis about flashbulb memories that attempts to explain why people vividly remember a momentous event. They argue for a three-stage process: “First comes the recognition of high novelty or unexpectedness; then comes a test for biological meaning for the individual; if this second test is met, there follows the permanent registration not only of the significant novelty, but of all recent brain events” (p. 76).

While many researchers have found this process to hold true, some researchers argue that flashbulb memories for the most emotional events are subject to reconstructive error. McCloskey, Wibble, and Cohen (1988) found this to be true with memories of the *Challenger* space shuttle explosion. Details were inconsistent over time and subject to error. Winningham, Hyman, and Dinnel (2000) reported that consistency in autobiographical reports increased as the delay between the event and an initial report of the memory increased. Therefore, higher levels of consistency reported in some studies of flashbulb memories may be a result of a long initial delay between the event and the first autobiographical report, rather than from the veracity of the initial report.

*Other Limitations.* Some of the empirical data presented in this thesis is based on studies conducted by researchers on the effect of trauma on adult samples. While a body of literature exists on the impact of trauma on college students, the lack of literature on this topic has required a more broadly based review of the literature.

This thesis set out to determine if the compounded effect of the large-scale traumatic incidents in the Fall of 2001 made a difference in first-year student retention

and involvement. However, many traumatic events that are completely unrelated to September 11 and the Maryland tornado may have had an impact on students as well. Death, illness, abuse, assault, and the loss of a close relationship are also stressful life events, making it difficult to directly link only two major events as the cause for retention and involvement levels. However, a careful effort to single out students' feelings and memories from the major traumatic events helped to overcome this obstacle.

The results of this thesis may assist student affairs practitioners in better understanding how large-scale traumas could potentially affect a student population. However, looking only at students who felt two large-scale traumas can give an insufficient representation from which to draw generalizations. The study assumed that other normal traumas, or factors influencing retention and involvement, would be the same for Fall 2000 and Fall 2001 first-year students aside from these two major events, so the Fall 2000 sample could serve as a comparison group.

#### Drawing Connections to Student Development Theory

The researcher does not seek to draw inferences that exceed the findings. However, the fact that there was significantly higher persistence for those from Fall 2001 than the previous Fall experience is exceptionally interesting noting the resilience of these students experiencing both the events of September 11 and the tornado. It is likely that these first-year students were in earlier stages of each of the theories presented below. The more complex stages are also presented and discussed in terms of the possible role of experiencing a trauma and those developmental dimensions.

Drawing upon examples from research, it is evident in many aspects that

traumatic events have a deep impact on college student development. It is important to note that little research and literature exists in supporting the existence of these connections. Some inferences are drawn in an effort to connect the general psychological literature written on this topic to the college student population. While some episodic research may exist on narrow topics, such as date rape, it is expected that more concrete research will be conducted on the impact of trauma on college students and their development, particularly in the aftermath of September 11, 2001.

#### *Chickering's Theory of Identity Development*

Students affected by traumatic events may encounter problems in their psychosocial development. The theory of student development most pertinent to this level of development is Chickering's Theory of Identity Development. Addressing psychosocial development, this theory is comprised of seven ordered vectors through which students sequentially pass (Chickering & Reisser, 1993). These vectors address the following aspects of development: developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity. Trauma has a unique impact on most of these vectors.

Vector two, managing emotions, is intrinsically tied to trauma. By definition, trauma is something shocking that is likely to stir up difficult emotions. For a college student, coping with a death or personal violation, such as rape, is emotionally taxing. Feelings ranging from anger and hate to sadness and depression will likely be present, and are difficult to manage. Similar emotions may appear in coping with September 11 and the Maryland tornado. However, those trauma survivors who experience

posttraumatic growth may be much more attune to their emotions, and may be able to offer insightful perspectives into how they feel. While this process may take a longer time for some survivors than others, many college students find comfort in support networks, such as friends, administrators, faculty, and counseling centers that assist them in better understanding their emotions so they can be better managed.

The third vector, moving through autonomy toward interdependence is affected by posttraumatic growth in the second of Calhoun and Tedeschi's categories for growth – changes in interpersonal relationships. After experiencing a trauma, those survivors who experience positive growth become emotionally expressive, and recognize their interdependence and interconnection with others (Tedeschi et al., 1998). This is complicated by a number of assumptions, particularly that the survivor was not already interdependent prior to experiencing a trauma, and that the trauma is what forced a move from autonomy toward interdependence. However, positive posttraumatic growth is a catalyst for the recognition of interdependence. In the days following September 11, many communities of students came together on the Maryland campus to mourn. This is a tangible example of students recognizing their connectedness to others. Community coping events such as this may also have drawn students closer together with their new peer group, creating bonds that strengthened peer group interaction, leading to higher levels of retention from first-to-second year.

Vector four, developing mature interpersonal relationships, is also affected by posttraumatic growth in the growth category – changes in interpersonal relationships. After a trauma, survivors are more willing to open up to people, and are likely to seek out the support of others. The relationships that are built are not meant to be superficial, but

are meant to be emotionally expressive and a safe space to disclose important personal information. Many of the same support networks used to help college students manage their emotions could be applied this in vector. Overall, survivors of posttraumatic growth may find it easier to develop mature interpersonal relationships.

The fifth vector, establishing identity, is one of the most critical of all seven vectors. The impacts of trauma can vary depending upon when the event occurs in a person's life cycle, as "crises that occur during adulthood will be a threat to an already established identity, whereas those experienced during childhood are more likely to be integrated into an identity that is then carried throughout life" (Tedeschi & Calhoun, 1995, p. 18). Tedeschi and Calhoun contend that experiencing trauma at a younger age means suffering potentially less psychological damage than experiencing trauma as an adult. Chickering's theory is stage-based, assuming that one must pass through each developmental vector in sequence, completing one before moving into another. If this is true, the impact of trauma on a college student could negatively affect an established identity, if one exists. However, many adults face trauma, like the death of a loved one or a natural disaster, and are able to function and maintain an identity in the aftermath. These identities may be similar in some ways, but may also exhibit growth given the situation at hand. Therefore, the data presented here serves as evidence of the possibility that people can recycle back through vectors at various points in life and re-negotiate portions of previously completed psychosocial development. Chickering's theory does not currently address how people would recycle back through vectors, despite the fact that current research contends that people re-develop competence and re-establish identity at many points in life. No known theory, however, addresses the impact trauma



has on this re-negotiation of identity, or any of the other vectors of psychosocial development for that matter.

Further, since traumatic incidents often influence identity development, particularly in adolescence and early adulthood, this serves as evidence that environmental and external factors can play an instrumental role in psychosocial development, presumably at any age and stage. Chickering's theory does not currently take into account environmental factors at any point in the vectors and, therefore, inadequately addresses how traumatic incidents impact identity development.

#### *Perry's Theory of Intellectual and Ethical Development*

Students affected by traumatic events may encounter problems in their cognitive development as well. The theory of student development most pertinent to this level of development is Perry's Theory of Intellectual and Ethical Development. Perry's theory describes nine positions, with cognitive development occurring during the transitions between positions (Perry, 1981). While Perry describes each position with precise detail, a simplified summary is useful. The earliest position is described as Dualism, in which the student tends to think in terms of dichotomy (i.e. right vs. wrong or good vs. bad). Students rely on experts or an authority to tell them what is right. The transition away from Dualism occurs as the learner realizes that experts disagree or are uncertain. The next three positions are various stages of Multiplicity, in which various answers or opinions are considered to be equally valid. Peers become sources of knowledge, in addition to the instructor or authority. Gradually, students shift their understanding of learning from memorizing the "right" answers from the teacher, to learning to think critically for themselves. The transition away from Multiplicity occurs as the learner

realizes that not all opinions are equally valid. The next positions are considered “Relativism,” in which the learner recognizes that some points of view have better evidence or more reasonable arguments than others.

Student development in this model happens in the transitions between positions. As students are presented with situations that do not conform to their current way of thinking, they must either integrate the new information into their existing thought structure, or modify their way of thinking to accommodate the new situation. This latter accommodation leads to development in the next position. While it is an assumption of the theory that students move through the positions in order, one at a time, the speed of that movement may vary, and, at certain points, students facing an entirely new context may hold at one position or even retreat back a position temporarily (Evans, Forney, & Guido-DiBrito, 1998).

Therefore, when a student experiences a trauma, they are confronted with a situation that, likely, does not conform to their current way of thinking. Therefore, they must integrate the new information into their existing thought structure. The inability to do this may stagnate cognitive growth, causing a student to hold at a position, or possible retreat back temporarily. After September 11, many students who were Multiplistic or Relativistic retreated back to Dualism, looking for direction and guidance from authorities ranging from national leaders to resident assistants. In an uncertain time, students wanted to be told what to do in order to be safe. Over time, many students returned to their advanced positions of cognitive growth. However, this is not to say that another traumatic event could not stimulate a similar response.

## Practical Applications for Student Affairs Practitioners Encouraging Growth

The available evidence is sketchy, at best, on the degree to which clinicians can influence posttraumatic growth in the client (Tedeschi & Calhoun, 1995). Therefore, there is even less evidence on the degree to which student affairs practitioners can promote positive posttraumatic growth in student trauma survivors. As is to be expected, there are limits to the amount of change that can occur as a result of clinical interventions of any kind (Mahoney, 1991). The same would hold true for any intervention initiated by a student affairs professional. Using application models originally designed for clinicians, it is possible to attempt to identify practical applications for student affairs practitioners who are seeking to encourage posttraumatic growth in students to promote involvement and retention.

All interventions must work within the client's belief system (Calhoun & Tedeschi, 1998). Such interventions should show sensitivity to cultural nuances that are likely to include existential or spiritual dimensions. Many student affairs professionals may be uncomfortable when students focus on spiritual themes or explicitly religious matters (Shafranske & Malony, 1990). Spiritual schemas can permit the creation of meaning for traumatic events (Pargament, 1990), and they can also provide unique avenues for the student's psychological growth. In a sample of students in the southeastern United States who had experienced major traumatic events, such as robbery and rape, a significant majority described how a positive consequence of their struggle with difficult circumstances was that their religious beliefs had become more important or stronger for them (Calhoun, Tedeschi, & Lincourt, 1992).

The available data on posttraumatic growth indicate clearly that for many

individuals, positive changes are identified in this existential or spiritual domain (Tedeschi & Calhoun, 1995). To encourage growth in these students, practitioners not only must feel comfortable dealing with these matters, but also must be capable of actively engaging the person who perceives growth occurring in this area. Administrators must have the flexibility to tolerate the questioning, doubt, and change in spirituality and religion as the survivor of the trauma moves beyond an old belief system to a revised one. The practitioner may be working within an evolving belief system, and may not have any sense of what the final version may be. The lack of direction may be disorienting and disheartening. The clinician, or in this case administrator, has been characterized as a “midwife” in this process (Vaughan, Wittine, & Walsh, 1996). This role suggests a supportive expert who respects the survivor's ability to manage the difficult process naturally. Understanding what resources are available on campus, such as the board of chaplains, may make this process easier, and may offer critical support to the practitioner in their difficult role, in addition to being an additional resource for students.

From a student affairs perspective, it seems desirable to support a student's perception that he or she is now a different and better person, even if the individual has not measurably altered observable behavior. The nature of our profession is such that we may only see a student for a short period of time, and are unable to truly observe the student's behavior over time. Such behavioral changes may come later. It is important, however, not to stagnate the student's growth by offering a false assessment of their growth. When possible, practitioners should engage the survivor in discussions of how the changes have impacted him or her. This exploration may eliminate any suspicion.

Calhoun and Tedeschi (1998) warn that even if thriving can be engendered by

clinical intervention, a clinician should not attempt to rush it. The same holds true for student affairs administrators. Highly traumatic sets of circumstances produce high levels of psychological distress for most persons who experience them (McCann & Pearlman, 1990; Tedeschi & Calhoun, 1995). For most persons, the overwhelming pain and distress produced by highly stressful events must be managed before growth can begin to be experienced and acknowledged. For persons whose trauma has involved exposure to events that directly threatened physical safety, an immediate need is for the intervention to provide a means whereby the student can begin to experience a psychological sense of security from immediate harm (Herman, 1992; Van Der Kolk et al., 1996).

A key issue at hand is properly timing the intervention for each individual situation. Calhoun and Tedeschi (1998) make it clear that the clinician should not be looking for, nor leading the client to focus on possibilities of growth in the immediate aftermath of a traumatic event. The duo encourages practitioners to allow the individual's coping mechanisms to restore some degree of psychological equilibrium and reduce some of the most extreme distress before initiating an intervention.

The description of how a student affairs practitioner should react to a trauma survivor may seem rather passive during a time of such crucial growth. This is similar to the role a counselor and clinician would play. Calhoun and Tedeschi (1998) do note, however, that there are times when firmness and predictability are needed. This is especially true when distress returns, as it does repeatedly during this process (Herman, 1992). The survivor must be reassured that the helper, be it a counselor or student affairs practitioner, remains steadfast through the fears and the uncertainties. This is established early on when the administrator shows a willingness to hear horrific details of the trauma

itself, and gently explore deeper to gain insight into what happened.

As one can see, the roles of clinician and student affairs practitioner have many similarities. Indeed, the roles often meld together. Student affairs practitioners are front-line responders to students who have experienced trauma, often experiencing it at the same time, and are likely to continue working with these students on a daily basis. This contrasts to the role of a clinician, interacting with a student who was referred to him or her after a trauma has occurred, and then only seeing the student on a weekly basis from then out. The practical applications laid out here are useful for practitioners who are encouraging posttraumatic growth.

#### Implications for Future Research

Given the relative infancy of the systematic investigation of posttraumatic growth, it is not surprising that there are plentiful questions that research can address. One involves the degree to which the reported psychological experience of posttraumatic growth is accompanied by observable changes in overt behaviors. The recent development of inventories to measure growth (Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1996) has made the reliable assessment of self-reported growth possible. But the research available so far has relied almost exclusively on such self-report data (Tedeschi et al., 1998). A necessary next research step is the evaluation of the degree to which self-reported posttraumatic growth tends to be accompanied, or not, by observable changes in behavior.

A second question for investigation is: What implications does the experience of

posttraumatic growth have for the long-term psychological adjustment of individuals exposed to highly stressful events? The available evidence is characterized by inconsistent findings (Park, 1998) and by an absence of longitudinal data. Longitudinal investigations are needed that examine the relationship of posttraumatic growth to well being and distress in the context of other variables relevant to adjustment to life crises.

Attempts to cope with highly stressful events occur in social contexts. The responses of the social network to the expression of distress and to the articulation of both positive and negative cognitions related to the critical stressor have implications for both adjustment to the event and to posttraumatic growth (Calhoun & Tedeschi, 1998; Greenberg & Broadbooks, 1998; Lepore & Helgeson, 1998). Data suggest a direct connection between responses of the social network and growth (Greenberg & Broadbooks), but this area remains largely uninvestigated. This would seem to be critical when examining PTG in college students. Research in the broader arena of coping with stressors indicates that the responses of others can play an important role in adjustment (Freedy & Hobfoll, 1995). Our expectation is that the social network plays an important role in the process of growth from the struggle with crisis (Calhoun & Tedeschi, 1998). The precise role of the social network in posttraumatic growth, however, needs systematic investigation.

A final area in the continued investigation of growth is the domain of gender differences, and as noted earlier, the connections between trauma, posttraumatic growth, and racial and sexual identity development. There is evidence that men and women may use somewhat different approaches for coping with traumatic events, and that, on average, women are more likely to experience posttraumatic growth than men (Tedeschi

& Calhoun, 1996). But the evidence is still somewhat contradictory and limited. As yet, little is known about the possible differences between men and women in the style, process, and content of posttraumatic growth. As Tennen and Affleck (1998) have recently suggested, “we encourage investigators to examine more carefully the role of gender in crisis-related transformation” (p. 89). Further, few studies have been done to look at how trauma and posttraumatic growth impact racial and sexual identity development. These areas of research are important to the field of student affairs and student development.



## APPENDIX A: Instrument

What did you actually observe on September 11, 2001? Please circle the answer or multiple answers that best describe your experience:

- A. I was in New York City, near the Pentagon, or in Pennsylvania and saw the events unfold in person.
- B. I observed the events of the day live on television and knew someone who was involved.
- C. I was traveling and had my trip interrupted with a mandatory landing of my flight, a stopped train, or the like.
- D. I observed the events of the day live on television and did not know anyone involved.
- E. I did not see any of the day's events unfold live. I saw it for the first time by watching the news.

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE DAYS IMMEDIATELY FOLLOWING SEPTEMBER 11, 2001. How much were you distressed or bothered by it?

	Not At All	A Little Bit	Moderately	Quite A Bit	Extremely
Any reminder brought back feelings about it.					
I had trouble staying asleep.					
Other things kept making me think about it.					
I felt irritable and angry.					
I avoided letting myself get upset when I thought about it or was reminded of it.					
I thought about it when I did not mean to.					
I felt as if it had not happened or was not real.					
I stayed away from reminders about it.					
Pictures about it popped into my mind.					
I was jumpy and easily startled.					
I tried not to think about it.					
I was aware that I still had a lot of feelings about it, but I didn't deal with them.					
My feelings about it were kind of numb.					
I found myself acting or feeling as though I was back at that time.					
I had trouble falling asleep.					
I had waves of strong feelings about it.					
I tried to remove it from my memory.					
I had trouble concentrating.					

Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.					
I had dreams about it.					
I felt watchful or on-guard.					
I tried not to talk about it.					

1. What is your race?
  - A. Native American
  - B. African American/Black
  - C. Asian American/Pacific Islander
  - D. Latino/a or Hispanic
  - E. Caucasian/White (Of European Descent)
  - F. Biracial/Multiracial
  - G. Other: \_\_\_\_\_
  
2. What is your gender?
  - A. Male
  - B. Female
  - C. Transgender
  
3. What is your age?
  - A. 20
  - B. 21
  - C. 22
  - D. 23
  - E. Other: \_\_\_\_\_
  
4. What religion do you currently practice?
  - A. Roman Catholic
  - B. Protestantism
  - C. Judaism
  - D. Muslim
  - E. None
  - F. Other: \_\_\_\_\_

5. What is the semester during which you most recently enrolled in classes at the University of Maryland?
- A. Fall 2001
  - B. Spring 2002
  - C. Fall 2002
  - D. Spring 2003
  - E. Fall 2003
  - F. Spring 2004
  - G. Fall 2004
  - H. Spring 2005
6. Were you a member of a Living and Learning Community during the Fall 2001 semester?
- A. Yes
  - B. No
7. If yes, which one were you a part of? \_\_\_\_\_

What did you actually observe on the afternoon of the Maryland tornado? Please circle the answer or multiple answers that best describe your experience:

- A. I was on North Campus when the tornado struck and actually saw the funnel cloud from outside of a building.
- B. I was on North Campus when the tornado struck and actually saw the funnel cloud from inside of a building.
- C. I did not actually see the tornado, but did see the aftermath of overturned cars and flattened trees.
- D. I was in College Park, but was unaware that a tornado actually hit campus until I heard the news.
- E. I was not in College Park at the time of the tornado.

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE DAYS IMMEDIATELY FOLLOWING THE MARYLAND TORNADO OF FALL 2001. How much were you distressed or bothered by it?

	Not At All	A Little Bit	Moderately	Quite A Bit	Extremely
Any reminder brought back feelings about it.					
I had trouble staying asleep.					
Other things kept making me think about it.					
I felt irritable and angry.					
I avoided letting myself get upset when I thought about it or was reminded of it.					
I thought about it when I did not mean to.					
I felt as if it had not happened or was not real.					
I stayed away from reminders about it.					
Pictures about it popped into my mind.					
I was jumpy and easily startled.					

I tried not to think about it.					
I was aware that I still had a lot of feelings about it, but I didn't deal with them.					
My feelings about it were kind of numb.					
I found myself acting or feeling as though I was back at that time.					
I had trouble falling asleep.					
I had waves of strong feelings about it.					
I tried to remove it from my memory.					
I had trouble concentrating.					
Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.					
I had dreams about it.					
I felt watchful or on-guard.					
I tried not to talk about it.					

Thank you for your time and participation in this study.

APPENDIX B: Participant Consent Form for Paper Survey

Title: Measuring the Relationship of Traumatic Events and the Retention and Involvement of First-Year Students

I state that I am over 18 years of age and wish to participate in a program of research being conducted by Dr. Susan R. Komives (principle investigator) and Joshua Hiscock (student investigator) in the Department of Counseling and Personnel Services at the University of Maryland, College Park.

The purpose of this research is to determine if the impact of a traumatic event is related to the retention and involvement of first-year students.

The data collection procedures involve my completion of 44 questions from the Impact of Event Scale – Revised. It is estimated that the survey should take no more than 10 minutes to complete. I will be asked to identify myself by providing my full name at the end of the survey. I understand my response on this survey will be linked to an item I completed on a freshman survey (Beginning Student Survey) about how involved I was on campus in Fall 2001. I also understand that my enrollment history at the University of Maryland will be examined as a part of this study.

All information collected in this study is confidential to the extent permitted by law. I understand that the data I provide will be grouped with data others provide for reporting and presentation, and that my name will not be used. This consent form will be stored separately to protect my identity.

There are no known risks associated with this study.

This study is designed to help the investigators learn more about how the impact of a traumatic event may affect a student’s retention and involvement in college. I am free to ask questions or decline my participation at any time and without penalty.

If you have any questions about your rights as a research participant, or wish to report a research-related injury, please contact:

Institutional Review Board Office; University of Maryland; College Park, MD 20742  
E-Mail: irb@deans.umd.edu Telephone: (301) 405-4212

*Principal Investigator*  
Dr. Susan R. Komives  
Dept. of Counseling and Personnel Services  
Benjamin Building  
College Park, MD 20742  
(301) 405-2870  
komives@umd.edu

*Student Investigator*  
Joshua Hiscock  
5 Fraternity Row  
College Park, MD 20740  
(301) 314-7366  
jhiscock@umd.edu

Name of Participant: \_\_\_\_\_

Signature of Participant: \_\_\_\_\_

Date: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

## APPENDIX C: Participant Consent Form for Web Survey

Welcome to the survey. In order to complete this survey, you must read the consent form below and agree to the terms by selecting yes.

Your participation in this study is voluntary, and you may skip any questions on the attached survey that you feel uncomfortable answering. To use the University of Maryland web-based survey system, you will be asked to login using your UM identification number and pin code. Please be assured that, to the extent permitted by law, personal information obtained for this project will remain confidential, and will not be stored or shared with anyone not associated with this project. Any publications of the study will be based on grouped data and will not reveal your identity or your individual records. By checking YES below, you understand your responses on this survey will be linked to an item you completed on a freshman survey (Beginning Student Survey) about how involved you were on campus in Fall 2001. You also understand that your enrollment history at the University of Maryland will be examined as a part of this study.

If you have any questions about this study, please feel free to contact: Joshua Hiscock at [jhiscock@umd.edu](mailto:jhiscock@umd.edu) or (301) 314-7366, or Dr. Susan Komives at [sk22@umail.umd.edu](mailto:sk22@umail.umd.edu) or (301) 405-2780. If you have any questions about your rights as a research subject or wish to report a research-related injury, please contact the Institutional Review Board Office, University of Maryland, College Park, MD, 20742.  
Email: [irb@deans.umd.edu](mailto:irb@deans.umd.edu). Telephone: (301) 405-4212.

I state that I am over 18 years of age and wish to participate in the research being conducted by Joshua Hiscock and Dr. Susan Komives in the College Student Personnel Program in the Department of Counseling & Personnel Services at the University of Maryland.

Yes

No

## APPENDIX D: Notification to Parents for Paper Survey Participants

Your son or daughter has been selected from a random sample of current and former University of Maryland students to participate in a research study. The study seeks to help the investigators learn more about how the impact of a traumatic event may affect a student's retention and involvement in college. The traumatic events being studied are those events of September 11, 2001 and the tornado that hit campus shortly thereafter.

Enclosed with this letter is a stamped envelope. Should your son or daughter no longer live at this address with you, please take the time to address this enclosed envelope with your students' current address and mail it to them.

If you have any questions, please contact me via e-mail at [atjhiscock@umd.edu](mailto:atjhiscock@umd.edu) or by telephone at (301) 314-7366, or my faculty chair, Dr. Susan R. Komives, at 301-405-2870 or [komives@umd.edu](mailto:komives@umd.edu).

Thank you for your time.

Joshua Hiscock  
Graduate Student, College of Education  
College Student Personnel Program

## APPENDIX E: Letter of Notification for Paper Survey Participants

You have been selected from a random sample of current and former University of Maryland students to participate in a research study. The study seeks to help the investigators learn more about how the impact of a traumatic event may affect a student's retention and involvement in college. The traumatic events being studied are those events of September 11, 2001 and the tornado that hit campus shortly thereafter.

Enclosed in this envelope are three important enclosures:

- A consent form that must be completed by all survey participants
- A brief two-page survey instrument
- A self-addressed, stamped envelope

Please take the time to complete the consent form and survey. **This survey will take less than 10 minutes to complete.** Return all materials to the researchers using the self-addressed, stamped envelope.

As a thank you for your participation, upon receipt of your survey, you will automatically be mailed a coupon for **one free coffee at Starbucks**. You will also be entered into a drawing for a **\$100.00 gift certificate to Best Buy**. This drawing will be held on April 18, 2005.

If you have any questions while you are completing the survey, please contact me via e-mail at [jhiscock@umd.edu](mailto:jhiscock@umd.edu) or by telephone at (301) 314-7366, or my faculty advisor, Dr. Susan Komives, via e-mail at [komives@umd.edu](mailto:komives@umd.edu) or by telephone at 301-405-2870.

Thank you for your time.

Joshua Hiscock  
Graduate Student, College of Education  
College Student Personnel Program



## APPENDIX F: Postcard Notification for Web Survey Participants

You have been selected from a random sample of University of Maryland students to participate in a research study. The study seeks to help the investigators learn more about how the impact of a traumatic event may affect a student's retention and involvement in college. The traumatic events being studied are those events of September 11, 2001 and the tornado that hit campus shortly thereafter.

This week you will be receiving an e-mail message containing a link to a secure web site. This web site will contain the survey instrument. **This survey will take less than 10 minutes to complete.** Please do not disregard this e-mail message.

As a thank you for your participation, you will automatically receive a **free pass to the Hoff Theater**. You will also be entered into a drawing for a **\$100.00 gift certificate to Best Buy**. This drawing will be held on April 18, 2005.

If you have any questions, please contact me via e-mail at [atjhiscock@umd.edu](mailto:atjhiscock@umd.edu) or by telephone at (301) 314-7366. Thank you for your time.

Joshua Hiscock  
Graduate Student, College of Education  
College Student Personnel Program

## APPENDIX G: Electronic Notification for Web Survey Participants

You have been selected from a random sample of University of Maryland students to participate in a research study. The study seeks to help the investigators learn more about how the impact of a traumatic event may affect a student's retention and involvement in college.

Below is a link to a secure web site that contains the survey instrument. This survey takes less than 10 minutes to complete. Please click on this link to take the survey:

<http://cgi.umd.edu/survey/display?Thesis/IES>

As a thank you for your participation, you will automatically receive a FREE PASS to the Hoff Theater. You will also be entered into a drawing for a FREE \$100.00 gift certificate to Best Buy. This drawing will be held on April 18, 2005.

If you have any questions, please contact me via e-mail at [jhiscock@umd.edu](mailto:jhiscock@umd.edu) or by telephone at (301) 314-7366. Thank you for your time.

Joshua Hiscock  
Graduate Student, College of Education  
College Student Personnel Program

## APPENDIX H: Electronic Follow Up Notice for Web Survey Participants

You have been selected from a random sample of University of Maryland students to participate in a research study. The study seeks to help the investigators learn more about how the impact of a traumatic event may affect a student's retention and involvement in college.

Last week, you received an e-mail message containing a link to a secure web site that contains the survey instrument. This survey takes less than 10 minutes to complete. In case you accidentally deleted this message, the link is included below:

As a thank you for your participation, you will automatically receive a **free pass to the Hoff Theater**. You will also be entered into a drawing for a **\$100.00 gift certificate to Best Buy**. This drawing will be held on April 18, 2005.

If you have any questions, please contact me via e-mail at [jhiscock@umd.edu](mailto:jhiscock@umd.edu) or by telephone at (301) 314-7366. Thank you for your time.

Joshua Hiscock  
Graduate Student, College of Education  
College Student Personnel Program

APPENDIX I: Personal Information Collection Page for Web Survey

Thank you for taking the time to complete this survey. As a thank you for your participation, you will automatically receive a **free pass to the Hoff Theater**. You will also be entered into a drawing for a **\$100.00 gift certificate to Best Buy**. This drawing will be held on April 18, 2005.

In order for you to receive your pass to the Hoff Theater and be entered in the drawing, you must provide the following information in the fields provided. Your telephone number will only be used to inform you if you are the winner of the drawing on April 18, 2005. Your name will not be associated with your responses to the survey in any way.

If you do not wish to receive your pass to the Hoff Theater and be entered in the drawing, simply leave the following fields blank and click "Submit."

NAME:

CAMPUS MAILING ADDRESS:

PREFERRED TELEPHONE NUMBER:

E-MAIL ADDRESS:

SUBMIT

## APPENDIX J: Instrument Permission

-----Original Message-----

**From:** Daniel Weiss [mailto:dweiss@itsa.ucsf.edu]

**Sent:** Wednesday, January 05, 2005 1:10 PM

**To:** josh hiscock

**Subject:** RE: Instrument Permission

This reply indicates that I am expressing written consent for my use of these instruments.

At Friday 04:23 PM 12/24/2004, you wrote:

Dr. Weiss:

My name is Joshua Hiscock, and I am a graduate student in the College Student Personnel program in the College of Education at the University of Maryland, College Park. I am currently writing my master's thesis on the relationship of traumatic events to the retention and involvement of first-year college students. I plan to use a sample of students from the University of Maryland who were first-year students in the Fall of 2001. During this semester the campus felt the effects of both September 11 and a tornado that ripped through campus, killing two sisters and causing heavy damage. However, no studies have been done of the population to understand how the traumatic events affected their experience at the University.

In my study, I wish to measure the impact of the traumatic events and how it has affected retention and involvement. Participants will be a sample of those still enrolled, as well as those who left the institution who will be contacted via permanent home address. I would like to ask your permission to use the Impact of Event Scale - Revised in this study. I understand that the IES and IES-R are normally administered within seven days of the traumatic event. I recognize this as a limitation. I believe that, of all the instruments I have researched, the IES-R has the greatest potential to ascertain the impact of the traumatic events.

This is unfunded research, so I would hope I can use the instrument at no cost, but if that is not possible would like to know whatever fee might be associated with its use. I am willing to provide you with a copy of my thesis in May 2005 when the study is complete.

Thank you for your time and consideration. My advisor, Dr. Susan R. Komives <komives@umd.edu> or I would be glad to respond to any questions you might have.

## Issues in Using the Impact of Event Scale-Revised (IES-R)

### Permissions and Costs

The IES-R is available for use without cost, and the author will grant permission to use the measure to anyone with the appropriate training and context to administer the measure.

### Event

The IES-R was designed and validated using a **specific** traumatic event as the reference in the directions to individuals completing the measure. Any use of the measure requires that this issue be made explicit by the person administering the measure, and that respondents are clear about what specific event they are reporting on. Events like “the automobile accident,” “the earthquake,” “the sexual assault,” “the rescue effort at the WTC on 9/11,” are all appropriate events. It is **not** appropriate to use the IES-R to measure things like “stress on the job,” “my divorce,” “my boss’s criticism,” and the like. For specific questions on this issue refer to the discussion in the DSM-IV on the event on page 424 and the specific language of the “A” criterion of Posttraumatic Stress Disorder on pp. 427-428 and p. 431 for Acute Stress Disorder.

There is some controversy about whether events like receiving a diagnosis of breast cancer or finding out one is HIV positive is an example of a traumatic event. Individual researchers need to make their own decision about this and be able to provide a rationale for how it fits the description in the DSM. As well, many researchers desire to broaden the referent from a **specific** event to a **class** of events: e.g., “my abuse as a child”, “my service in Vietnam” “my being beaten by my husband”. This is a trickier issue, and one that must be decided by the point of the study, but a guiding principle could be this: If the referent for the IES-R would not qualify as an event for DSM-IV because it is too broad, then the referent is **not** appropriate for the IES-R. Researchers should also be aware of the conundrum created and the difficulties for respondents when some but not other symptoms are present for one instance of a class of events but the others are present for a different instance. The DSM is not specific about this issue, but the vast majority of the data using the IES-R are in reference to a specific incident, so if a class is used as the referent (a strategy that I do **not** advise), the data collected will not be comparable to other data in a potentially important way.

### Modifications in Time Frame

The IES-R was designed and validated using a specific time frame of the past seven days. Any change in this interval likely makes the data collected not comparable to those collected with the standard time frame. Thus, such as version is not endorsed or recommended. Should a researcher decide to do so anyway, she or he should be aware that any write-up of the research **must** disclose that a non-standard, modified version of the measure was used and that **no** reliability or validity data exist for this new, non-standard measure in the standard IES-R literature. If there are other data in papers that

used the identical modification, the researcher is, of course, to cite those papers as evidence in support of the characteristics of this **modified** measure.

### Modifications of the Items

Any modification to the item wording, order, content, punctuation, etc. renders comparisons of the data collected using such a version immediately problematic and therefore is not endorsed or recommended. Should a researcher decide to do so anyway, she or he should be aware that any write-up of the research **must** disclose that a non-standard modified version of the measure was used and that **no** reliability or validity data exist for this new, non-standard measure. If there are other data in papers that used the identical modification, the researcher is, of course, to cite those papers as evidence in support of the characteristics of this modified measure.

### Use with Children

The IES-R was neither developed nor validated with children. Some of the items have content that is probably comprehensible to children below the 7<sup>th</sup> grade, but at least one item, Item #12, comprises a fairly sophisticated internal psychological process concept. The Flesch-Kincaid Grade Level score is 6.6, but the user should be aware that using the measure with children must be considered preliminary or experimental until such time as the literature contains published evidence that the IES-R functions with children in the same way it functions in adults.

### Cut-offs

*Cutting scores, cut-offs, and categorical uses.* There are no "cut-off" points for the IES-R, nor are they envisioned or appropriate, despite analyses that present them (e.g., Asukai et al., 2002). The IES-R is intended to give an assessment of symptomatic status over the last 7 days with respect to the 3 domains of PTSD symptoms stemming from exposure to a traumatic stressor. Neither the IES-R, nor the original IES for that matter, was intended to be used as a proxy for a diagnosis of PTSD, and with the very well-developed stable of clinical interviews that were designed to provide diagnoses (Weiss, 2004), the only reasons to use the IES-R in this fashion is either a misunderstanding of its goals or a choice not to expend the resources (time, funds, good will) to obtain a valid diagnosis.

This issue is neither new nor confined to symptom measures. Nearly 30 years ago Rotter (1975) attempted to persuade and cajole researchers interested in the construct of internal-external locus of control not to conceptualize it as a categorical variable, nor to use it that way. With respect to the IES-R, there are even more substantive issues that weight against even attempting to set a cut-off score. One of these is the time elapsed since the traumatic event. Early in the course of reaction to traumatic stress, the level of symptoms on the IES-R may suggest the presence of PTSD but distinguishing the normal course of response to trauma from PTSD is a difficult issue at five weeks or two months, regardless of the one month criterion in the DSM. A review of conjugal bereavement (Windholz, Marmar, & Horowitz, 1985) suggested that six months was not out of the

ordinary for a period of time during which recovery from the loss. Thus, acute PTSD and chronic PTSD might well require different cuts, if one were to attempt to select them. A second of these is the severity of the traumatic event, all other things being equal, the more severe the higher the symptoms. A third issue is reactions accompanying exposure—both peritraumatic emotionality (Brunet et al., 2003) and peritraumatic dissociation (see Ozer, Best, Lipsey, & Weiss, 2003) may well moderate symptoms and symptom report, in a way that would ultimately affect diagnosis.

Most important, however, is the impact of the base rate of stress reactions in the sample being studied (firefighters versus women who have been beaten during a sexual assault) and used to determine a fixed cut-off. Indeed, in presenting an update on the CAPS, Weathers and colleagues (2001) carefully and systematically describe the need for a variety of decision rules (which are functionally equivalent to a cut-off score), to make a diagnosis of PTSD. They explicitly consider the choice of cut-off in light of the types of errors different values will produce, minimizing or maximizing false positives or false negatives. It has been well known for over five decades (Meehl & Rosen, 1955) that the base rate of the phenomenon can have a sizeable impact on the validity of any cut score. Thus, it is simply inappropriate to require or to attempt to set any cut-off that will universally apply, in which having cut-offs really serves no useful function.

The choice of the anchor points and the utilization of a mean score, rather than a sum (not universally followed in the literature), was an explicit decision to aid users in interpreting scores. For example, if an individual's score or a group's mean on the Intrusion subscale was 1.89, that would indicate that for intrusion, for this person (group), in the last week their distress from intrusive symptoms was close to, but not quite moderate. For individuals similar statements regarding the other two subscales can be made. For groups, using the SD will help immensely in making the pattern of scores meaningful. This ability is consistent with the goal that the IES R set for itself.

Weiss, D. S. (2004). The Impact of Event Scale-Revised. In J. P. Wilson, & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD: A practitioner's handbook* (2<sup>nd</sup> ed., pp. 168-189). New York: Guilford Press.



## IMPACT OF EVENT SCALE- REVISED

**INSTRUCTIONS:** Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you **DURING THE PAST SEVEN DAYS** with respect to \_\_\_\_\_. How much were you distressed or bothered by these difficulties?

Item Response Anchors are 0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely.

The Intrusion subscale is the **MEAN** item response of items 1, 2, 3, 6, 9, 14, 16, 20. Thus, scores can range from 0 through 4.

The **Avoidance** subscale is the **MEAN** item response of items 5, 7, 8, 11, 12, 13, 17, 22. Thus, scores can range from 0 through 4.

The **Hyperarousal** subscale is the **MEAN** item response of items 4, 10, 15, 18, 19, 21. Thus, scores can range from 0 through 4.

1. Any reminder brought back feelings about it.
2. I had trouble staying asleep.
3. Other things kept making me think about it.
4. I felt irritable and angry.
5. I avoided letting myself get upset when I thought about it or was reminded of it.
6. I thought about it when I didn't mean to.
7. I felt as if it hadn't happened or wasn't real..
8. I stayed away from reminders of it.
9. Pictures about it popped into my mind.
10. I was jumpy and easily startled.
11. I tried not to think about it.
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.
13. My feelings about it were kind of numb.
14. I found myself acting or feeling like I was back at that time.
15. I had trouble falling asleep.
16. I had waves of strong feelings about it.
17. I tried to remove it from my memory.
18. I had trouble concentrating.
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.
20. I had dreams about it.
21. I felt watchful and on-guard.
22. I tried not to talk about it.

Citation:

Weiss, D.S. & Marmar, C.R. (1997). The Impact of Event Scale-Revised. In J.P. Wilson, & T. M. Keane (Eds.), *Assessing Psychological Trauma and PTSD: A Practitioner's Handbook*. (pp. 399-411). New York: Guilford.

## APPENDIX K: Drawing Additional Connections to College Student Development

The researcher does not seek to draw inferences that exceed the findings.

However, the fact that there was significantly higher persistence for those from Fall 2001 than the previous Fall experience is exceptionally interesting noting the resilience of these students experiencing both the events of September 11<sup>th</sup> and the tornado. This appendix will explore a number of possible applications from a variety of student development theories that may help inform an understanding of the role of trauma that might have informed this persistence.

### *Multiple Identity Theory*

Jones and McEwen (2000) developed a conceptual model of multiple identities. The focus of this model is on how an individual's various identities (e.g. sexual identity, racial identity, class, etc.) interact with each other. The duo found that, based upon contextual influences, the more salient identities were placed closer to one's core, and the more privileged identities were placed further away. As contextual influences, traumatic incidents often bring tangential, peripheral identities closer to one's core. For example, a death of a family member may bring family and moral values closer to your core, or a fire in your residence hall may bring socioeconomic status and self-awareness closer to your core. Environmental factors predominantly serve as catalytic influences in this process. For example, natural disasters, terrorist attacks, date rape, or accidental death are traumatic -- always unexpected and unwelcome, and serve as change agents in moving this process along. What is important to note is the flexibility of the model's multidimensionality. An identity that is important to a college student today may not be important tomorrow due to a trauma. However, an unlimited number of competing

identities may be in play at the same time. While some will remain steadfast, even after a trauma, many others may go into flux as the student deals with the situation at hand. The model places each identity on its own orbit, positing that they will never collide. It is the interplay of these identities, however, that I believe is important in posttraumatic growth. As the student turns to the identities closest to their core for support, the values rooted in these help the student to stabilize the orbits of the identities in flux, helping to restore order and comfort.

In the context of working with persons who have experienced crises, growth may best be viewed as multidimensional. The individual may experience positive changes in some domains, and no change or negative change in others. These domains where growth happens are suggested by the factor structure of the Posttraumatic Growth Inventory: New Possibilities, Relating to Others, Personal Strength, Appreciation of Life, and Spiritual Change (Tedeschi & Calhoun, 1996). New Possibilities includes items describing positive new directions in life, such as “established a new path for my life.” Relating to Others describes positive change in interpersonal relationships, such as a greater “sense of closeness with others.” Personal Strength contains items such as “I discovered I am stronger than I thought I was.” Appreciation for Life contains items reflecting “an appreciation for the value of my own life.” And finally, Spiritual Change is reflected in the item “a better understanding of spiritual matters.” Therefore, given its multidimensionality, one may consider the Posttraumatic Growth Inventory as a method of assessing what salient identities are closest to the core of a trauma survivor. This makes the PTGI a very useful tool for use with multiple identity theories.

### *Sanford's Definitions of Growth, Change, and Development*

Nevitt Sanford (1967) defined development as “the organization of increasing complexity” (p. 47). He conceptualized development as a positive growth process in which an individual becomes increasingly able to integrate and act on different experiences and influences. This is different from change, which Sanford referred to as an altered condition that may be positive or negative, and from growth, which Sanford referred to as expansion that may be favorable or unfavorable to overall functioning (Evans, Forney, & Guido-DiBrito, 1998).

In comparison, posttraumatic growth is defined as “...a significant beneficial change in cognitive and emotional life that may have behavioral implications as well” (Tedeschi, Park & Calhoun, 1998, p. 3). Matching the definition of PTG to Nevitt Sanford’s definitions of change, growth, and development, one can see that PTG meets the criteria for growth and change. It is an altered condition that may be positive or negative, though in this case usually negative, and it is an expansion favorable or unfavorable to overall functioning, in this case usually unfavorable. However, posttraumatic growth does not necessarily meet the criteria for being development. There is no direct link to any organization of increasing complexity in a trauma survivor. However, when taking into consideration the behavioral implications of posttraumatic growth, the possibility exists that development may occur in some students. For example, a student who suffers the loss of a parent is likely to re-evaluate many of the values and priorities in their life, and may make new meaning from previously conceived thoughts. This would best be characterized as a positive growth process in which the individual gradually becomes increasingly able to act on the traumatic experience and its related

influences, and integrate the perceived growth with a level of complexity. This would meet Sanford's definition of development.

It is important to note that one of the last phases of posttraumatic growth involves being able to describe that growth to oneself and others. This is not as easy as it seems, because the changes that occur are phenomenological to a great degree. But until trauma survivors can construct personal narratives to organize information about themselves (McAdams, 1993), positive change may be experienced as tentative at best. However, coming to an understanding of these emotions may also signal an increasing ability to integrate and act on the traumatic experience and its related influences with increasing complexity. This, too, would meet Sanford's definition of development.

#### *Racial and Sexual Identity Development*

Helms (1995) notes that the events that serve as catalysts for racial identity development "can be internal or external, subjective and not necessarily visible to independent servers or objective and available for others to react to and interpret" (p. 191). For People of Color, an initial encounter with White culture that disrupts previous beliefs may fit into the definition of an event that is traumatic. This encounter may occur for People of Color in the dissonance status of Helms racial identity model (Helms). Such an event would fall into the encounter stage of the Cross (1995) nigrescence model as well, which notes that possible reactions could include "confusion, alarm, anomie, and even depression," as well as "emotionality... guilt, anger, and general anxiety..." (p. 105). Similar levels of trauma could occur for a White person who has an encounter with Black culture, potentially in the disintegration stage of White identity development, when White people begin to feel guilt, shame, and anger when they become increasingly aware

of racism and White privilege (Helms, 1995). For college students coming from a variety of hometowns, each with differing levels of racial diversity, this issue could be very prevalent. Presumably, many college campuses struggle with this issue regularly.

Further, a student questioning his or her sexual identity may also experience a traumatic situation when he or she chooses to come out, depending on the climate of the campus environment. Young persons who describe themselves as lesbian, gay, or bisexual are at least twice as likely than their heterosexual peers to report a history of suicidal behavior (Russell & Joyner, 2001). It has been estimated that one in three LGB youths has engaged in suicidal behavior (D'Augelli, Hershberger, & Pilkington, 2001; Remafedi, Farrow, & Deisher, 1991; Safren & Heimberg, 1999). In the identity confusion stage of the Cass (1979) model of homosexual identity formation, students questioning their sexual identity face “confusion and turmoil” (p. 223). In this stage, the student is unlikely to disclose this inner turmoil, leaving the individual to cope for himself or herself (Cass). This internal struggle is a critical moment, as noted above often causing suicidal tendencies, and can be construed as traumatic, particularly if these emotions and thoughts were previously unknown, making them an unexpected shock, or if no support system exists to meet the individuals’ needs.

Though these examples stretch the definition of trauma as set forth by Tedeschi and Calhoun (1995), all of these examples can be classified as traumatic. They are all shocking, and most have unexpected factors that may enhance the traumatic impact. For People of Color, the idea of “surmounting internalized racism in its various manifestations” (Helms, 1995, p. 184) is likely to be a critical moment, much the same as coming out would be to a student questioning his or her LGBT-identified status. While

much of the literature on trauma and posttraumatic growth centers around large-scale incidents, little research draws connections between trauma, posttraumatic growth, and issues of racial and sexual identity development. This is an area in need of further research.

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