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The University of Southern Mississippi

POST-DISASTER EFFECTS OF HURRICANE KATRINA ON SIGNIFICANTLY
AFFECTED COLLEGE STUDENTS COMPARED TO MODERATELY
AFFECTED COLLEGE STUDENTS

by

Charles Thomas Coleman

Abstract of a Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2008

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The University of Southern Mississippi

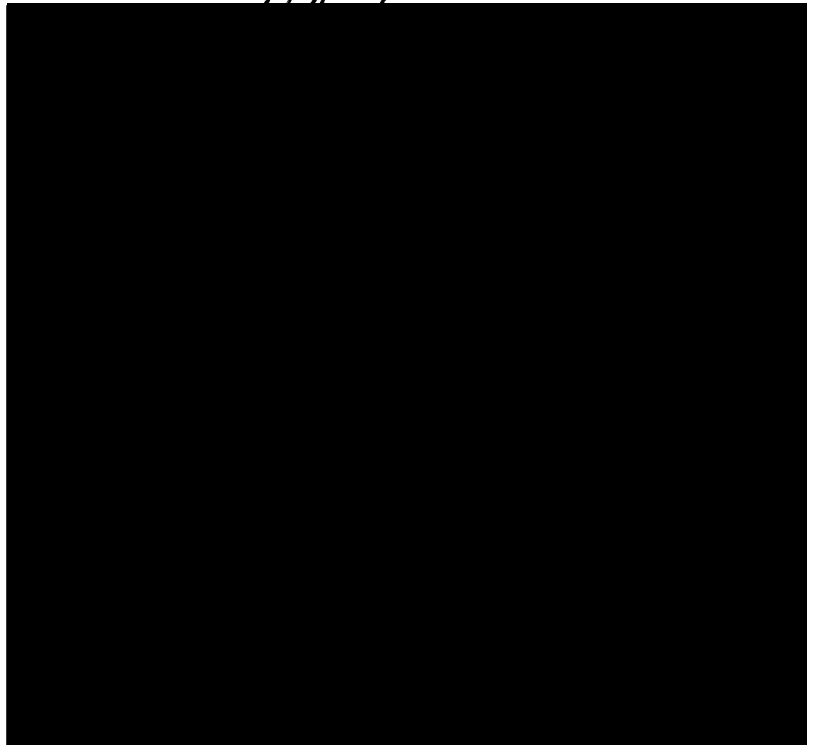
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ABSTRACT

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This quantitative study used independent *t* tests to explore the level of significance with four dependent variables of educational effects (grades), financial impact (monetary hardship), physiological effects (aches, pains, or injury), and psychological effects (mental stability or illness) related to significantly affected students and moderately affected students of post-Hurricane Katrina. To determine if there was a significant difference between moderately affected students compared to significantly affected students, a questionnaire specific to the dependent variables was administered to The University of Southern Mississippi (USM) students.

Data gathered in this study suggested the greatest significant difference among significantly affected students and moderately affected students was financial impact and psychological effects. Conclusively, significantly affected students had a greater level of significance compared to moderately affected students related to educational effects, financial impact, physiological effects, and psychological effects.

The review of related literature indicated a deficiency of university disaster situations. However, reviewed literature indicated commonalities between

university tragedies, such as Hurricane Katrina, and other man-made or natural post-disaster situations.

ACKNOWLEDGMENTS

Hurricane Katrina affected many lives, including my own. After deaths in my family and Hurricane Katrina taking my home and business, there was always hope. Patience, focus, and determination is the key.

The information collected for this study would not have been possible without the individuals who took the time to share their information, participate, and contribute their time for me, and for that I am grateful.

I would like to express my sincere thanks to the members of my graduate committee: Dr. Debra Gentry, chairperson; Dr. J. T. Johnson; Dr. Gaylynn Parker; and Dr. Wanda Maulding for their patience and personal input.

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My sister, God rest her soul—her acceptance to UCLA at 16 always inspired me.

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CHAPTER I

INTRODUCTION

This study examined university students' abilities to continue college studies after Hurricane Katrina battered their area of living. A tested sample questionnaire studied the effects of a post-hurricane disaster on students related to educational effects, financial impact, physiological effects, and psychological effects.

The purpose of this study was to determine if there was a significant difference between significantly affected university students and moderately affected university students in a post-disaster situation related to grade point average, financial stability, physiological effects, and psychological effects.

The review of the literature indicated common barriers to lack of participation in educational activities associated with post-disaster climates. However, the review of literature also indicated quick responses and strong leadership in the communities and universities that felt the post-disaster effects of Hurricane Katrina.

Survey data gathered in the study suggested that there was a significant difference between affected students versus non-affected students related to post-disaster grade point average, financial impact, physiological effects, and psychological effects in students at the university level.

Background

The world's disasters affect populations and economies more each year (Cawthorne, 2005). From 1991 to 2005, more than \$364 billion in economic damages have occurred in the United States from natural disasters. Japan and

China follow with damages estimating \$208 and \$172 billion, respectively (Disaster Statistics, n.d.). These disasters also affect society's infrastructure to include schools and universities.

One of the nation's universities affected by the aftermath of Hurricane Katrina in 2005 was The University of Southern Mississippi (USM). On August 29, 2005, Hurricane Katrina landed on the Gulf Coast close to the Mississippi state line in Buras, Louisiana (Weather.com, n.d.). The storm's outer bands reached the surrounding landmasses to the east, west, north, and south. This was a category five hurricane before reaching any kind of true land fall (NOAA.gov, n.d.). Sustained wind speed was estimated at 135 miles per hour, with gusts much higher. This modern-day storm was considered the costliest and deadliest storm in United States history. The economic impact was \$50 billion and more than 1,300 people were killed (Tisdale, 2006).

After Katrina smashed into the Mississippi Gulf Coast, it left several University of Southern Mississippi campuses lifeless. Those USM campuses affected included Stennis Space Center, Jackson County, Keesler Air Force Base, Gulf Park, Gulf Coast Research Laboratory, and the Hattiesburg main campus site.

Tisdale (2006) noted USM damages and re-openings:

Southern Miss suffered more than \$200 million in damages to physical structures and in losses in equipment, intellectual property, security, and revenue at both its Hattiesburg and Long Beach campuses, and at its teaching and research sites along the Mississippi Gulf Coast, due to Hurricane Katrina. One hundred and twenty-eight faculty and staff lost

their homes. There were no fatalities among university employees or students. Approximately 1,000 students had to withdraw from the university because of Katrina's impact on them and their families, resulting in a \$7.1 million tuition shortfall at the university for the 2005-2006 academic year. The Hattiesburg campus reopened for the fall 2005 semester on Sept. 12. After moving its campus in Long Beach to a temporary location in Gulfport, Southern Miss Gulf Coast resumed the fall semester Oct. 10. The Gulf Coast Research Laboratory reopened for classes Sept. 19. Southern Miss also delivers educational services in Jackson County, which resumed the semester Oct. 10; at Keesler Air Force Base in Biloxi, where Southern Miss resumed operations in spring 2006; and at Stennis Space Center, where Southern Miss resumed operations Oct. 10. (p. 4)

The University of Southern Mississippi Response

The damages to The University of Southern Mississippi campuses were extreme. The USM Gulf Coast campus is located 100 yards from the Gulf waters and took a heavy pounding (Scurfield, 2006). Forty buildings on the main campus had roof repairs, not to exclude adjoining structures such as fences. Additionally, \$20 million in damages were estimated for the main campus alone. The need for financial assistance was apparent soon after the storm made landfall. More than \$27 million were appropriated to the students affected by Katrina (Tisdale, 2006).

After Hurricane Katrina swept through the Gulf region, USM's Office of Student Affairs center retrieved vital information from more than 450 students

which helped them in search of financial aid and possible relocation. Since 128 faculty and staff lost their homes, it was difficult to immediately reconvene administratively (Tisdale, 2006).

Through the rest of 2005 and into the 2006 school year, the assistance in funding programs for Katrina victims was immense. For example, donations came from Scholarship America, Collegiate Funding Services, and SunTech, Inc., to name a few. These donations were, in part, the making of the Katrina Relief Fund. The standards to qualify for these funds followed guidelines of the Free Application for Federal Student Aid (FAFSA). The Institutions of Higher Learning (IHL) definitely played a role as well in obtaining funds from federal grants instigated by Mississippi's Senator Thad Cochran (Tisdale, 2006). More than \$27 million were appropriated to The University of Southern Mississippi from some \$90 million specified for the state of Mississippi. More than 10,000 grants were given to students in the 2005-2006 school year. In fact, several thousand students were the recipients of these awards (Tisdale, 2006).

However, this was not the only relief fund. The University of Southern Mississippi had its own fund called the Southern Miss Foundation's Hurricane Relief Fund. In 2006, the fund had more than \$230,000. Some of those receiving monies were faculty or staff as well as students. Another fund that helped student athletes was the Southern Miss Athletic Department's Hurricane Katrina Relief Fund. In addition, the Bush-Clinton Hurricane Katrina Fund was created to help the southern Gulf States' education programs for higher learning. Surprisingly, The University of Southern Mississippi only received \$1.5 out of the \$100 million raised by the former presidents. Although \$30 million did go to

higher education learning institutions, \$1.5 million was diminutive compared to what the university sustained in damages (Tisdale, 2006).

Student Persistence Post-Katrina: Relocation, Grade Point, and Return

In November 2005, displaced students became a factor for many colleges and universities where Hurricane Katrina landed. Students' willingness to relocate to other universities showed persistence for their continuation of education. The National Student Clearinghouse (2005) reported, "Over 1,000 colleges accepted more than 18,000 Katrina-displaced students from six closed Louisiana colleges" (p. 1).

Table 1 details student relocation by state according to The National Student Clearinghouse (2005). In particular, the table shows:

- Colleges in 10 states accepted nearly three-quarters of all identified Katrina-impacted students. Nearly half of the students moved to institutions in Texas or enrolled in other Louisiana institutions.
- . . . Slightly more than half of the students had been enrolled in a private college, and nearly three-quarters (of those students) enrolled in public institutions (13,631 or 73.28%) compared to private institutions (4,971 or 26.72%).
- Almost 12% of the students had been enrolled in two-year schools. Only 1,013 or 5.45% moved to two-year or less schools.
- Louisiana State University accepted the largest number of Katrina-impacted students (3,271 or 17.58%). (p. 1)

With Louisiana State University (LSU) leading the way, the state of Louisiana ended up taking most of the displaced students, followed by the state

Table 1

Post-Katrina Student Relocation from Six Closed Louisiana Colleges

State	Number of Students Received	Percentage of Students Received
Louisiana	5,631	30.27
Texas	2,882	15.49
New York	907	4.88
Georgia	895	4.81
Illinois	864	4.64
California	688	3.70
Tennessee	618	3.32
Florida	541	2.91
Missouri	446	2.40
Alabama	428	2.30

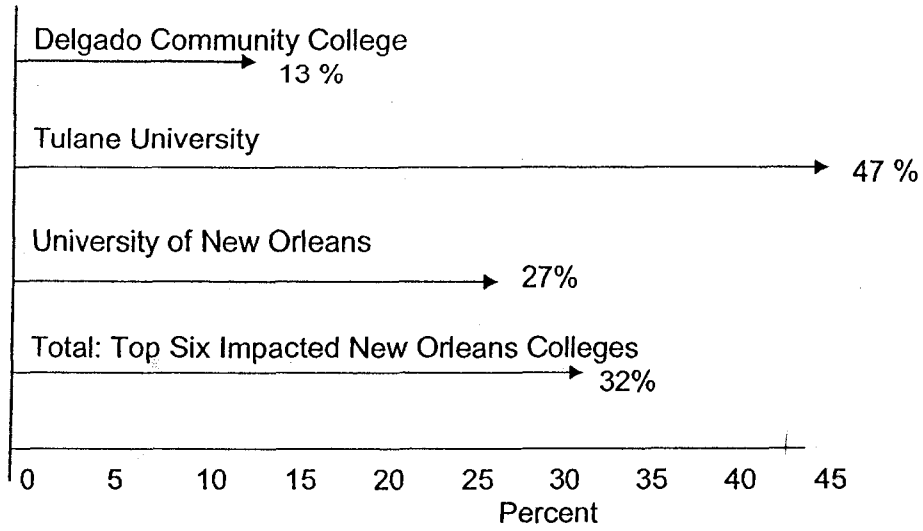
Note: Information available from The National Student Clearinghouse, 2005, p. 1.

of Texas. The remainder of students trickled to other states whose colleges accepted late enrollments for the fall semester of the 2005-2006 academic year.

However, re-enrollment would be disappointing, according to a report by the Southern Education Foundation (2007), which revealed that students did not return right away in the fall of 2005 (see Figure 1). In Louisiana a total of 35,000 students (one out of six) did not return for the academic 2005-2006 school year. Out of those 35,000 students, 30,000 had enrolled in public schools and universities, while the remaining 5,000 were private colleges (Southern Education Foundation, 2007).

Less than half of the students impacted by Hurricane Katrina returned to Tulane University in New Orleans. The University of New Orleans (UNO) only received 27% of its returning students. Delgado Community College set up online courses in Baton Rouge, Louisiana, yet only received a 13% return of its impacted students. Only one third of the returning students came back to six New Orleans colleges. Additionally, according to the Southern Education Foundation (2007) based in Atlanta, the costs of hurricane destruction in K-12 and higher education were approximately \$6.2 billion, but only \$1.2 billion in federal funding was committed to restoring physical structures and property. Likewise, displaced students re-enrolled in schools in 49 states, but a lack of adequate federal funding meant that schools with the greatest number of displaced students had insufficient classrooms, staff, and supplies to support them (Southern Education Foundation, 2007).

For students dealing with a natural disaster such as Hurricane Katrina, life in college can be very challenging. This study examined the students who lived



Note: Data available from Southern Education Foundation, 2007, p. 13

Figure 1. *Re-Enrollment of Impacted New Orleans College Students, Fall 2005*

and coped with the educational, financial, physiological effects, and psychological effects of Hurricane Katrina.

Purpose of the Study

The purpose of this study was to determine if there was a significant difference between significantly affected college students after Hurricane Katrina and moderately affected college students after Hurricane Katrina related to educational, financial, physiological effects, and psychological effects.

Research Questions

The research questions were as follows:

1. Is there a significant difference in grade point average after a disaster between significantly affected college students and moderately affected college students?
2. Is there a significant difference in financial impact after a disaster between significantly affected college students and moderately affected college students?
3. Is there a significant difference in physiological stress after a disaster between significantly affected college students and moderately affected college students?
4. Is there a significant difference in psychological stress after a disaster between significantly affected college students and moderately affected college students?

This research project involved The University of Southern Mississippi main and Gulf Coast campuses. The quantitative research compared students

who were actually affected by the disaster event of Hurricane Katrina in relation to educational, financial, physiological effects, and psychological effects.

Definition of Terms

Financial impact - difficulty with outstanding debts due to unforeseen circumstances.

Moderately affected college students - those students who answered moderate or minimal impact on the questionnaire related to the following: displaced, lost home/damaged home, parents lost home/damaged home, lost car, lost job, lost income, suffered injury, lost loved ones, or had relatives impacted due to Hurricane Katrina.

Physiological effect - controls thoughts and behaviors which may cause sickness, pain, and discomfort; interference with food, warmth, sex, water, and bodily needs (Maslow, 1943).

Psychological effect - the individual experiences (subjectively) that pose a threat to life, bodily integrity, or sanity (Pearlman & Saakvitne, 1995).

Significantly affected colleges students - those students who answered substantial impact or great impact on the questionnaire related to the following: displaced, lost home/damaged home, parents lost home/damaged home, lost car, lost job, lost income, suffered injury, lost loved ones, or had relatives impacted due to Hurricane Katrina.

Student persistence - the likelihood that a student will persist to degree completion (Tinto, 1998).

Assumptions

1. Students surveyed were enrolled in college at The University of Southern Mississippi at the time Hurricane Katrina made landfall in Mississippi.
2. Students responded honestly on the self-reported measure.

Delimitations

This study was limited to students attending The University of Southern Mississippi to include Hattiesburg and Gulf Coast campuses.

Limitations

This study cannot be generalized to other university populations. This study was a student perception of impacts to their lives by Hurricane Katrina. Hurricane Katrina took place August 29, 2005, and the questionnaire survey was administered in the 2007-2008 school year; thus, students' self-reports may be affected.

Justification

Educational administrators are always in search of ways to help students overcome and adapt in situations that are seemingly out of their hands, for example, the disastrous Hurricane Katrina event. Continuing education life cycles after a disaster can help administrators formulate steps for future crisis situations (Becker, 2006). How students react after a catastrophe can be associated with grades, finances, physical stress, and emotional stress. These are unfortunate circumstances that need to be looked at more carefully by various schools or universities in order to rebound quicker, moving forward for students to respond in a positive way.

Although there may not be any immediate benefits to participants or university faculty, there may be long-term benefits for school administrators to review the outcome of affected university students in post-disaster situations. This study may provide administrators with necessary data to determine the relevance of a student's educational effects, financial impact, physiological effects, and psychological effects related to post-disaster university setting, thereby promoting ideas for quicker and more efficient recovery programs in a post-disaster situation.

Conclusion

Providing administrators with data and strategies for recovery in disaster situations is a vast task. Universities are looking for avenues to continue leadership in any environment. The question remains as to whether students will continue their education while sustaining a good grade point average, affording the cost of tuition, and adapting to physiological or psychological battles after disaster strikes. In the future, this study may help assist administrators in learning how students perform in post-disaster situations.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This review of the literature provides a framework for understanding the possible impact of Hurricane Katrina on students' lives. The following areas of literature were reviewed: (a) theoretical framework of persistence and attachment theories, (b) educational effects, (c) financial effects, (d) physiological effects, and (e) psychological effects as they relate to student persistence.

Hurricane Katrina affected many students at The University of Southern Mississippi in some way. The question for most students was whether to transfer or sit out a semester. One scholarly model of student departure by Tinto (1975) explained the possible reasons for students parting the university. The deeper a student is ingrained in his or her academic or social programs, the more likely they will stay. The early factors to Tinto's model did not include financial aid (Tinto, 1975). However, the later models found it to be a great factor (Tinto, 1993). Immediate income after a disaster is always going to be a problem. However, as mentioned earlier by Tisdale (2006), financial aid and grants for students were not a problem after Hurricane Katrina. If financial aid was not a problem, what factors affected students after the disastrous event? This study determined some of the factors that affected student performance in a post-disaster situation.

Theoretical Framework

Persistence

This research examined the intent to persist in college institutions despite the aftermath of a disaster. Theoretically, Tinto (1975, 1987) conceptualized student persistence in higher education. The integration between academic and social particulars underscores the motivation and basis of why a student strives or drops out of college. Therefore, academic integration is classified by human interaction with professors, grades, class attendance, and a sense of intellectual development (Dougherty, 1992). Similarly, Tinto's model reflects these variables to include the non-cognitive variable as a student's ability to feel as though he or she is developing academically (Tinto, 1975). Tinto recognized other important determining factors for student integration, such as social interaction with professors and students. An attachment between the student and the university forms when these interactions take place. Summarily, a sort of bond or an alliance takes place by the student to his or her university (Tinto, 1987).

Bean (1985) found other determining factors of persistence that expanded Tinto's model. Bean's attrition model includes five extra variables: (a) routinization or student life becomes routine; (b) active communication; (c) classroom participation; (d) integration; and (e) distributive justice or whether effort equals end result. However, Bean (1982) definitely put more emphasis on the financial burden some students have to endure, which is explained further in the "financial impacts" section of the literature review.

In addition, a current adaptation of student persistence is derived by Titus's (2006) research of the institution's financial obligation toward student

persistence. In other words, universities are making sure students have the opportunity to receive grants or aid for tuition cost. Besides student predictors by such researchers as Bean (1985), Titus (2006) researched 4-year college students and perspective universities in relationship to the effect of those universities' abilities to increase student persistence by offering financial grants and loans.

Attachment Theory

British psychiatrist John Bowlby introduced the Attachment Theory. Bowlby's (1977) and Ainsworth's (1978) Attachment Theory was originally explained as child bonding, adult psychopathology, and their relationships. Theoretically, attachments represent a person's behavior such as sentiments and resistance. Ultimately, the Attachment Theory explains that each person has to ask himself or herself if they perceive themselves as loved, secure, confident, etc.

When students become attached to friends or surroundings, such as in a university setting, they become disillusioned by destruction (Bergeron, 2006). Therefore, detachment of popular surroundings can lead to post-traumatic stress disorder (PTSD). How a person grieves or mourns a loss builds on the fundamental foundations that Bowlby shaped. The very powerful bonds that link humans together are sometimes jeopardized. When these relationships are put at risk in the course of ill health, injury, or damaged through disaster, a human being can experience a very disruptive episode in their life (Bowlby, 1977). This is possibly true after a disastrous event such as Hurricane Katrina. According to Ainsworth, Blehar, Waters, and Wall (1978), people use attachment figures,

such as their surroundings, as courses of security. Additionally, symptoms described by the Attachment Theory conceived by Bowlby (1977) can be generated by a physical or psychological threat, especially in such cases as first-year college students (Kenny & Rice, 1995).

Educational Effects

In a disaster situation, both the university faculty and students are in a compromised situation. When students feel as though they are at a loss, then so is the university in such times of tragedy. For example, 128 faculty at The University of Southern Mississippi lost their homes. These setbacks make it hard for professors to teach their prospective students (Tisdale, 2006).

Similarly, Fradd and Provenzo (1995) quoted Miami's Pine Villa School principal following the Hurricane Andrew storm that hit Florida in 1992:

I am going to lose at least seven teachers, maybe eight. I'm right now in the process of preparing a surplus list. Our enrollment didn't go back up where we thought it would be. We did the preliminary effort at job reduction this past week. We could lose additional teachers if the enrollment goes down further. (p. 146)

For many students, education was put on the back burner after Hurricane Katrina. Their schooling would have to stop for at least the semester. Others would transfer to other universities willing to pick them up for the fall semester (Southern Education Foundation, 2007).

According to some Louisiana State University (LSU) students, the semester they were attending was a "do or die" type semester. Others were trying to get acceptable grades for graduate school. Other transfer students were

in new surroundings and found it hard to cope (Flarity, 2005). Many college students were living in tents, trailers, or other temporary means (Southern Education Foundation, 2007). One student commented on how he had one professor who was a little compassionate, but said the other professors did not really care (Flarity, 2005).

Flarity (2005) quoted different Hurricane Katrina-affected students and professors:

Mark Grant, university media management professor, said he tried to be lenient with his students by allowing some late assignments.

“Maybe I am at fault for it, but I feel like I have to do that,” Grant said. “When you have fifteen people living at your apartment and your research assignment is due, what’s more important?” (p. 1)

Daniel Camper, petroleum engineering senior, said his house was destroyed and possessions lost in Hurricane Katrina. Camper, like many others, had displaced family living with him while he tried to balance school and work. Camper said he is concerned with how his grades will be affected for the semester. The threat of poor grades also poses a threat to students preparing to attend graduate school. They may not be accepted because of one poor semester. (p. 1)

Similarly, according to Johnson, Nolan, and Siegrist (2006), Delgado Community College in New Orleans had six feet of water and wind damage because of Hurricane Katrina. In September of 2005, the school’s head administrator set up a Baton Rouge center. By October, the students were able to pick up online courses for their fall semester. This effort let 2,500 students re-

enroll to a virtual classroom. The re-enrollment of those students would hopefully help maintain their grade point and academic persistence (Flarity, 2005).

Persistence and Integration

Tinto's (1975) earlier academic integration model defined the cognitive component of his model as grade point average (GPA). This variable seems to have more influence on a student's persistence than just social association with a university. Tinto also posited other leading factors for college integration to include pre-college performance and encouragement by significant others (Tinto, 1975, 1987). The function of "significant others" parallels other academic persistence models (Bean, 1985). Relatives and support roles can influence a student's decision to be consistent and pursue education goals. The mere fact that a student's parents finished college is support in itself (Bean, 1985; Tinto, 1975). In parallel, Tierney (1992) explained that one factor of a student's success is based on whose parents went to college and if the parents actually graduated (Tierney, 1992).

Originally derived from Tinto's (1975) previous work is the *Full Structural Model* by Cabrera, Castaneda, Nora, and Hengstler (1992). This model incorporates nine different variables to include persistence, intent to persist, institutional commitment, goal commitment, academic integration, social integration, pre-college academic performance, significant others, and finances (Cabrera et al., 1992). The study was conducted at a major southwestern university and incorporated 466 students. The first six of the nine variables will be discussed under educational effects. One factor relating to the aforementioned persistence variables is whether a student re-enrolls in his or her

institution of higher learning. Re-enrollment is associated with persistence and the intent to persist, as explained by the Cabrera et al. (1992) model as follows:

Institutional Persistence (P)

The dependent variable for the study was institutional persistence. The construct was categorical in nature. Students who re-enrolled in fall 1989 . . . (or) withdrew from the institution between the spring 1989 and fall 1989. A student's intent to re-enroll at the respective institution in the fall 1989 semester while still enrolled in the spring 1989 semester provided a measure of intent to persist. (p. 579)

Tinto (1975, 1987) described the institutional commitment as university prestige, the importance of graduating from the university, institutional fit, and practical value. Pascarella and Chapman (1983) defined goal commitment as antecedent to persistence and also a measure of integration. The *Full Structural Model* by Cabrera et al. (1992) also illustrated the third and fourth variable of institutional commitment and goal commitment as follows:

Institutional Commitment (IC)

These items assessed feelings of belonging at the institution, certainty and confidence of institutional choice, assessments regarding the importance of graduating from institution, the practical value of the education obtained from the institution, and institutional prestige. The eight items were combined into a single scale after a series of exploratory and confirmatory factor analyses indicated the validation of a single factor.

Goal Commitment (GC)

Two items assessing the importance of completing a college degree and the importance of completing a program of study were used to measure goal commitment. (p. 580)

Tinto's (1993) revision of the earlier conceptual model (Tinto, 1975) added a more descriptive analysis of the interaction involving behavior and perception by students as they aim toward emphasized integration with their social and academic environments. Again, the *Full Structural Model* by Cabrera et al. (1992) also illustrated the fifth and sixth variables of institutional commitment and goal commitment:

Academic Integration (AI)

Two indicators were employed to measure the student's integration into his or her academic environment. The first was cumulative grade point average (GPA) at the end of the spring 1989 semester identified from institutional records. The second indicator was the academic and intellectual development (AID) scale developed by Pascarella and Terenzini (1980).

Social Integration (SI)

A measure of the degree of the student's integration into his or her social environment was provided by the peer-group relations scale (Pascarella & Terenzini, 1980, p. 580)

Tinto's (1975, 1993) interactionalist model of student departure and Cabrera et al.'s (1992) work both deal with the issue of persistence in college and are among some of the most widely cited approaches in the higher education literature. Both theories indicate the importance of fit between the

student's academic and social integration into a university setting and intent to graduate. Even though the *Student Integration Model* by Tinto (1975) and the *Full Structure Model* by Cabrera et al. (1992) consider GPA an important variable, re-enrollment must take place to obtain a GPA (Cabrera et al., 1992).

Financial Impact

A person or individual who is economically disadvantaged in the United States will have a much more difficult time regaining the home life they once had before disaster struck. People who suffer economically before disaster show signs of less survivability. Additionally, research shows that ethnicity and race play large roles in financial recovery and even survival (Mileti, 1999). The financial survivability of students, professors, and administrators at Gulf Coast colleges and universities were tested with the upheaval caused by Katrina (Tisdale, 2006).

The University of Southern Mississippi had damages from Hurricane Katrina resulting in \$200 million in losses (Tisdale, 2006). This damage estimate included all of the satellite campuses along the Gulf Coast. Unfortunately, the loss of student income brought another \$7.1 million deficit to the university (Tisdale, 2006). One thousand students relocated or lived in damaged homes, tents, or trailers (Southern Education Foundation, 2007) after the hurricane. Financial burdens like this can stem from any disaster or hardship. In turn, these financial hardships can affect a student in terms of financial aid or everyday living expenses.

Additionally, federal and state governments spend in excess of \$55 billion in need-based financial aid and individual higher education institutions spend almost \$20 billion in university-specific grants (Singell, 2001).

Consequently, economic burdens are a continuing factor in relationship to whether a student attends college (Tierney, 1992). Cabrera et al. (1992) emphasized the financial variable as it pertains to a student's ability to integrate:

With regards to finances, the model posits that this construct has a direct effect on persistence decisions while affecting students' social and intellectual experiences at the institution. Bean and Metzner (1985) and Cabrera et al. (1992) have argued that students' concerns with finances, along with other external factors to the institution, can affect their academic integration by increasing anxieties associated with the need of securing resources to finance their college education, and by limiting the amount of time and energy spent on academically related activities. (p. 578)

Tinto's *Student Integration Model* (1975, 1987) explained that a student having finance problems would result in the interference of social and academic integration. Tinto emphasized the financial role that plays a large part of why a student attends and perhaps stays in college. However, there was no determining factor for a student related to having financial aid versus not having financial aid and whether the student stayed in school (Tinto, 1987).

Student Persistence Related to Post-Katrina

In order for a student to remain in school, a student must situate roots before his or her freshman year is exhausted; the drop-out rate also increases if the financial burden is increased (Tinto & Goodsell, 1993).

The financial aid administered to students after Katrina was in addition to the financial aid already available for students in the 2005-2006 school year. Current college aid is always available in the form of Pell grants, guaranteed student loans, and Perkins loans to student who qualify (Dowd, 2004). Additional financial aid in the form of \$27 million was given to the students of The University of Southern Mississippi in response to need in the aftermath of the hurricane (Tisdale, 2006). This is an example of the university investing back in its students rather than investing back into administration (Titus, 2006).

Still, as one student put it, "I just cannot afford to return. Financial aid and out-of-pocket money aren't enough to cover the costs for this semester" (Chikowore, 2005, p. 2). This post-hurricane statement is an example of a New Orleans student's struggles. These financial burdens go far beyond the boundaries of financial aid for school.

Like the freshmen in their first year of college, efforts to stay in school can be even tougher after a disaster. "It is a time of transition and adjustment to the social and academic demands of college, a time when the likelihood of drop out is greatest" (Tinto & Goodsell, 1993, p. 4).

The Southern Education Foundation (2007) commented on post-hurricane students. It is clear that student persistence or enrollment diminished after the Katrina event on the Gulf Coast, as detailed below:

Nearly one out of every six students in Louisiana's public colleges and universities dropped out for the 2005-06 school year. In the 2006-07 school year, more than 26,000 students from Louisiana public colleges and nearly 9,000 Mississippi college students remained out of school. (p. 3)

However, according to Tisdale (2007), student persistence was demonstrated by The University of Southern Mississippi's financial aid distribution:

- 912 students received Katrina funds for the fall 2005 semester to pay off prior term balances following the storm.
- 3,967 students received Katrina funds for the spring 2006 semester to help cover the cost of tuition.
- 2,820 students were awarded Katrina funds for the summer 2006 semester to help cover the cost of tuition.
- For the fall 2006 semester, the university has already awarded Katrina assistance funding to 2,324 students. Thus far, through the Katrina/Rita Relief Act, we have made a total of 10,023 financial aid awards to students at Southern Miss.
- Collegiate Funding Services and SunTech, Inc. donated \$10,000 to the Foundation's Katrina fund, to be awarded to students enrolled on a full-time basis showing need and who were impacted by Katrina.
- Scholarship America donated \$35,000 to the Foundation's Katrina Relief Fund to be awarded to part-time and full-time students

impacted by Katrina and who showed need based on the FAFSA (Free application for Federal Student Aid). The award from Scholarship America was funded by a consortium of lenders, guarantee agencies, and third-party service entities. (p. 8)

Comprehensive Plans Related to University and Student Loss

Students and universities are both financially dependent on one another. This is true in regard to education and finances. In other words, one cannot operate without the other. When the cycle is interrupted, both the university and the students lose. Disasters that affect students' lives and universities alike can come at a moment's notice. Whether the disaster is man-made or natural, the outcome can be unyielding. Comprehensive plans to minimize the effects of any disaster will prove to save lives and be profitable in terms of education and finance. This can possibly be achieved by limiting university down time and having predictor models for institutions.

Comerio (2000) highlighted the importance of universities in communities, states, and the federal system despite disaster interference:

Disasters affect universities across the country. In the past decade, Stanford University and California State University, Northridge, were severely damaged by earthquakes; the University of Miami, Tulane University and East Carolina University were closed by hurricanes; the University of North Dakota, Colorado State University, Syracuse University, and many others have faced damage and business interruption from flooding. Not only are universities unique organizations that serve their communities and states, but the federal government also

has a significant economic and social investment in them. Annually, federal agencies fund about \$15 billion in university research. (p. 4)

Comerio (2000) admonished university administrators to become more aware of disaster resistance programs. The disaster programs of the 21st century must take into account safety, student capital loss, and university partial/total closure. A comprehensive plan needs to be in place, such as the Seismic Action Plan for Facilities Enhancement and Renewal (SAFER) programs at the University of California, Berkeley (Comerio, 2000). Comerio explained, "The report is intended for the chancellor and senior administrators at the University of California, Berkeley who demonstrated their commitment to seismic safety through the establishment in 1997 of the SAFER . . . Program" (Comerio, 2000, p. 4).

Unfortunately, students are the true victims of disaster. Universities will be rebuilt and recover in due time. However, it may take more time and adjustments than currently recognized for students who are affected by disaster (natural or man-made) to recover.

Physiological Effects

An altered environment in disaster situations often means health risks are at stake (Disaster Mental Health Response Handbook, 2000). Physical effects from disaster can be just as detrimental as psychological effects. Lindemann (1944) conducted a well-noted study of 101 bereaved individuals who dealt with the very abrupt fire disaster of the Coconut Grove nightclub in Boston on November 28, 1942. In addition to psychological and emotional difficulties, physical indications of various bodily-related illnesses or symptoms of illnesses

were also a major problem (Lindemann, 1944). Hurricane Andrew presented physical illnesses for people as a result of psychological symptoms such as anxiety and depression (Pickens, 1995).

More recently, Shwalb and Shwalb (2005) conducted a study on displaced students in relationship to regular (non-displaced) students after Hurricane Katrina. In particular, the student sample included 207 women and 108 men (68% Caucasian, 18% African American) who had been displaced and relocated from 10 New Orleans area colleges to a public university in southeastern Louisiana. A comparison group at the same university was randomly selected of 400 women and 110 men (84% Caucasian, 9% African American) who were also regular college students to participate in the same Internet-based survey (Shwalb & Shwalb, 2005).

The results for the Shwalb and Shwalb (2005) study illustrated that physiological problems were rather low. Approximately one-fifth of both groups of students were complaining of general health decline. This included backaches, headaches, and exhaustion. However, in the table of Comparisons of Displaced Students, Shwalb and Shwalb's (2005) actual variable items stand out as clearly a physiological problem (see Table 2).

For example, being stressed was 88% for displaced and 68% for regular students. Sleeping difficulties was 51% and 38%, respectively. Another physiological effect was nervousness and being anxious, which accounted for 47% and 32%, respectively. Many of these aforementioned are also related to poor eating habits, which accounted for 33% and 23%, respectively (Shwalb & Shwalb, 2005).

Table 2

Comparisons of Displaced and Regular Students

Item	Displaced Students	Regular Students
Personally injured by hurricane	5%	3%
Damage to their places of residence	43%	28%
Close friends or relations were missing	28%	24%
Knew family members or friends who had died	14%	8%
Lost home	44%	9%
Lost job	53%	13%
Lost automobile	23%	5%
Lost money	75%	65%
General decline in health	22%	15%
Poorer eating habits	33%	23%
Felt stressed out	88%	68%
Sleep difficulties	51%	38%
Nervous/anxious	47%	32%
Depressed	53%	35%
Religion and faith important to coping	58%	70%
Increase in prayerfulness	32%	34%
Negative effects on academic performance	55%	53%
Decrease in motivation to study/achieve	49%	51%
Withdrew from classes since September	37%	22%
Increased worries about financing college education	66%	37%

Note: Information available in Shwalb & Shwalb, 2005, p. 1

To support the notion that physiological problems such as fatigue, insomnia, headaches, and poor appetite are factual, the Disaster Mental Health Response Handbook (2000) listed the following physical effects, among others:

Physical Effects

- fatigue, exhaustion
- insomnia
- cardiovascular strain
- startle response
- hyper-arousal
- increased physical pain
- reduced immune response
- headaches
- gastrointestinal upset
- decreased appetite
- decreased libido
- vulnerability to illness. (p. 28)

Fatigue and exhaustion are first mentioned at the top of the Physical Effects Disaster Mental Health Response Handbook (2000). Antoni, Baum, Fletcher, Ironson, Klimas, Lutgendorf, Penedo, and Schneiderman (1995) explained Chronic Fatigue Syndrome (CFS) as one of the probable outcomes of disaster situations. CFS symptoms can mirror fibromyalgia. For example, some symptoms include fatigue for longer than 6 months, short-term memory loss or cognitive disorders, fatigue after sleep, and depression. The CFS model used for their study contrived variables relating to physical symptoms and functional

impairments due to Hurricane Andrew in South Florida in 1992. Three counties were examined, with one being extremely south, Dade County, and the others being further north with less damage, Broward and Palm Beach counties. The hypothesis stated that the greater the exposure to post-hurricane disaster, the greater the risk of illness. The survey results illustrated that those individuals in the extreme disaster areas of the Dade County area did, in fact, show the greatest risk of health problems. Consequently, those who were living in Broward and Palm Beach counties suffered less illness (Antoni et al., 1995).

Psychological Effects

Post-Traumatic Stress Disorder

Unfortunately, there is limited literature regarding college students in relationship to natural disasters. However, no matter the kind of disastrous event, there is always the potential development of human stress disorders. The most widely recognized stress disorder is Post-Traumatic Stress Disorder, or PTSD (Friedman, Lindy, & Wilson, 2001). PTSD is frequently defined as the acquired psychological condition that follows a distressing event outside the range of typical human practice (Friedman et al., 2001). In the aftermath of Hurricane Katrina, many students may have been prone to developing PTSD. There are no true predictor models that can determine who will possibly develop stress disorders (Pickens, 1995). However, most students who develop PTSD have witnessed or been involved in some traumatic incident. Human trauma is an event in which an experience is outside the realm of the normal human experience—for example, someone subjected to war, physical or psychological abuse, a car accident, or any disaster (Niles, 1991; Friedman et al., 2001). On

the other hand, even though students may experience a traumatic occurrence, this does not mean they will develop PTSD (Pickens, 1995).

Post-Traumatic Stress Disorder History and Characteristics

Previous studies have shown that approximately the same percentage of war veterans involved with World War II and Vietnam both experienced some degree of PTSD. This sort of disorder is described as progressive and chronic in nature. If a person with PTSD does not acquire the necessary help, the outcome usually leads to substance abuse typically correlated with depression (Niles, 1991). In addition, anger, history re-enactment, insomnia, total isolation from others, hyperactivity, and outbursts can also be associated with PTSD (American Psychiatric Association, 1987).

The recovery from PTSD is best achieved when psychological help is accompanied by spiritual support and medication (Niles, 1991). Psychologists believe that not only initial trauma, but survivor guilt, is a very real issue as well. Intervention directed at survivor guilt is important for recovery (Goodwin, 1985). Support groups and family support can be quite valuable when a person is trying to overcome trauma or addiction (American Psychiatric Association, 1987).

Usually, post-traumatic stress disorder happens after experiencing a traumatic event like Hurricane Katrina. The mind usually packs away the details and memories of a disastrous event and then decides to let them return unexpectedly. In some cases, haunting memories surface that generate a recurring historical event. In many cases, the recurring event is just as disturbing as the original event. The origin of the disorder is a traumatic event that embeds itself in the brain enabling some patients to experience it several times over. The

mind would rather stay connected with the past rather than the present (Friedman et al., 2001).

As Friedman et al. (2001) explained, each person has limits and not everyone will experience the same symptoms; some may suffer long or short periods of time and some may have great traumatic incidents with no side effects, while others are quite inundated with re-occurrences, depression, and so forth.

Over the years, the perception of PTSD has been noted as a disorder developing from outside forces versus an inside weakness (Friedman et al., 2001). Students who are likely to develop PTSD are those students who experience someone dying, threats to one's own life, or destruction of their surroundings (Pickens, 1995).

Student Side Effects: Counseling Tips

Periods of disruptive tragedy can be catastrophic if not handled properly. Students can benefit from growth and learning if disastrous events are addressed with the proper protocol. Otherwise, the possibility of depression and even PTSD can be the consequence. The side effects of stress disorders and depression may lead to alcoholism, drug use, or other disruptive habits. Thus, counselors must deal with the victims of disasters in a very special way (Lindemann, 1944). This can be difficult when there is literally no space or any facilities for counseling students in an area that has been devastated such as the Gulf Coast in August of 2005. In addition, after Hurricane Katrina, the student client base at USM for counseling services had risen by 300 to 400% (Scurfield, 2006). Even more interesting, Gulf Coast students were forced to travel 76 miles

north to the Hattiesburg campus for services until the Gulf Coast was equipped and organized with temporary facilities (Scurfield, 2006).

Students in college affected by disasters experience similar problems associated with a disruptive episode as the rest of the public. The differences lie in the students' abilities to focus and maintain good grade point averages while dealing with such adversities and distractions. From her counseling department, Knight (2007) pointed out, "A day in the life of a college student has new meanings in these times. Unfortunately, we encounter the realities of natural disasters, terrorism and war in our daily lives" (Mason Counseling and Psychological Services, ¶ 2)

Current Man-made Disaster Effects

Whether a natural disaster or a man-made disaster, the outcome delivers very common variables such as death, injury, and PTSD. There is some literature that addresses the symptoms affecting students in relation to past disasters, but it is limited for students experiencing a natural disaster. Therefore, the focus in this section is the disasters of terrorism and effects on students. Identifying the symptoms affecting students is key for scholars to effectively deal with a situation and possibly move forward. The Fact Sheet for College Students and Parents Coping with Terrorism (2006) gives tips on identified indicators under the headings of emotional, behavioral, cognitive, and physical characteristics. For example, some emotional responses that the fact sheet lists are shock or denial, anger or irritability, feelings of hopelessness, depression, fear and anxiety, mood changes, numbness, guilt, and grief. Behavioral responses may be changes in activity level, social withdrawal or isolation,

restlessness, agitation or pacing, eating or appetite changes, sleep disturbance or insomnia, increased use of alcohol or drugs, and inability to relax. Cognitive responses include forgetfulness, difficulty making decisions, difficulty concentrating, dreams or nightmares, confusion, flashbacks of the crisis event, and self-doubt. Physical responses include fatigue or loss of energy, headaches or back pain, GI distress, nausea, muscle tension, trembling, rapid heartbeat, sweating or chill, dizziness, exaggerated startle response, and weakness (Fact Sheet for College Students and Parents Coping with Terrorism, 2006).

For some college students, the horrific September 11, 2001, terrorist attacks in New York City and Washington, DC, marked the first major national catastrophe they had ever experienced. In the aftermath of the attacks, students across the country may have felt uncertain about a future that they had just begun to carefully map out. Some may have suffered the loss of parents, relatives, or friends. Other may have wondered how this nation's response to the attacks would involve them. Nobody was unaffected (Mental Health Association New Jersey, 2007).

According to authors Blanchard, Hickling, Johnson, Kuhn, Rogers, Rowell, Steckler, and Wittrock (2004), students of the 9/11 tragedies who developed PTSD-type symptoms were strongly correlated to the proximity of the disaster or the relationship to victims of the World Trade Center. Three universities and their respective students were examined. Again, those students affected most by the terrorist attacks were those students closer to the destruction site (Blanchard et al., 2004).

Again, when a disaster occurs, college students grieve and are very emotional. Losses of human life and/or material belongings, and even a change in society tend to induce the cycle of grieving. Sudden losses to younger students are much worse psychologically than anticipated disasters. For example, the anticipated losses of life due to war situations may be different than sudden deaths of the Columbine High School and Virginia Tech University students. Counseling for surviving students is critical. Administrators and faculty alike need to be aware of these counseling needs and take a progressive approach to see that they are met (Doka, 2002).

Man-made or natural disasters can strike at a moment's notice with little or no forewarning. Whether a disaster is large scale, such as Hurricane Katrina, or confined to a high school, like Columbine or Virginia Tech, grieving will be the result and counseling must take place.

Columbine High School dealt with the disaster of 14 classmates and one teacher killed on April 20, 1999. There were six school shootings just 18 months prior to Columbine with little television coverage (*Washington Post*, 2002). Columbine, however, was quite the opposite with extreme media coverage. According to some reporters, there was a morbid fascination with the Columbine High School shootings (Fast, 2003).

According to psychiatrist Frank Ochberg (2000), post-Columbine was in a situation where PTSD was imminent:

For more than a year, I have worked with survivors of the shootings at the Littleton, Colo., high school that left 14 teenagers (including the two killers) and one teacher dead, and many others wounded. I have seen Columbine

struggling to recover from forms of post-traumatic stress disorder (PTSD)—the disorder most associated with survivors of war. (p. 1)

College Disasters and Cultural Backgrounds of Students

Another sudden man-made confined disaster happened at Virginia Tech University on April 16, 2007. A student himself, Seung-Hui Cho killed 32 people and wounded 25 others (*Washington Post*, 2007). He then killed himself. Not only was the troubled attacker foreign, but also victims of the incident may have been foreign or living in a foreign area. Counselors today, in an emergency situation, must know the cultural differences in the demographic area they are helping and the cultural backgrounds of troubled students.

According to the American Psychiatric Association (2007):

Socio-cultural origins of victims have important influences on how victims manifest post-disaster behavior and how they accept help from “strangers.” Therefore, experiences with and knowledge of specific cultures from the regional area of the disaster are helpful to the psychiatrist participating in the emergency program. Differences in cultures and language can add to miscommunication and mistaken diagnosis. There is a tendency among physicians to over-diagnose pathological post-disaster reactions in minority/culturally diverse victims. Culturally competent psychiatrists may prevent labeling these victims with idiosyncratic behaviors as more disturbed. (¶ 1)

Tips for Students in a Post-crisis Situation

On April 16, 2007, CNN’s camera showed Virginia Tech students, parents, and friends hours and days later mourning the death of their loved ones

on television. Students continuing class were still under pressure to “make the grade,” so to speak.

According to the APA Help Center from the American Psychiatric Association website (2007), tips for distress in the aftermath of Virginia Tech University are noted below. These extrapolations may help in understanding how to counsel students in situations such as post-Hurricane Katrina:

Talk about it—Ask for support from people who care about you and who will listen to your concerns. Receiving support and care can be comforting and reassuring. Your campus is likely to be offering support services through its counseling center. It often helps to speak with others who have shared your experience so you do not feel so different or alone.

Strive for balance—When a tragedy occurs, it’s easy to become overwhelmed and have a negative or pessimistic outlook. Balance that viewpoint by reminding yourself of people and events which are meaningful and comforting, even encouraging. Striving for balance empowers you and allows for a healthier perspective on yourself and the world around you.

Turn it off and take a break—You may want to keep informed, but try to limit the amount of news you take in whether it’s from the Internet, television, newspapers or magazines. While getting the news informs you, being overexposed to it can actually increase your stress. The images can be very powerful in reawakening your feeling of distress.

Honor your feelings—Remember that it is common to have a range of emotions after a traumatic incident. Go a little easy on yourself and on

your friends. You may experience intense stress similar to the effects of a physical injury. For example, you may feel exhausted, sore, or off balance.

Take care of yourself—Engage in healthy behaviors to enhance your ability to cope with excessive stress. Eat well-balanced meals, get plenty of rest, and build physical activity into your day. Avoid alcohol and drugs because they can suppress your feelings rather than help you to manage and lessen your distress. In addition, alcohol and drugs may intensify your emotional or physical pain. Establish or reestablish routines such as eating meals at regular times and following an exercise program.

Help others or do something productive—Find out from your university or community how you can help people who have been affected by this incident, or have other needs. Helping someone else often has the benefit of making you feel better, too. Try volunteering at your school or within your community.

If you have recently lost friends in this or other tragedies—Remember that grief is a long process. Give yourself time to experience your feelings and to recover. For some, this might involve staying at home; for others it may mean getting back to school or work. Dealing with the shock and trauma of such an event will take time. It is typical to expect many ups and downs, including “survivor guilt”—feeling bad that you escaped the tragedy while others did not. . . . A licensed mental health professional such as a psychologist can assist you in developing an appropriate strategy for moving forward. It is important to get professional help if you

feel like you are unable to function or perform basic activities of daily living. Your university or college counseling center may be a good place to start.

Yet another group helping students through times of tragedy is the Office for Victims of Crimes. This is a Department of Justice group that mobilizes for tragedies such as the shootings at Columbine High School and Virginia Tech University (Office, 1999). This division of the Department of Justice helps bring the appropriate social workers, grief counselors, and various services to the location in need (Office, 1999). The Office for Victims of Crimes prepares and trains for events such as Columbine and Virginia Tech. Students in their late teens and early 20s typically deal with tragedy differently. Grief counselors are familiar with this and know that students must move on in their lives and schooling activities (Fast, 2003).

Unfortunately, many of the people involved in support groups and emergency care groups have exhibited PTSD in their own lives as they help other trauma victims. For example, firefighters, police officers, and emergency medical technicians are among those who may develop PTSD (Niles, 1991).

Developing a Positive Outlook

On the other hand, the effects of a disaster can help students to have a positive outlook in life. Fradd and Provenzo (1995) commented on their post-Hurricane Andrew mental outlook:

Some times have been harder than others. One thing that I have learned from this ordeal—I value life. I don't value things; I value life. I learned that in this form of recovery, I must enjoy the moment, to live in the moment,

and to take time for myself. Take time for my family. I am a workaholic. I enjoy working, but now I'm learning more and more to keep something back for myself. I can't be all things to all people. My stress level has dropped because of my new attitude. I used to be a real go-getter; I still am, but I've learned to manage rather than to do everything and be everything to all people. I think that Hurricane Andrew, in looking at the positive side, gave me a different outlook on life. It showed me exactly what I needed and what I can do without. A lot of things . . . have happened to me, to my family, to my colleagues since Andrew. (p. 148)

Conclusion

Student persistence is tested when a tragic event or disaster interferes with scholastic achievement. Researchers and theorists such as Bean (1985), Tinto (1987), and Titus (2006) noted that student persistence includes many variables that include but are not limited to academic integration, interaction with students, interaction with professors, and a feeling of attachment to the school itself. Human attachment, originally defined by Bowlby (1977) and Ainsworth (1978), is alliance that takes place by the student to his or her university (Tinto, 1987). For many students, the relationship between them and the university seems violated after extreme circumstances such as an event like Hurricane Katrina (Bergeron, 2006).

Even though tragic events can strike the university, one common variable of educational effects is a student's concern about his or her GPA. This variable alone, for example, represents a higher persistence than social relationships (Tinto, 1975). However, the variables considered to affect educational pursuit

and persistence include institutional persistence, student's intent to persist, institutional commitment, goal commitment, and academic/social integration (Cabrera et al., 1992; Tinto, 1975). Unfortunately, some students were unable to continue after Hurricane Katrina but others transferred to different schools and universities (Southern Education Foundation, 2007).

With a devastating hurricane that brought \$7.1 million in lost student income to USM, the financial impact to students became difficult as students were forced into living in tents, damaged homes, and trailers (Tisdale, 2006; Southern Education Foundation, 2007). Tinto's *Student Integration Model* (1975, 1987) informs the reader that financial struggles may interfere with social and academic integration with students and the university. However, no hard data suggested that financial hardship is the reason for non-persistence (Tinto, 1987).

The co-dependency for universities and students involves a financial commonality. A disruption like Hurricane Katrina can interrupt the financial cycle between both the university and the student. The student, therefore, struggles with the financial means to continue school. On the other hand, universities struggle without proper enrollment and financial means to continue the education process. Comprehensive plans to reduce university educational down time in a post-disaster could demonstrate a value to institutions across the nation (Comerio, 2000). A similar plan is already in place on the west coast for earthquakes identified as the Seismic Action Plan for Facilities Enhancement and Renewal (SAFER) program at the University of California, Berkeley (Comerio, 2000).

Comprehensive plans such as the SAFER program may also benefit the university by lessening physical health risks. Similarly, physical health risks are associated with psychological health-related problems (Pickens, 1995). In particular, those students who were displaced illustrated much higher percentages of being stressed, decline in health, poor eating habits, anxiousness, and more (Shwalb & Shwalb, 2005).

Many physical ailments can cause or may be the cause of mental stress disorders (Pickens, 1995). When man-made or natural disasters occur, the post-calamity disorder most commonly recognized is PTSD (Friedman et al., 2001). Counseling services, according to Scurfield (2008), must be made available for those students stressed out from confusion, anxiety, anger, or sadness (Scurfield, 2006). Disasters such as 9/11, Virginia Tech, Columbine, Hurricane Andrew, and Hurricane Katrina have similar psychological and physical outcomes. However, the cultural difference for each disaster is unique in demographics, human backgrounds, and each case must be handled appropriately, according to the American Psychiatric Association (2007).

CHAPTER III

METHODOLOGY

Introduction

This chapter reviews the procedures by which the study was performed as it relates to participants, variables, and procedures needed to evaluate the study of significantly affected students and moderately affected students at The University of Southern Mississippi campuses as to how they compared in the following areas: educational, financial, physiological effects, and psychological effects. Quantitative measures were used to evaluate and compare significantly affected students and moderately affected students related to Hurricane Katrina.

Instrumentation

The investigator-developed questionnaire (Appendix A) for this study was designed to evaluate a student's perceptions of his or her experience as it pertains to education, finances, physiological effects, and psychological effects while attending a university post-disaster situation. The researcher collaborated with a panel of experts (psychology professors, social work professors, and higher education professors) and solicited their opinions and judgments for this survey instrument. The researcher examined several styles of questionnaires and determined the Likert-type questionnaire provided was best for quantifiable student responses (Likert, 1932). This scale provides good response separation for determining those students who may be moderately affected versus those students who are significantly affected. The Likert-type questionnaire asked participants to respond to 31 statements to obtain information regarding their disaster experiences related to their educational effects, financial impact,

physiological effects, and psychological effects. Question A defined those students who were moderately or greatly impacted. Students not impacted were not included in this study. Students answering minimal impact or moderate impact were classified as moderately affected students. Students answering substantial impact or great impact were classified as significantly affected students. For the purpose of this study, the researcher used a Likert-type scale measure of 1 to 5 with 1 being *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*. Specifically, Likert items addressed grade fluctuation or educational effects as well as financial impact and psychological and physiological effects. These issues are prominent in the literature review and were used to develop the survey questionnaire. Questions 1-4 reflected educational effects by asking about a student's test scores, overall grade point average, grade failure, or motivation to learn. Questions 5-10 reflected financial impact by asking about money for school-related expenses, financial status, job status, displacement, or transportation difficulties. Questions 11-18 reflected physiological effects related to medical visits, eating habits, body weight, fatigue, physical capabilities, physical injuries, aches, or overall condition. Questions 19-26 reflected psychological effects related to stress, anxiety, medical attention from stress, sleep habits, depression, or overall well-being. Questions 27-31 were yes, no, general-purpose, self-rating questions for USM, also allowing space for student comments. The questions related to possible positive outcomes from the hurricane. More definitively, positive effects on stress, religious beliefs, how USM handled students, appreciation of others, and whether priorities were affected after the hurricane.

Participants/Sample

The participants for this study were male and female University of Southern Mississippi students who may or may not have been affected by Hurricane Katrina while attending a junior college, The University of Southern Mississippi, or other university within a radius of 100 miles of Gulfport, Mississippi, during the fall/spring 2005-2006 semesters. Participants were surveyed at the beginning of the spring 2008 semester at three of the university campuses. Professors were contacted via e-mail after review of USM's website for current courses being taught in the spring of 2008. The e-mail asked professors if a 10-minute survey could be held in class for those students who were enrolled during the fall of 2005. Professors were willing to participate by holding the survey in class. Participants of the survey included those junior, senior, or graduate students enrolled at any USM campus. E-mails were sent to approximately 11 university professors teaching junior, senior, and graduate level classes in the colleges of science and technology, business, nursing, and criminal justice. All 11 professors responded to the e-mails with willingness to participate. Only nine professors' classes were needed to fill survey requirements. Approximately one half of the students surveyed were enrolled at the Hattiesburg campus. The remaining half of students surveyed were enrolled at the Long Beach and Jackson County campuses. However, approximately 30 graduate students surveyed from master of business degree classes were surveyed in Gulfport and Hattiesburg, respectively. Participants were able to take the questionnaire only once. A sample size in excess of approximately 200

students was acceptable. Those students surveyed had to attend USM in the spring of 2008 and be at least 18 years of age or older.

Criteria for Participation

1. Participants eligible for this study were males and females between the ages of 18 and 90.
2. Participants were enrolled in a junior college, The University of Southern Mississippi, or other university within a radius of 100 miles of Gulfport, Mississippi, at the time Hurricane Katrina struck the Gulf Coast, and are still persisting toward degree completion.
3. All potential students had to meet the criteria to be considered a student at The University of Southern Mississippi.
4. All participants were intellectually capable and emotionally competent to answer all questions asked.
5. Students were undergraduate or graduate status.
6. Only those students who answered "yes" to number 3 of the questionnaire were eligible to participate.
7. All students taking the survey were volunteers.

Research Procedures

Following permission from the Institutional Review Board at The University of Southern Mississippi, data collection began in the spring of 2008 (Appendix B).

The researcher asked permission from four USM colleges and nine professors (in person or by e-mail) to promote the questionnaire in class and ask those students who were enrolled in the 2005 school year at USM, junior college,

or other university within 100 miles of Gulfport, Mississippi, to participate (Appendix C). The researcher was in the classroom with the professor to conduct the distribution and collection of the survey. Students participated on a volunteer basis. Those participants completing the survey were kept anonymous and confidential. The timeline for administration of surveys was approximately 4 to 6 weeks and the researcher had in excess of 200 completed surveys.

Validity

After a panel of experts reviewed the questionnaire, a draft was created to ensure the face and content validity of the instrument. The instrument was examined for clarity, consistency, and readability. Upon receiving permission from the Institutional Review Board, professors were contacted via e-mail after review of USM's website for current courses being taught in the spring of 2008. After a response by those professors willing to participate, a pilot survey was administered to nine students enrolled in the nursing program at USM's Long Beach campus. The pilot survey questionnaire was hand delivered to those voluntary participants in a junior/senior nursing class with the professor previously contacted, willing to participate, and present at the time of the survey. Cronbach's alpha measured internal consistency at .86 related to educational effects, .95 related to financial impact, .90 related to physiological effects, and .94 related to psychological effects.

Ethical Issues

The research methodology, confidentiality forms, and questionnaires were submitted to The University of Southern Mississippi for review. The research proposal was submitted to The University of Southern Mississippi Institutional

Review Board for approval. Participants signed a consent form that indicated their willingness to participate and included their right to confidentiality and their ability to withdraw from the study at any time. All surveys were kept confidential and anonymous by USM Institutional Review Board standards.

Data Analysis

All research questions were analyzed using descriptive statistics and independent sample *t* tests comparing the significant difference between moderately affected students versus significantly affected students. The $p < .05$ level of significance was used. This quantitative comparative study used four dependent variables to include educational effects, financial impact, physiological effects, and psychological effects.

CHAPTER IV

FINDINGS

Introduction

This chapter details the results of data gathered and analyzed by the following research questions:

1. Was there a significant difference in grade point average after a disaster between significantly affected college students and moderately affected college students?
2. Was there a significant difference in financial impact after a disaster between significantly affected college students and moderately affected college students?
3. Was there a significant difference in physiological stress after a disaster between significantly affected college students and moderately affected college students?
4. Was there a significant difference in psychological stress after a disaster between significantly affected college students and moderately affected college students?

The purpose of the present study was to examine some of the factors that affect college students in a post-disaster situation. Specifically, this study examined significantly affected students and moderately affected students related to grades, finances, and physical and psychological effects in a post-2005 Hurricane Katrina-related survey administered during the spring of 2008.

The study used an independent *t* test to explore the four dependent variables of educational effects (grades), financial impact (monetary hardship),

physiological effects (aches, pains, or injury), and psychological effects (mental stability or illness) related to the two independent samples of moderately affected and significantly affected students.

Data Analysis

The following describes the survey instrument or questionnaire and how it was set up for quantitative descriptive statistical analysis. Question A was the first item to be answered which categorized a participant related to quantitative questions 1-26.

Question A of the questionnaire (see Appendix A) required the participant to answer whether the participant was minimally impacted or greatly impacted from Hurricane Katrina. The question was a Likert scale type question with five possible answers. If a participant answered “no impact,” he or she was not included in this study. Participants who answered minimally impacted or moderately impacted were categorized as “moderately impacted” for the purpose of this study. Participants who answered substantially impacted or greatly impacted were categorized as “significantly impacted” for the purpose of this study.

Questions 1-26 also used a Likert scale with five possible answers: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*. Students answering minimal impact or moderate impact were classified as moderately affected students. Students answering substantial impact or great impact were classified as significantly affected students (Appendix A).

Questions 27-31 of the questionnaire were yes/no answer items.

Descriptive Statistics

Table 3 details the sample size, mean, standard deviation, and the minimum and maximum scores of grade point average, financial burden, physical stress, and psychological stress between moderately affected students and significantly affected students. Based on the results of the USM Students' Post Katrina Survey, 225 of the 233 participants indicated that Hurricane Katrina impacted them to some degree. One hundred and twenty six participants were moderately impacted while 99 participants were significantly impacted. Additionally, two participants who were minimally impacted answered all of their survey questions as "were not affected."

Table 3 details the percentage of those participants who dropped out during fall semester and re-enrolled during the spring 2005-2006 school year. Twenty one students, or 21.2%, of those participants significantly impacted re-enrolled in school while 13 students, or 10.3%, of the moderately affected participants re-enrolled in school.

Questions 27-31 of the questionnaire were yes/no answer items. Question 27 asked: Do you feel USM reacted by helping students after Hurricane Katrina? Only 180 participants of the 233 answered the question. Of those 180 students, 73.9% answered yes and 26.1% answered no.

Question 28 asked: In a positive way, did Hurricane Katrina affect your priorities in life? Of the 233 participants, 65.2% answered yes and 34.8% answered no.

Table 3

Drop Out Then Re-enroll - Impact Cross-tabulation

Drop Out Then Re-enroll	Low Impact Moderately Affected	High Impact Significantly Affected	Total
Yes			
Count	13	21	34
% Within Impact	10.3%	21.2%	15.1%
No			
Count	113	78	191
% Within Impact	89.7%	78.8%	84.9%
Total Count	126	99	225
% Within Impact	100.0%	100.0%	100.0%

Question 29 asked: In a positive way, did Hurricane Katrina give you the ability to function well under stress? Of the 233 participants, 67.4% answered yes and 32.6% answered no.

Question 30 asked: In a positive way, did you have an appreciation for what others did to reach out and help others after Hurricane Katrina? Of the 233 participants, 94% said yes and 6% said no.

Question 31 asked: In a positive way, did your belief in God or a higher power seem affected? Two hundred thirty one out of the 233 participants answered this question. Approximately 55% answered yes while 45% answered no.

Statistical Analysis

Table 4 addresses the descriptive statistics related to the four research questions in the study. The table shows those student participants surveyed by number of moderately affected and significantly affected as they relate to grade point average, financial impact, physiological effects, and psychological effects. Table 4 displays the number of students surveyed, means, standard deviation, and the minimum/maximum Likert scale number circled. Interestingly, the average mean number circled on the survey was 2.69.

Statistically, significantly affected students had the greatest means related to psychological effects and financial impacts by 3.26 and 3.25, respectively. However, financial impact had the greatest mean difference between significantly affected students and moderately affected students. Therefore, Hurricane Katrina affected students more from a financial standpoint. Surprisingly, grade

Table 4

Group Statistics

Impact	N	Mean	SD	Minimum	Maximum
Grade Point					
Moderate Impact	126	2.24	.99	1.0	5.00
Significant Impact	99	2.91	1.09	1.0	5.00
Financial					
Moderate Impact	126	2.34	.80	1.0	4.67
Significant Impact	99	3.25	.78	1.5	5.00
Physiological					
Moderate Impact	126	2.18	.88	1.0	4.63
Significant Impact	99	2.96	.84	1.0	4.88
Psychological					
Moderate Impact	126	2.42	.94	1.0	4.88
Significant Impact	99	3.26	.90	1.0	4.88

point average showed the least difference between moderately affected students and significantly affected students.

Grade Point Averages

The first research question asked: Was there a significant difference in grade point average after a disaster between significantly affected college students and moderately affected college students? The first group in Table 4's statistical analysis displays grade point average related to those students impacted by Hurricane Katrina. Results of this study display 126 moderately impacted students as compared to 99 significantly impacted students. Questions 1-4 relate to grades. For example, questions 1-4 asked participants to answer statements about test scores being unfavorable, grade point average suffering, failing of college courses, and failed ability to concentrate or effectively learn. Those students significantly affected indicated a higher mean of 2.91 and standard deviation of 1.09 as compared to moderately affected students with a mean of 2.24 and standard deviation of .99.

Students' opinions of their grade point averages were calculated based on how student participants answered questions 1-4 concerning the 2005-2006 scholastic year. An independent *t*-test analysis compared moderately affected and significantly affected participants. The data yielded the following results: $t(223) = 4.806, p < .001$, indicating that there was a significant difference between moderately affected students and significantly affected students. Therefore, significantly affected students ($M = 2.91$) were more affected than moderately affected students ($M = 2.24$) with a significant mean difference of .67.

Financial Impact

The second question asked: Was there a significant difference in financial impact after a disaster between significantly affected college students and moderately affected college students? The second group in Table 4's statistical analysis displays financial impact related to those students affected by Hurricane Katrina. Questions 5-10 asked participants to answer statements about having little or no money for university books, overall financial status suffering, having little or no money for school-related expenses such as gas, food, etc., having little or no job opportunities, frequent displacement or moving from a primary residence, and having little or no transportation. Students significantly affected indicated a higher mean of 3.25 and standard deviation of .78 as compared to moderately affected students with a mean of 2.34 and standard deviation of .80.

Students' opinions of their financial impact were calculated based on how student participants answered questions 5-10 concerning the 2005-2006 scholastic year. An independent *t*-test analysis compared moderately affected and significantly affected participants. The data yielded the following results: $t(223) = 8.554, p < .001$, indicating that there was a significant difference between moderately affected students and significantly affected students. Therefore, significantly affected students ($M = 3.25$) were more affected than moderately affected students ($M = 2.34$) with a significant mean difference of .91.

Physiological Effects

The third question asked: Was there a significant difference in physiological stress after a disaster between significantly affected college

students and moderately affected college students? The third group in Table 4's statistical analysis displays physiological effects related to those students impacted by Hurricane Katrina. Questions 11-18 asked participants to answer statements about regular medical doctor visits increasing, regular eating habits being altered, favorable body weight being altered, being frequently fatigued, physically incapable to attend class, increased susceptibility to bodily injuries, having increased physical aches, and favorable overall physical condition suffering. Students significantly affected indicated a higher mean of 2.96 and standard deviation of .84 as compared to moderately affected students with a mean of 2.18 and standard deviation of .88.

Students' opinions of their physiological or physical condition were calculated based on how student participants answered questions 11-18 concerning the 2005-2006 scholastic year. An independent *t*-test analysis compared moderately affected and significantly affected participants. The data yielded the following results: $t(223) = 6.705, p < .001$, indicating that there was a significant difference between moderately affected students and significantly affected students. Therefore, significantly affected students ($M = 2.96$) were more affected than moderately affected students ($M = 2.18$) with a significant mean difference of .78.

Psychological Effects

The final research question asked: Was there a significant difference in psychological stress after a disaster between significantly affected college students and moderately affected college students? The fourth and final group in Table 4's statistical analysis displays psychological effects related to those

students impacted by Hurricane Katrina. Questions 19-26 asked participants to answer statements about increased frequency of needing stress- or anxiety-related counseling, stress levels increasing, anxiety levels increasing, need to obtain medical attention for increased stress, absenteeism due to psychological stress increasing, not sleeping, increased feelings of depression, and overall well-being suffering. Those students significantly affected indicated a higher mean of 3.26 and standard deviation of .90 as compared to moderately affected students with a mean of 2.42 and standard deviation of .94.

Students' opinions of their psychological condition were calculated based on how student participants answered questions 19-26 concerning the 2005-2006 scholastic year. An independent *t*-test analysis compared moderately affected and significantly affected participants. The data yielded the following results: $t(223) = 6.726, p < .001$, indicating that there was a significant difference between moderately affected students and significantly affected students. Therefore, significantly affected students ($M = 3.26$) were more affected than moderately affected students ($M = 2.42$) with a significant mean difference of .84.

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS FOR PRACTICE, IMPLICATIONS FOR FURTHER RESEARCH, AND DISCUSSION

This final chapter is divided into three sections: Conclusions, Recommendations for Practice, and Implications for Further Research.

Introduction

The purpose of this study was to determine if there was a significant difference between significantly affected university students and moderately affected university students in a post-disaster situation related to grade point average, financial stability, physiological effects, and psychological effects. This research project was entirely quantitative. This study focused on opinions of current university students in a post-hurricane environment as it related to grade point averages, financial stability, physiological effects, and psychological effects. Information was gathered from USM campuses located in the southern region of Mississippi to include Hattiesburg, Long Beach, and Gautier.

Conclusions

Grade Point Averages

Data indicated that there was a significant difference among significantly affected students and moderately affected students related to the opinions of students and their grade point averages. Conclusively, significantly affected students' grades were more affected by Hurricane Katrina than moderately affected students.

This parallels the post-Katrina study that was conducted in Louisiana by Shwalb and Shwalb (2005) of 10 New Orleans area colleges. Displaced students

had a slightly higher percentage of negative effects (55%) on academic performance than those students who did not have to relocate (53%).

Interestingly, from the four dependent variables studied, grade point average in this study showed the smallest mean compared to financial impact, physiological effects, and psychological effects. The mean difference was also the least between moderately affected students and significantly affected students when compared to the mean differences of financial impact, physiological effects, and psychological effects.

Financial Impact

Data in this study suggested a significant difference among significantly affected students and moderately affected students related to the opinions of students and their financial condition. Beyond question, significantly affected students were distressed more by the effect of Hurricane Katrina related to financial strains versus moderately affected students. Interestingly, significantly affected students had one of the greatest means related to financial impact with 3.25. In addition, financial impact had the greatest mean difference with .91 related to significantly affected students and moderately affected students.

Question 27 of the survey had responses relating to the financial aid given via the university. Approximately 74% of USM students felt that the school helped them after the disaster. The Southern Education Foundation (2007) stated that almost 4,000 students received post-Hurricane Katrina funds during the next semester for tuition cost relief.

Physiological Effects

Findings within this study suggested a significant difference among significantly affected students and moderately affected students related to the opinions of students and their physiological condition. Moreover, significantly affected students were more affected by physiological injury due to Hurricane Katrina than moderately affected students.

Again, according to the table of *Comparisons of Displaced Students*, Shwalb and Shwalb's (2005) variable items such as general decline in health, poor eating habits, and sleep habits stand out as clearly a physiological problem. For example, displaced students had a significant general decline in health by 22% versus 15% from those students not displaced. In addition, poor eating habits were 33% versus 23% and sleep difficulties were 51% versus 38% for those students displaced versus not displaced, respectively (Shwalb & Shwalb, 2005).

Psychological Effects

As indicated from previously mentioned studies, findings from this study also stated that there were significant differences among significantly affected students and moderately affected students related to the opinions of student participants and their psychological condition. The major factor in this study was stress and related questions concerning stress. Consequently, those participants who were significantly affected felt a significant level of elevated stressful conditions than those students who were moderately affected. Interestingly, significantly affected students had the greatest means related to psychological effects with 3.26. In addition, psychological effects had one of the greatest mean

differences with .84 related to significantly affected students and moderately affected students.

The APA Help Center from the American Psychiatric Association website (2007) provided tips for distress after disasters much like the Virginia Tech University shooting incident. Those people closest to the victims experience more of the stressful side effects (Blanchard et al., 2004). The students or victims of disasters likely to develop PTSD are those students who experience someone dying, threats to one's own life, or destruction of their surroundings (Pickens, 1995). Destruction to their surroundings forces people to be displaced, therefore causing more stressful situations.

Again, the table of *Comparisons for Displaced Students* (Shwalb & Shwalb, 2005) shows the variable items of "felt stressed out" as 88% versus 68% of those students displaced versus non-displaced by Hurricane Katrina.

Limitations

The following information and conditions limited the research study.

1. The study was conducted at The University of Southern Mississippi. Therefore, the population was limited to those students attending USM's three campuses involving Hattiesburg, Gulfport, and Jackson County. A larger sample size involving several universities may have assisted in improving the study.
2. The study was a post-hurricane survey of students approximately 2½ years from the date of the actual hurricane event. Therefore, attitudes may be different considering the time lapse from fall of 2005 to spring of 2008.

3. The study was limited to those students re-enrolling and not those students who left and did not return to USM.

4. The population cannot be generalized according to race, gender, or socioeconomic status. These variables can be different in every university campus. The campuses of USM in this study each had very different demographics. Therefore, the studied population cannot be generalized.

Recommendations for Practice

It is essential to be aware of how students have responded to disasters in the past. Universities and their administrators may find this study applicable to their student body and future disaster planning related to educational effects, financial impacts, physiological effects, and psychological effects. In addition, disaster programs of the 21st century must take into account safety, student capital loss, and university partial/total closure. As mentioned by the researcher in the review of related literature, an exemplary program leading the way is the Seismic Action Plan for Facilities Enhancement and Renewal (SAFER) program at the University of California, Berkeley (Comerio, 2000). The researcher found that the UC Berkeley program leads the nation in pre-disaster and post-disaster preparedness when it comes to the schools and students' financial, psychological, physiological, and educational well being. Their program includes an emergency fund for immediate use on building reconstruction, therefore reducing some of the physiological and psychological burdens on students when disaster strikes. In other words, reducing the "down time" of the university and creating a safer/healthier student environment.

Based on this researcher's studies and findings from previous studies, the following are suggested recommendations for universities, junior colleges, and community colleges that lie in a coastal region or in historically hurricane harms way.

The recommendations are:

1. Retaining students through offering online courses - Strategic planning and budget for educational student persistence and continuation after disaster strikes should be a consideration. Shortly after hurricane Katrina, online courses were offered to students from Delgado Community College, New Orleans (Johnson et al., 2006). The actual online center was open in Baton Rouge, well away from destruction. Distance learning may ensure continued disrupted education and encourage student persistence. Therefore, situating a satellite office at another location in case of emergency or disaster would be an effective action.
2. University hurricane disaster preparedness - Strategic planning and budget for post-hurricane financial impact should be established. The new disaster programs of this century must take into account financial issues such as student capital loss, university partial/total closure, and financial impact on students. Data and research in this study suggest that financial strains were among the greatest factors whereas grade point averages were the least affected. Therefore, universities need to ensure that students are provided the financial support for continued attendance. In addition, distance learning programs in the time disaster strikes would be an invaluable resource. A disaster fund should be set up for immediate access in the rebuilding or relocating of

campus facilities for classroom admission. Any alternate locations should already be cited as to the location and capability of that emergency facility in case of a disaster.

3. Student persistence through financial assistance - Identifying those students who really need assistance would be beneficial. A very simplified survey after a disaster may identify those students in greater need of financial and counseling assistance. Therefore, as those students apply for financial aid, helping those students in greater need of finances may continue university enrollment and significantly help the student in a post-disaster situation.

4. Strategic planning and budget for physiological and psychological student-related circumstances - Natural or human-directed disasters are equally horrifying whether describing Hurricane Katrina or the event of Virginia Tech. Nonetheless, students attending school on the coast of Mississippi endured a battle after the storm. What remained in the wake of the storm would last like eternity in the minds of students.

Illnesses that involve physical and psychological ailments tend to revolve around each other. Helping students cope with disaster-related injury or illnesses, such as PTSD, is an important part of any recovery plan. According to Scurfield (2006), USM was not in a position to treat the number of student requests and its Gulf Coast campuses for social services counseling. Therefore, having an elected qualified personnel list of volunteers in time of disaster would be beneficial. An emergency satellite location should be set up with quarters for this counseling service to both students and faculty.

Implications for Further Research

1. The research examined whether or not there is a significant difference between significantly affected university students and moderately affected university students in a post-disaster situation related to grade point average, financial stability, and physiological and psychological effects.

Research may suggest that this same study be repeated, but the population should be analyzed within several coastal universities. This will assist in determining whether or why several universities differ related to grade point average, financial impact, physiological effects, and psychological effects.

2. Additional quantitative research can be conducted to understand whether universities perceive themselves as post-disaster ready when it comes to safety, university capital loss, university partial/total closure, educational effects, financial impact, physiological effects, and psychological effects.

3. A similar study to this one with qualitative research may demonstrate in-depth perceptions by the students and/or faculty whether the university properly handled a post-disaster situation related to educational, financial, physiological effects, and psychological effects.

4. Research may be conducted involving student retention by on-line courses taught by universities in post-disaster situations. Delgado Community College (DCC) let 2,500 students re-enroll to a virtual classroom after hurricane Katrina via a satellite campus location in Baton Rouge. Although DCC returned a low percentage of impacted students after Hurricane Katrina, an established future system allowing students to continue enrollment may prove to be beneficial to the student and university in emergency relocation-type situations.

5. Research on student persistence after a disaster can be conducted as it relates to a student's transition disruption and developmental stages in a university setting.

6. Additional research may be conducted to examine whether freshmen are more likely not to persist; for example, some of the coping skills of undergraduate freshmen may or may not be adequate for persistence as compared to those students completing more than one year of college.

7. Additional research may be conducted on USM's financial aid protocol to ensure students are receiving full benefits after a disaster such as Hurricane Katrina.

Discussion

Although supporting literature for students involved in hurricane disasters is limited, there is enough evidence that warrants future studies related to student persistence and university success or well being. In addition, this study allows administrators to consider further in-depth studies for a greater post-disaster plan much like the comprehensive plan at the University of California, Berkeley. USM has adapted well to the catastrophic disaster of Hurricane Katrina. For example, USM purchased property for expansion in the northern counties away from coastal areas and established satellite locations to continue the 2005-2008 school years. However, grants, government aid, and donations were needed in the immediate aftermath of Hurricane Katrina. In summary, a comprehensive post-disaster plan encompassing all student and university needs would be significant for USM.

APPENDIX A

USM STUDENTS POST-KATRINA

You may withdraw from this questionnaire at any time.
Please answer all questions to the best of your ability.

I. I am a Current Student at the University of Southern Mississippi:
_____ Yes _____ No

II. My Age During Hurricane Katrina was: _____

III. I was a Student at the University of Southern Mississippi Before Hurricane Katrina and enrolled in the 2005-2006 fall semester:

_____ Yes _____ No

(IF YOU ANSWERED NO, PLEASE DO NOT CONTINUE)

IV. Did you drop out Fall semester 2005 and then re-enroll in a following semester? _____ Yes _____ No **(IF YES)** Re-enrolled semester? _____

V. Citizenship:

_____ U.S. Citizen or Permanent Resident of U.S.

_____ Non-U.S. Citizen (Citizen of another country)

VI. Gender:

_____ Male _____ Female

VII. Race/Ethnicity (check all that apply):

_____ American Indian or Alaskan Native _____ Asian

_____ Black _____ Hispanic

_____ White _____ Other: _____

VIII. Marital Status:

_____ Single _____ Married _____ Divorced _____ Widow(er)

IX. Children:

_____ How many _____ Ages

X. Living arrangements:

_____ Live at home (parent or guardian) _____ Live on own

XI. Financial:

_____ Support yourself _____ Other means

XII. Are you disabled? _____ Yes _____ No

Please circle the number that corresponds with your answer.

A. As a college student, how severely impacted were you **after** Hurricane Katrina. (example: displaced, lost home/damaged home, parents lost home/damaged home, lost car, lost job, lost income, suffered injury, lost loved ones, or had relatives impacted)

1 2 3 4 5
 No impact Minimal impact Moderate impact Substantial impact Great impact

ROOT QUESTION TO THE FOLLOWING QUESTIONS

Due to the impact of Hurricane Katrina, the 2005 fall semester and 2006 school year resulted in

1. my class test scores being **unfavorable**:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

2. my overall grade point average suffering:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

3. my failing of college courses:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

4. my **failed** ability to concentrate or effectively learn :

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

5. my having little or no money for university books:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

ROOT QUESTION TO THE FOLLOWING QUESTIONS

Due to the impact of Hurricane Katrina, the 2005 fall semester and 2006 school year resulted in

6. my overall financial status suffering:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

7. my having little or no money for school related expenses such as gas, food, etc.:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

8. my having little or no job opportunities:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

9. my frequent displacement or moving from my primary residence:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

10. my having little or no transportation:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

11. my regular medical doctor visits increasing:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

12. my regular eating habits being altered:

1 2 3 4 5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

ROOT QUESTION TO THE FOLLOWING QUESTIONS

Due to the impact of Hurricane Katrina, the 2005 fall semester and 2006 school year resulted in

13. my favorable body weight being altered:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

14. my being frequently fatigued:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

15. my being physically incapable to attend class (e.g., tired, muscle aches, cramps, etc.):

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

16. my increased susceptibility to bodily injuries (e.g., muscle pulls, severed limbs, cuts, bruises, etc.):

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

17. my having increased physical aches (head, back, knees, neck) or bodily pain:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

18. my favorable overall physical condition suffering:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

19. my increased frequency of needing stress- or anxiety-related counseling:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

ROOT QUESTION TO THE FOLLOWING QUESTIONS

Due to the impact of Hurricane Katrina, the 2005 fall semester and 2006 school year resulted in

20. my stress levels increasing:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

21. my anxiety levels increasing:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

22. my need to obtain medical attention for increased stress:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

23. my absenteeism due to psychological stress increasing:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

24. my not sleeping:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

25. my increased feelings of depression:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

26. my *overall well being* suffering:

1
2
3
4
5
 Strongly Disagree Disagree Neither Agree nor Disagree Agree Strongly Agree

Yes / No / Comments

Please answer all questions to the best of your ability.

27. Do you feel USM reacted by helping students after Hurricane Katrina?

_____ Yes _____ No Please explain very briefly: _____

28. In a positive way, did Hurricane Katrina affect your priorities in life?

_____ Yes _____ No

29. In a positive way, did Hurricane Katrina give you the ability to function well under stress?

_____ Yes _____ No

30. In a positive way, did you have an appreciation for what others did to reach out and help others after Hurricane Katrina?

_____ Yes _____ No

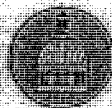
31. In a positive way, did your belief in God or a higher power seem affected?

_____ Yes _____ No

Any additional comments on the aftermath of the Hurricane Katrina in relationship to you as a student will be greatly appreciated.

APPENDIX B

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #3147
 Hattiesburg, MS 39406-0007
 Tel: 601.266.6820
 Fax: 601.266.5509
 www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
 NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration Regulations (21 CFR 312.61-312.63), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provision for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been provided to protect vulnerable subjects.
- Any unanticipated, serious or continuing problems or concerns regarding risks to subjects must be reported immediately, but not later than 15 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 27124324

PROJECT TITLE: Post-Disaster Effects of Hurricane Katrina on Significantly Affected College Students Compared to Moderately Affected College Students

PROPOSED PROJECT DATES: 01/01/08 to 09/30/08

PROJECT TYPE: Dissertation or Thesis

PRINCIPAL INVESTIGATOR: Charles Thomas Coleman

COLLEGE/DIVISION: College of Education & Psychology

DEPARTMENT: Educational Leadership & Research

FUNDING AGENCY: N/A

IRB ACTION: Expedited Review Approval

PERIOD OF APPROVAL: 01/01/08 to 01/01/09

Lawrence A. Hickman, Ph.D.
 Lawrence A. Hickman, Ph.D.
 IRBPRO Chair

1-22-08
 Chair

APPENDIX C

LETTER OF CONSENT TO PARTICIPATE IN SURVEY AND/OR INTERVIEW

To: University of Southern Mississippi

From: Charles Thomas Coleman, Doctor of Philosophy Degree Candidate

Re: Consent to Conduct Research

In partial fulfillment of the doctor of philosophy degree in higher education administration, I will be conducting a study on college students. The purpose of this project is to determine if there is a significant difference between college students before and after Hurricane Katrina in the areas of educational, financial, psychological, and physiological effects. Data will be generated to obtain information regarding students that were enrolled during the catastrophic event. My research project will also be inclusive to a perception of college students among university professors and administrators.

This letter will serve as verification that the University of Southern Mississippi will allow me to retrieve data regarding college students. This letter also serves as confirmation that the university is allowing me to conduct a perception study. The integrity of the information gathered will be confidential.

Data gathered will be used solely for the completion of my research project. This letter will be sent to the Human Subjects Protection Committee for review to ensure that this project follows all guidelines and federal regulations. Questions regarding the rights of research should be directed to the following:

Chair of Institutional Relations Review Board

The University of Southern Mississippi

118 College Drive, #5147

Hattiesburg, MS 39406-0001

601-266-6820

Please feel free to contact me at 228-238-1674 if you have any questions.

Sincerely,

Charles Thomas Coleman
President

Physicians Medical

My signature below authorizes Charles Thomas Coleman to gather the necessary information pertinent to the research discussed above from the University of Southern Mississippi.

Administrative Signature:

Date:

Title:

APPENDIX D

LETTERS OF SUPPORT

CONSENT FORM FOR RESEARCH

THE UNIVERSITY OF SOUTHERN MISSISSIPPI AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

Consent is hereby given to participate in the study titled: Post-disaster Effects of Hurricane Katrina on Significantly Affected College Students Compared to Moderately Affected College Students.

PURPOSE: The purpose of this study is to determine if there is a significant difference between affected university students and non-affected university students in a post-disaster situation as it relates to grade point average, financial stability, psychological, and physiological effects. This study may help assist administrators in learning how students perform in post-disaster situations.

DESCRIPTION OF STUDY: Participation will consist of voluntary students whom were students during hurricane Katrina and are filling out questionnaires in classrooms on USM campus with the permission of those participating professors. The paper survey will only take 5-10 minutes.

BENEFITS: Participants are not expected to directly benefit from taking the survey. However, acknowledgements for participating professors will be in order for dissertation. There may also be future benefits to students and the university for future crisis situations.

RISKS: No foreseeable risks, beyond those present in routine daily life, are anticipated in this study. If participants find they are distressed by completing these questionnaires, they should notify the researcher immediately.

CONFIDENTIALITY: Other than the consent forms, you will not place your name on any other information provided for this study. Data gathered from the present study will be stored in a secure location for six years, at which time it will be destroyed or given to USM for their files. Findings will be presented in aggregate form with no identifying information to ensure confidentiality.

PARTICIPANT ASSURANCE: Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Mr. Charles Coleman at (228) 238-1674 (or e-mail at physiciansmedical@yahoo.com). This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human participants follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (601) 266-6820. A copy of this form will be given to the participant.

If you become distressed as a result of your participation in this study, then you should contact an agency on-campus or in the surrounding community that may be able to provide services for you. A partial list of available resources is provided below:

University of Southern Mississippi Counseling Center	(601) 266-4829
Oak Arbor	(601) 545-2925
Pine Belt Mental Healthcare	(601) 544-4641
Pine Grove Recovery Center	(800) 821-7399

If you experience distress as a result of your participation in this study, please notify Mr. Charles Coleman (physiciansmedical@yahoo.com).

Printed Name of the Research Participant

Signature of the Research Participant

Date

Signature of the Person Explaining the Study

Date

Permission Letter to Survey Gulf Coast Classrooms



The University of
Southern Mississippi

730 East Beach Boulevard
Long Beach, MS 39560
Tel: 228.865.4500
Fax: 228.575.6277
www.usm.edu

January 8, 2008

Dr. Debra Gentry
Higher Education Coordinator
Department of Education, Leadership, and Research
Internal Review Board
118 College Drive, Box 5027
Hattiesburg, MS 39406

RE: Charles Thomas Coleman
Student ID 161906
Graduate Studies

Dear Dr. Gentry,

This letter states that Charles Thomas Coleman may in fact survey students in classrooms on the USM Gulf Coast campus. He must have the permission of the classroom teacher and the students who are willing to participate. The data collected will be used in his dissertation, "Post Katrina Effects on Moderately Affected Students versus Severely Affected Students." This letter will enable Mr. Coleman to administer the survey for the spring and summer semesters if needed. In addition, this letter would enable any professors willing to let Mr. Coleman come to the Hattiesburg campus for their classes to be surveyed.

Sincerely,

A handwritten signature in cursive script that reads "Pat Joachim".

Pat Joachim, Ph.D.
Associate Provost - Gulf Coast

PJ/bjg

Permission Letter Shwalb SELU
Table 2

David.Shwalb@selu.edu wrote:

Yes, you have my and Barbara J. Shwalb's permission to display the tables. Just be sure that it properly acknowledges the source of the tables and states something like "with permission from authors" or whatever is proper in APA style. Can you send us an electronic version of the thesis report when it's done? Good luck with the completion of this important work.

On Friday, October 26, 2007 3:20 PM, T Coleman wrote:

Date: Fri, 26 Oct 2007 13:20:13 -0700 (PDT)
From: T Coleman
To: David.Shwalb@selu.edu
Subject: Permission Letter / Study graphs
Dr.Shwalb,

Permission Letter Southern Education Foundation
Figure 1:

RE: permission letter
Date: Thu, 3 Apr 2008 12:01:49 -0400
From: "Steve Suitts" <SSuitts@southerneducation.org> [Add Mobile Alert](#)
To: "T Coleman" <physiciansmedical@yahoo.com>

04.03.08

Dear Tom Coleman,
The SEF report from which the tables and figures on education after Katrina come has this paragraph on the copyright page:

Portions of this work may be reproduced without permission, provided that acknowledgement is given to the Southern Education Foundation. Limited permission is also granted for larger portions to be reproduced by nonprofit and public agencies and institutions only, solely for noncommercial purposes so long as acknowledgement to SEF as the source is prominently given. Reproduction or storage in any electronic form for any purpose, commercial or noncommercial, is prohibited without the express written permission of the Southern Education Foundation.

Printed copies of *Education after Katrina: Time for a New Federal Response* are available for order on-line and from the Southern Education Foundation, 135 Auburn Avenue, Second Floor, Atlanta, GA 30303-2503 for \$15.00 each while supplies last. An electronic version is available without charge at www.southerneducation.org.


Therefore, for a dissertation you do not need a letter of permission. But, just in case, please consider this E-mail as such a letter granting you permission to use SEF charts and graphs in compliance with the copyright policy stated above.

Good luck on your work.

Sincerely,
Steve Suitts

Steve Suitts
Vice President
Southern Education Foundation
135 Auburn Avenue NE
Atlanta, GA 30303
404-523-0001 Ext. 118
404-523-6904 [FAX]
ssuitts@southerneducation.org
www.southerneducation.org

Permission Letter National Student Clearinghouse
Table 1:

Subject: Permission to cite Clearinghouse press release
Date: Fri, 4 Apr 2008 13:55:35 -0400
From: "Kathy Dugan" <dugan@nslc.org>  [Add Mobile Alert](#)
To: physiciansmedical@yahoo.com

This email provides C. Thomas Coleman, Graduate Studies, USM- University of Southern Mississippi, with permission to cite the information contained in the National Student Clearinghouse's November 16, 2005 press release, "National Student Clearinghouse Reports Over 1,000 Colleges Accepted More Than 18,000 Katrina-Displaced Students From Six Closed Louisiana Colleges" (posted at http://www.studentclearinghouse.org/about/news/release_2005-11-16.htm) in his dissertation, "Post Disaster Effects of Hurricane Katrina on Significantly Affected College Students Compared to Moderately Affected College Students."

Kathleen Dugan
Marketing Director
National Student Clearinghouse
13454 Sunrise Valley Drive, Suite 300
Herndon, VA 20171
703-742-4208 phone
703-742-4239 fax
www.studentclearinghouse.org

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