EXPLANATORY STYLE AND COLLEGE PERFORMANCE IN
STUDENTS WITH PHYSICAL DISABILITIES

Dissertation

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements for the Degree of

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By

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Seventy students (38 with physical disabilities and 32 without physical disabilities) were matched on age (a criterion of ± 4 years was used) and sex. Members of both groups, Persons With Physical Disabilities (PWPD) and those Persons Not Physically Disabled (PNPD), were asked to complete the University Services Inventory, Academic Goals Questionnaire, Academic Attributional Style Questionnaire (AASQ), and Beck Depression Inventory (BDI) to determine how these variables were related to explanatory style (ES, as determined by AASQ scores).

ES has its origins in the reformulated learned helplessness model (Abramson, Seligman, & Teasdale, 1978). According to this model, individuals who made attributions that were internal-stable-global (pessimistic ES) were more likely to experience mood and behavior deficits in the wake of bad events. The present study examined college achievement (GPA), utilization of university services, goal
specificity, goal efficacy, and responses to academic setbacks, as these variables were related to ES. Additionally, ES scores were examined with regards to differences in gender and disability status (both between different disability groups and between individuals with and without physical disabilities).

A series of hierarchical multiple regressions for the PWPD group showed the following results: 1) ES was a good predictor of GPA, after depression was held constant; 2) ES did not adequately predict the usage of university services; 3) ES was negatively associated with goal specificity; 4) ES was negatively associated with goal efficacy; and 5) ES was not a good predictor of responses to academic setbacks. A 2 x 2 ANOVA showed no main effects for either gender or disability status. However, it was shown that PWPD males and PNPD females had more pessimistic ES than did PWPD females. Finally, a one-way ANOVA showed no difference in ES scores between the different disability groups. These results not only showed that ES was a good predictor of college performance, but also that PWPD individuals scored comparably to their PNPD peers.
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CHAPTER 1

INTRODUCTION

Federal legislation such as Public Law 101-336, the Americans with Disabilities Act of 1990, has as its most basic intent the removal of societal attitudes that impede the opportunity for all individuals, particularly those with disabilities, to succeed and contribute to society. Since its passage, more and more individuals with disabilities have been entering into more mainstream settings. For example, the University of North Texas has seen its population of students with physical disabilities increase from 99 in 1990 to 136 in 1994. This rise has taken place alongside a decline in the general student body population from 26,500 to 26,000 for the same time period.

The increase in the numbers of students with physical disabilities has contributed towards current trends to maximize college achievement and success for this population (Richardson, 1994). One correlate of academic achievement that has been demonstrated among various populations is one's explanatory style.
Explanatory style (from this point forward, the terms ES and explanatory style will be used interchangeably) is the manner in which an individual habitually explains to himself or herself the occurrence of bad events. Whether an individual perceives these occurrences in an adaptive, optimistic way or in a maladaptive, pessimistic way can profoundly influence the general quality of his or her life. Research has shown that the style one implements in making these causal explanations is linked to psychological well-being, health, and achievement. These findings have been examined with regards to various populations, such as presidential candidates, insurance sales associates, athletes, and students. The purpose of the present study was to apply this theory to a population of college students with various types of physical disabilities. Specifically, college performance and achievement was examined. The remainder of this chapter will: 1) explain the evolution of the theory of ES; 2) discuss criticisms of ES; 3) discuss the development and course of ES within the individual; 4) discuss issues concerning the remediation of a maladaptive ES; 5) place ES within the framework of a theory of personality; 6) review the literature concerning the link
between ES and the human experience, such as success and accomplishment; 7) discuss the link between ES and academic achievement; 8) review educational strategies that have been implemented in an attempt to enhance academic achievement among students with disabilities; and 9) discuss the lay-out of the present study that examined the application of the theory of ES to a sample of college students with various physical disabilities.

Evolution of ES as a Psychological Construct

Learned Helplessness Model. The origins of ES can be found in learned helplessness theory. However, Peterson (1991a) emphasized that the theory did not develop without outside influences. Instead, it owes its conception to cognitive and attribution theory. However, because the leading figures in ES research have been guided by learned helplessness theory, the learned helplessness track is often followed. It is therefore this theoretical orientation that provides the most efficient chronicling of the development of the ES theory. With this point in mind, an examination of the development of learned helplessness theory follows.

Learned helplessness has been defined as a failure by an organism to generate instrumental responses following
exposure to some sort of inescapable and aversive stimuli (Hiroto & Seligman, 1975). Several studies have demonstrated a relationship between an organism’s inability to control the occurrence of events in its environment and behavior deficits. In an early study of this phenomenon, Seligman and Maier (1967) exposed dogs to electrical shock. During initial shock trials, some dogs were allowed to escape the shock by panel pressing, while yoked control dogs were afforded no such luxury. Results showed that those dogs who had control over terminating their shock during these initial sessions showed no interference in later escape avoidance learning. However, the yoked dogs, whose actions were independent of shock termination, did show subsequent interference with this learning. Although these control dogs occasionally managed to exhibit escape behaviors during subsequent trials, they tended to return to their passive acceptance behaviors. This study not only demonstrated the importance of control an organism must maintain over its environment and actions, but also the durability of this type of learning.

Hiroto and Seligman (1975) examined the generalizability of learned helplessness in humans. Their
purpose was to investigate whether or not induced helplessness would transfer between cognitive tasks and instrumental tasks. Ninety-six subjects were placed into one of four concurrently run experiments: 1) a pretreatment group with inescapable, escapable, or control aversive tone followed by shuttle-box training; 2) a pretreatment with unsolvable, solvable or control discrimination problems followed by anagram solution testing; 3) pretreatment with escapable, inescapable or control aversive tones followed by anagram solution testing; or 4) pretreatment with solvable, unsolvable or control discrimination problems followed by shuttle-box training.

This study provided three basic conclusions. First, those individuals pretreated with an inescapable aversive tone showed subsequent interference with escape behavior in a shuttle-box. This did not occur with controls or with individuals placed in a pretreatment escape condition. Second, a group placed in a pretreatment condition in which individuals were provided with unsolvable discrimination problems showed disturbances in their later attempts to solve anagrams. Again, this did not pertain to controls or individuals placed in a solvable pretreatment group. This
particular finding showed the generalizability of learned helplessness to human cognition. Third, the experiment demonstrated the cross-modal nature of helplessness. Pretreatment unsolvable participants showed later interference in shuttle-box escape learning. The performance of this group matched subjects who were exposed to an inescapable pretreatment condition.

Although the learned helplessness model appeared to show promise as a field of psychological inquiry, it was incomplete and warranted reformulation. Following is a discussion of the theory's shortcomings and the attempts made to rectify them.

Reformulated Model. Abramson, Seligman, and Teasdale (1978) criticized learned helplessness theory as it stood. It was argued that the theory did not explain when helplessness would generalize versus remain specific or be chronic versus acute. The reformulation of the model that emerged attempted to answer these shortcomings. Attribution theory was used to explain the onset and course of helplessness in humans. Abramson and her colleagues contended that when an individual finds himself or herself in a state of helplessness, he or she will tend to attribute
that state to a cause. This causal attribution is said to lie along three polar dimensions: 1) internal (it is me) versus external (it is you); 2) stable (this is permanent) versus unstable (this is temporary); and 3) global (this interferes with everything I do) versus specific (this pertains only to this situation). The choices one makes along these three sets of polar attributional dimensions determine the future course of learned helplessness.

Abramson et al. (1978) stated that when an individual selects causal attributions for bad or negative events that are internal-stable-global, that individual will be more likely to experience helplessness and its associated symptoms. This pattern is also expected to result in a more pervasive and chronic course of depression. Internal attributions are said to lead to a lowered self-esteem; stable attributions to chronicity; and global attributions to pervasiveness. Peterson and Seligman (1984) labeled this internal-stable-global pattern of attribution selection for bad events as a depressive explanatory style.

**Explanatory Style (ES)**

The term "depressive explanatory style" was given because the internal-stable-global ends of the polar
attributational dimensions reflected the similarities between the behavioral consequences of this style and depression, such as deficits in cognition, motivation, and affect (Peterson & Seligman, 1984). Peterson (1991b) explained that the selection of the internal/external-stable/unstable-global/specific triad was not intended to encompass all of the possible attributions one can make to explain the occurrence of a bad event. Instead, the triad was selected to illustrate the characteristics of learned helplessness, such as the chronicity, severity, and generalization of its depression-like symptoms. In other words, the theoretical underpinnings of learned helplessness warranted their selection. He continued that the internal/external-stable/unstable-global/specific dimensions should only be selected as measures if the research hypothesis could be formulated within these parameters.

Alloy, Peterson, Abramson, and Seligman (1984) investigated the generalizability of learned helplessness with regards to globality. They hypothesized that an individual possessing the pessimistic global explanation for negative events would experience helplessness deficits in various situations, regardless of their similarity to the
original helplessness-inducing event. Conversely, those individuals using a specific explanation for negative events would experience helplessness deficits only in situations similar to the original event. In the first experiment, 108 undergraduates were administered an instrument known as the Attributional Style Questionnaire (ASQ) to measure their ES. The researchers were particularly interested in their global/specific scores. Participants were then exposed to two similar noise termination conditions (button pushing versus knob sliding). The results showed that under these two similar conditions, individuals experienced helplessness regardless of their global/specific scores. In experiment two, 60 undergraduates were assessed for globality/specificity. These participants were then placed into a helplessness inducing noise condition and were later asked to solve anagrams. The results showed that only those individuals with global styles showed helplessness in the anagram task, which was considerably different from the noise termination task. These findings held even when depression, internal/external, and stable/unstable scores were statistically held constant. These findings supported the reformulated learned helplessness model, which stated
that the global/specific dimension affected the 
pervasiveness of learned helplessness deficits.

The early stages of learned helplessness theory in 
humans and its reformulation warranted further 
investigation. The decade following its inception and 
development led to studies which examined several properties 
and characteristics of the model. An overview of this 
research is provided after discussing criticisms of the ES 
model.

Criticisms of ES

Criticisms of both the correctness of the ES dimensions 
employed and the manner by which ES is measured have been 
raised. Critics have stated that because ES is directed 
towards how an individual reacts to uncontrollable events, a 
dimension directly measuring controllability is necessary 
(Anderson & Deuser, 1991; Deuser & Anderson, 1995; Weiner, 
1991). In fact, Deuser and Anderson reported that 
individuals actively engage in making attributions so that 
they can better control their environment. Therefore, 
Deuser and Anderson stated that the controllability 
dimension is the most important because it directly allows 
the individual to gauge his or her past experiences.
allowing for appropriate decisions and responses. These authors rejected Peterson's (1991b) contention that controllability versus uncontrollability is inferred from the ES dimensions. Deuser and Anderson added that individuals are not aware that their decisions are made along the ES dimensions, which make the dimensions less important. However, it seems that whether or not the individual is aware of the traditional ES dimensions that underlie his or her processing of a given situation, those dimensions might still affect the extent to which environment is perceived as controllable. Also, Peterson (1991a) pointed to unpublished research that showed that a controllability dimension was the least robust in predicting depressive symptoms.

Other criticisms of ES research have examined the statistical properties of ES and its dimensions. Deuser and Anderson (1995) also reported that the ES dimensions are not orthogonal to one another. They contended that analyses should statistically control for the confounded variance between the different dimensions. These authors stated that this lack of orthogonality addresses the need to discontinue the use of a composite ES score in the analysis of data.
Other critics have called into question the use of composite ES scores. Carver and Scheier (1991) stated that this detracts from what each individual dimension offers. However, Peterson (1991a) defended the use of a composite score by stating that it was appropriate if the three dimensions are equally relevant to the analysis, such as in the study of depression. Also, it cannot be overlooked that the composite score has been shown to be a better correlate than the individual dimension scores to many of the variables examined (Peterson, 1991b). Despite these criticisms, explanatory style continues to receive empirical support in the literature. Although it may possess some flaws, the attention it continues to receive and the outcomes ES can predict support its worth. Therefore, it seems likely that ES will continue to grow and develop as a theory.

Development and Course of ES within the Individual

Now that ES has been described from a historical perspective, other areas can be examined, such as the development of ES within the individual and its course throughout the life span.

Antecedents to ES. Seligman (1990) stated that there
are three possible sources that can influence the development of an individual's ES. The first of these to be discussed is the maternal link. Donovan and Levitt (1978) examined the interaction between maternal responsiveness and infant cognitive development. The researchers investigated the interactions between 22 mother/infant pairs. The results showed that infants obtaining high scores on measures of cognitive functioning had mothers who were rated as more sensitive than mothers of low scoring infants. This study demonstrated the important role that mothers play in the cognitive development of their children. Other studies have more directly examined the link between maternal ES and that of their children.

Seligman (1990) reported the results of an investigation examining the link between mothers' ES and that of their children. In this study, the ES Questionnaire was administered to 100 children and their parents. The results showed that the children's ES scores were related to their mothers' ES scores but not to their fathers'.

Vanden Belt and Peterson (1991) examined the role of parental ES with regards to the classroom performance of their children. The investigators examined both children
with and without disabilities whose grades ranged from kindergarten through sixth. Parents were asked to complete a questionnaire concerning their own causal attributions for good and bad events that might befall their children. However, parents were not asked to complete questionnaires concerning their causal attributions for bad events that they encountered themselves. The results demonstrated that parental pessimistic ES was significantly correlated with poor classroom achievement and adjustment of their children. These findings held for both children with and without disabilities. Also, parental ES for good events was correlated with classroom achievement and adjustment for children without disabilities. However, the investigators in this study did not differentiate between mother and father ES so gender specific transmission pathways could not be ascertained.

Turk and Bry (1992) examined parents' ES and the causal explanations they made concerning their adolescents. The participants in this study were adolescents whose ages ranged from 12 to 16 and were selected by their teachers and guidance counselors as performing below their expected academic abilities. Both parents and adolescents completed
the ASQ and the parents also completed a revised form of the ASQ known as My Adolescent's Life (MAL). The MAL assessed parents' causal attributions to events encountered by their children. With these two measures, the researchers compared causal explanations made by the parents for themselves, those they made for their adolescents, and those made by the adolescents for themselves. The results showed that the only significant correlation was the one between the fathers' MAL and the adolescents' ASQ. The findings in this study seem to run contrary to Seligman's (1990) findings in which the mothers' ES correlated with those of their children. Perhaps the differences can be attributed to an age factor. For example, Turk and Bry examined adolescents' ES while Seligman (1990) examined children (age not specified). Perhaps this age difference reflects the decreasing role played by the mother in the adolescent's quest for independence. Regardless, the findings in this section show that both parents can play a role in the development of their children's ES.

The second path to a pessimistic ES offered by Seligman (1990) involved criticism from adults, such as teachers and parents. Dweck and Licht (1980) examined the effects of
teachers' evaluative feedback given to boys and girls in the classroom. The study evaluated the teachers' attributional statements that accompanied feedback. Trained observers rated feedback statements in different academic subjects. The type of behaviors that elicited the feedback were noted. These behaviors included intellectual factors (correctness of work), nonintellectual factors (neatness of work), and conduct. The results showed that boys received more negative feedback concerning the factors other than intellect. Also, failure in intellectual tasks for boys was more often attributed to the external-unstable-specific factor of lack of motivation. Girls, on the other hand, received critical feedback concerning the intellectual quality of their work. Furthermore, because girls are typically viewed as more motivated, they must attribute their failures to factors such as lack of ability, which is internal-stable-global. Taken together, the results of this study show how the reactions of teachers can lead to a more pessimistic ES and accompanying helplessness deficits for girls. However, this study did not directly assess ES with an ASQ or other comparable measure and therefore the conclusions were inferred from the observed ratings.
The third factor contributing to the developing ES involved life crises (Seligman, 1990). Nolen-Hoeksema, Seligman, and Girdus (1992) undertook a five year longitudinal study to investigate this relationship. Children were tested nine times (once every six months) over a five year period of time. The children were administered measures of depression, ES, and life events. The results showed that earlier in life, the experiencing of negative life events (e.g., parental conflict or unemployment) was an effective predictor of depression. However, later on (sixth and seventh grades), a pessimistic ES was the stronger predictor. Nolen-Hoeksema and her colleagues speculated that perhaps later in childhood, bad life events will predict depression but only if a pessimistic ES is present.

Sex Differences. The current literature in this field shows that sex differences exist in ES. Nolen-Hoeksema, Girdus, and Seligman (1991) examined the differences in ES and depression in boys and girls. The children were evaluated after two years of the five year longitudinal study discussed earlier (Nolen-Hoeksema et al., 1992). The results showed that boys scored higher on a measure of depression than did girls, particularly with regards to
behavior disturbances and anhedonia. They also revealed that the boys had ES patterns for peer and family interactions as well as extracurricular activities that were notably more pessimistic. However, this pattern seems to reverse as the children grow into adulthood.

In a study of a college swim team, Seligman, Nolen-Hoeksema, Thornton, and Thornton (1990) found that male swimmers had significantly more optimistic ES than the female swimmers. The female swimmers were as pessimistic as the typical college female, despite their status as world-class athletes. Although it is unclear when this reversal in gender differences takes place, Nolen-Hoeksema et al. (1987) speculated that it occurs in early adolescence. Also, there have been no reports in the literature that directly investigate why such an apparent gender switch in ES may occur. However, once this switch does occur, it seems to endure in a relatively stable fashion throughout the life span.

Stability. An individual's ES has been shown to be stable over time. In their longitudinal study, Nolen-Hoeksema et al. (1992) concluded that the depressed children in their study consistently had ES scores that were more
pessimistic than the non-depressed children. These results held for the duration of the five year study. Also, these ES scores remained more pessimistic even after the depressive symptoms alleviated.

Burns and Seligman (1989) examined the stability of ES across the life span. The researchers examined seniors whose ages were at least 55 and could provide diaries or letters they had written when they were aged 17-30. Measures of their ES were extracted from these early writings using a blind Content Analysis of Verbatim Explanations (CAVE) technique. This technique extracts ES scores from spontaneously generated speech (i.e., therapy transcripts, speeches, and newspaper quotes) and rates them along the three ES dimensions. These scores were then compared to responses on an open-ended questionnaire taken at the time of the study. Burns and Seligman concluded that ES for negative events remained constant for many years into late adulthood. However, this pattern did not remain constant for explaining positive events.

**Remediating ES.** Despite the apparent longevity of ES, research has shown that pessimistic styles can be turned around. Aydin (1988) administered the Children's
Attributional Style Questionnaire (CASQ) to 472 Turkish school children whose ages ranged from nine to 13. A sociometric measure of popularity was also used. Thirty unpopular and helpless children were assigned to attribution retraining, success training, or a control group. Attribution and success training consisted of ten sessions held three times a week. During the attribution retraining meetings, the children were read stories concerning social failure stemming from a lack of effort rather than a lack of ability. These stories were then role-played. Children in the success training group were given bogus social success tests and each achieved a predetermined 90% success rate. The control group was removed from their classrooms at the same time members of the other groups were. While away from their classrooms, these children drew, solved puzzles, sang, and read poems. The results indicated that children with pessimistic ES tended to be less popular with their peers. Also, the attribution retraining condition was the only one that improved ES and social standing among the children.

Seligman et al. (1988) examined the question of changing the ES of adults. The study examined 39 outpatients diagnosed with unipolar depression and 12 in a
depressive state of bipolar disorder. The 39 unipolar outpatients had been participating in cognitive therapy (approximately once a week for six months). The depressed bipolar participants were obtained from an outpatient/inpatient unit. The Attributional Style Questionnaire was administered at three different times: prior to the second therapy session or second week of hospitalization, within one month of termination, and after a year. The results of these groups were also measured against a non-patient control group. The results indicated that, for the unipolar group, a more pessimistic style upon intake led to more severe depression symptoms at all three testing periods; this was true for the bipolar patients during their depressive episodes. Also, both depression groups had ES that were more pessimistic than those of the control group. Another important finding showed that as ES improved with cognitive therapy, depressive symptoms decreased. This latter finding prompted Seligman and his colleagues to speculate whether or not using cognitive therapy to alter ES was the essential component for alleviating unipolar depression. Their data allowed for the possibility that it was either the alleviation of depressive
symptoms that changed ES or some third variable, such as expectation, that changed both. However, the changes that did result remained evident, even on the one year follow-up.

Seligman (1990) provided a method for changing one's ES from pessimistic to optimistic. The technique requires that one keep an ABC diary for a day or two (Ellis, 1989). This allows the individual to see: patterns in how he or she reacts to the occurrence of Adversities; the Belief about that event; and the Consequences (feelings and responses) to that event. Although Ellis used the "A" designation to refer to the antecedent event, Seligman focused on bad or aversive events and labeled the "A" as such. After five of the ABCs are recorded, one should see a consistent pattern of causal links. Pessimistic beliefs about adversities will tend to lead to passivity. There are two methods by which one can deal with these pessimistic beliefs; either distraction or disputation.

Distraction involves the shifting of attention from the pessimistic belief. This makes use of the cognitive-behavioral strategies of thought-stopping and thought-replacement. Disputation has longer lasting effects. This technique involves distancing oneself from pessimistic
beliefs to better assess their accuracy. This can be done by: 1) gathering factually incorrect evidence about the negative belief; 2) finding alternative causes for the adversity; 3) decatastrophizing accurate beliefs; and 4) determining the usefulness of disputing beliefs at any given moment. The resulting change in habitual beliefs about adversities is proposed to lead to a change in the consequential feelings and responses to them.

The literature reviewed thus far has revealed different factors that influence an individual's ES as well as its course throughout the life span. The following section will place the psychological construct of ES into a theory of personality.

**ES as a Theory of Personality**

Cognitive-behavior theorists emphasize the role that cognitions or thoughts play in mediating behavior (Feshbach & Weiner, 1986). The reformulated learned helplessness model (Abramson et al., 1978) placed helplessness deficits within this framework. It is, after all, the manner in which one explains or perceives the occurrence of a bad event (not necessarily the event itself) that is most likely to produce helplessness deficits. To restate, an individual
attributing the occurrence of a bad event to internal-stable-global causes will be far more likely to experience the negative consequences imposed on the quality of his or her life than will those employing an external-unstable-specific explanation. A description of these consequences is discussed below (ES and the Human Experience).

Furthermore, a change in these cognitions can lead to changes in behavior (Aydin, 1988; Seligman et al., 1988), which is a basic tenet of cognitive-behavior theory (Feshbach & Weiner, 1986).

In their longitudinal study, Burns and Seligman (1989) offered the possibility that ES had trait-like properties of personality. The researchers reported that ES for bad events has shown consistency across time, one important component of a trait. The second important component of a trait, according to Burns and Seligman, is consistency within the individual. Their longitudinal study showed that this is the case for both good and bad events. The third important component of a trait involves stability across situations. Alloy et al. (1984) provided information supporting this third component.

The view of ES as having trait-like qualities has led
to investigations concerning its heritability. Schulman, Keith, and Seligman (1993) examined this possibility using a twin study design. The researchers administered the ASQ to 115 monozygotic (mz) and 27 dizygotic (dz) pairs of twins. The results showed that a substantial concordance rate for ES existed between mz twins but no such relation existed between dz twins. Schulman and his associates suggested that the mz findings were in keeping with a genetic transmission model of personality characteristics. However, the zero correlation found for dz twins did not support this conclusion. The role of environment was thus thrown into the ES mix. The researchers concluded that a direct genetic link did not exist. Instead, they suggested that ES was influenced by some other heritable factor (e.g., intelligence or attractiveness) that affected success and failure. The experiencing of success and failure then directly molds the ES.

Therefore, the personality characteristic known as ES can best fit into a cognitive-behavioral framework. The reformulated learned helplessness model is based on the link between cognition and behaviors. Whether or not ES is a trait or has trait-like properties does not detract from the
importance of this link.

Also, as previously stated, research has shown that ES is not necessarily etched in stone (i.e., it can be modified). However, despite the fact that an individual's ES can be changed, it is nonetheless generally considered to be stable and will remain so unless receiving direct intervention. This stability is not only across time but also across situations. The following section introduces the many different domains in daily living to which ES research has been applied.

ES and the Human Experience

A body of research examining practical applications of ES theory has developed. This research has shown that a pessimistic ES (internal-stable-global) for bad events can influence the quality of daily life. Self explanations for bad events have been studied in the context of health as well as success and achievement. Following is a review of the research literature in these areas.

Health. Peterson, Vaillant, and Seligman (1988) examined the role of the pessimistic ES in physical illness. Participants in this study were 99 members of Harvard University graduating classes from 1942 through 1944, who
were already involved in a longitudinal study. The initial study investigated the most academically gifted and healthiest members of these classes. These individuals, in addition to the initial battery of tests, completed annual questionnaires. Explanatory style scores were determined by using the CAVE technique on open-ended questionnaires administered in 1946 (the first testing session). The average age of the participants at this initial testing time was 25. The results showed that those who had a more pessimistic ES early in life were more prone to higher rates of subsequent illness. This remained true even when original health and emotional soundness were held constant. However, these results did not become manifest until the average age of the participants reached 45.

Aydin (1993) studied the link between ES and physical illness symptoms. He examined 297 Turkish college students using the Depressive Attribution Style Questionnaire and the Physical Symptom Checklist. The results of that study showed that those individuals with the more pessimistic ES were more likely to endorse more items on the Physical Symptom Checklist.

Peterson (1988) investigated the relation between ES
and the onset of illness as well as the link with behaviors geared towards coping with illness (physician visits). Data were gathered at three times: during the initial session, four weeks later, and one year after the initial session. Information concerning ES (Modified Attribution Style Questionnaire; MASQ), depression, illness, and number of physician visits was gathered from 172 college students. The results showed that the stable/unstable-global/specific dimensions of ES predicted illness rates at time two and physician visits at time three. These results held even when initial depression and illness were controlled.

Ninety-five percent of Peterson's (1988) participants reporting the presence of an illness at time two described those illnesses as infectious, suggesting a link between ES and immunological functioning. Kamen-Siegel, Rodin, Seligman, and Dwyer (1991) examined this potential link. This investigation examined the blood of 26 elderly individuals (62-82) who were already participants in a health and nutrition study. The CAVE technique was used to determine each individual's ES. The results demonstrated that a relationship existed between a negative ES and deficits in immunological functioning. These findings
remained even when controlling for current health, depression levels, age, weight change, alcohol intake, and sleep patterns. However, the exact nature of this relation was unclear.

Kamen and Seligman (1987) offered some possible links in the above described relation. The authors suggested that passivity (characteristic of learned helplessness) would make pessimistic individuals less likely to engage in self-care behaviors because they do not see a direct relation between those behaviors and good health. Also, passivity induced by perceived helplessness over bad events may inhibit one from meeting life's challenges. Finally, Kamen and Seligman hypothesized that a lack of social support may lead to a decrease in health because these individuals will not seek out support and help from others. Peterson (1988) provided results that offered support to each of these possibilities.

Political Success. Explanatory style has also been shown to interact with achievement and success in different areas. Zullow and Seligman (1990) used pessimistic ES and negative ruminations to predict the outcome of presidential elections. Republican and Democratic nomination acceptance
speeches made from 1948 to 1984 were analyzed. Explanatory style scores were extracted by using the blind CAVE technique, while ruminations were determined by using a different blind content analysis method. Zullow and Seligman hypothesized that not only would the pessimistic candidate seem less appealing to voters, but also that they became more passive in their speech deliveries. The results showed that the candidate with the less pessimistic and ruminatory style won nine out of the ten elections. This finding was upheld as significant even when controlling for incumbency and early leads in public opinion polls. Pessimistic ruminators also made fewer campaign stops, supporting a passivity interpretation.

In order to replicate their findings, Zullow and Seligman (1990) similarly examined the presidential elections from 1900 to 1944. The primary difference of this study from the first was the absence of television; resulting in diminished audiences for acceptance speeches. Once again, pessimistic ruminations predicted nine out of 12 of these elections. The three misses were Franklin D. Roosevelt's reelections. However, this prediction rate was not statistically significant. However, when combining all
22 elections, 18 were correctly predicted; a statistically meaningful rate.

*Work.* Because experiencing rejection is common among life insurance sales agents, Seligman and Schulman (1986) examined this group of individuals with regards to how ES interacted with job success. In their study, Seligman and Schulman examined longevity and productivity of agents. Ninety-four agents were administered the ASQ. The results showed that for the first two years of an agent's career, ES for bad events was negatively correlated with sales commissions. That is, the more optimistic ES an individual held, the higher were his or her commissions on new policy sales. A second reported study examined job longevity among 104 insurance sales agents. The results showed that agents with the more optimistic explanatory style were twice as likely to remain employed a year after they were examined, than were their more pessimistic counterparts.

Phelps and Waskel (1993) examined ES and job satisfaction among elderly women (mean age 52.4 years). These participants were administered an ASQ and the Minnesota Satisfaction Questionnaire. The authors found that those with a more pessimistic ES tended to report
experiencing less job satisfaction, especially with regards to ability utilization, activity, and creativity. Therefore, the results of this particular subsection suggest that ES is not only associated to job productivity, but also to job satisfaction.

Athletic Performance. Seligman, Nolen-Hoeksema, Thornton, and Thornton (1990) looked at two nationally ranked varsity college swim teams. Members from both the men's and women's teams (21 from each team) were administered the ASQ. In addition to this measure, the coaches rated each swimmer at the beginning of the swim season with regards to how they thought the swimmers would do following a defeat. The researchers predicted that swimmers with optimistic ES would fair better than swimmers with pessimistic ES after experiencing defeat. To test this hypothesis, all swimmers were placed in an artificially imposed defeat condition. This was accomplished by asking the swimmers to swim their best event. They were then provided feedback on their obtained time that was falsely slow. The swimmers were then given a rest and asked to swim the event again. As predicted, those swimmers possessing an optimistic ES for negative events performed equally well or
better on their second swim. However, those swimmers who held a pessimistic ES showed a deterioration of performance on their subsequent swims. The results also demonstrated that throughout the course of the season, swimmers with a more pessimistic ES performed below what was expected of them, as determined by coaches' preseason ratings.

**Academic Achievement.** Studies involving academic success have also been undertaken. Peterson and Barrett (1987) examined the ES of university freshmen. Eighty-seven students were administered the Academic ASQ (which offered 12 bad academic events). The outcome of the study showed that those freshmen with negative or pessimistic ES tended to achieve lower grade point averages in their first year of college. These results held even after controlling the effects of ability (Scholastic Aptitude Test scores), gender, and depression. Peterson and Barrett also found that those freshmen with a pessimistic ES would be less likely to have specific academic goals and less likely to make use of academic advising. These latter behaviors were thought to be characteristic of the passivity experienced by individuals with the pessimistic ES. However, contrary to what was expected, pessimistic students neither demonstrated
a lack of goal efficacy nor passivity in response to academic setbacks (as measured by a self-report instrument). Peterson and Barrett hypothesized that this might be due to the fact that poorly performing individuals attributed failure to characterologic features, while students performing well made external attributions.

Peterson, Colvin, and Lin (1992) examined helplessness in the face of academic disappointment. Forty university students were asked to keep records concerning school related setbacks for the class in which they were enrolled. Also, they were asked to make notes of responses they took to remediate the setbacks. Participants also completed the Academic ASQ. As predicted, students using a stable-global explanation for the occurrence of bad events showed passivity in the face of academic setbacks. Conversely, students not employing this ES were more likely to actively attempt to remedy their failures. Additionally, internality was positively correlated with active coping.

McKean (1994) discussed learned helplessness in the context of academic setbacks, he labeled the phenomenon as academic helplessness. He too explained that those holding a pessimistic ES were more likely to fall into academic
helplessness. He described the ES as the second risk factor for developing academic helplessness. An important point of difference that McKean stated was the perceived controllability of bad academic events. He described this as the primary risk factor, stating that without this feeling of uncontrollability, the pessimistic ES would not result in helplessness.

The findings presented in this subsection demonstrate the relation between ES and academic performance. However, it does not address the growing population of college students with physical disabilities. The section that follows will discuss some of the strategies that have been implemented for maximizing the school performance of students with physical disabilities.

**Physical Disabilities and Academic Success**

There exists a link between schooling, cognitive development, and academic achievement among students with physical disabilities (Harnisch & Wilkinson, 1992). Additionally, these researchers showed that other factors, such as attendance and hours spent on homework, played important roles in the development and achievement among this population. Findings such as these emphasize the
importance of educating this population. Although it is of primary importance to educate all, this statement is made in the midst of a drop-out rate of high school students that has been estimated to be as high as 53.3 percent among students with physical disabilities (Owings & Stocking, 1985).

Various strategies have been employed to improve and enhance the experiences of students with disabilities. For example, Richardson (1994) proposed the utilization of in-place university services, such as tutoring, counseling and testing, and adaptive equipment, to increase academic success for students with physical disabilities. However, the findings of such investigations have been disappointing.

The Education Response Centre of the Alberta Department of Education (1990) reviewed the literature concerning the effectiveness of mainstreaming students with physical disabilities versus placing them in special education classes. This review yielded mixed conclusions. In response to the unclear findings, the Alberta report suggested that perhaps other factors, such as instructional practices, were also important in determining classroom success among persons with disabilities.
Stainback and Stainback (1989) offered a list of instructional strategies intended to maximize the performance of students with disabilities. These strategies included: 1) the development of an individual education plan; 2) the implementation of cooperative activities (social aspects of the environment); and 3) the creation of an adaptive learning environment. One goal of this latter strategy required that those students with physical disabilities take a more active role in successfully obtaining an education.

The efficacy of cooperative learning techniques have also been examined with regards to academic achievement for students with physical disabilities. Tateyama-Sniezek (1990) reviewed the literature assessing the effectiveness of cooperative learning. Cooperative learning was defined as students working together to accomplish a single goal and was intended to increase social and academic competence among students. However, Tateyama-Sniezek found inconclusive results concerning the advantages of using cooperative learning for teaching students with disabilities.

The studies reviewed in this section demonstrate the
attempts of educators to enhance the academic achievement of students with disabilities. Unfortunately, their attempts have been met with inconclusive results and unimpressive success. Perhaps a larger portion of the focus should be placed on more basic psychological characteristics of the individual, such as ES. Indeed, many of the suggestions offered can be conceptualized within the framework of ES theory; particularly those requiring personal responsibility (Richardson, 1994; Stainback & Stainback, 1989).

Present Study

The present study was designed to examine whether explanatory style played a role in the academic performance of students with physical disabilities. Specifically, the following research hypotheses were addressed: 1) individuals showing a more pessimistic ES will obtain lower college grade point averages (GPA) than those showing a more optimistic ES; 2) this difference in GPA will hold even when depression and ability are statistically held constant; 3) those individuals with a more pessimistic ES will be less likely to utilize university services than those with a more optimistic ES; 4) those individuals with a more pessimistic ES will demonstrate less academic goal specificity than
those with a more optimistic ES; 5) those individuals with a more pessimistic ES will not differ significantly from those with a more optimistic ES with regards to academic goal efficacy; 6) those individuals with a more pessimistic ES will show more passive responses to academic setbacks than those with a more optimistic ES, when only the stable/unstable-global/specific dimensions are used; 7) females with physical disabilities will demonstrate a more pessimistic ES than will males with physical disabilities; 8) there will be no statistically significant difference in the ES scores between participants with physical disabilities and those without physical disabilities; 9) the final research question will examine whether or not a difference exists between the different disability groups.
CHAPTER 2

METHODS

Participants

Seventy individuals, 38 with physical disabilities and 32 matched controls without physical disabilities were tested. From this point on, persons with physical disabilities will be referred to as the PWPD group and persons not physically disabled will be referred to as the PNPD group. The two groups were matched on gender and age; a criterion of ± 4 years was used to match on age. Because it became increasingly difficult to find age matched controls for some of the older PWPD individuals, they were left unmatched. However, because this discrepancy did not result in any significant differences on the various demographic variables, they were left in the analyses (see Table 1). The average age of participants was 32.13, $SD = 10.55$. Table 1 shows the means and standard deviations for the ages of each group.

Female participants made up 55.30% ($n = 21$) of the PWPD group and 68.80% ($n = 22$) of the PNPD group. Overall,
female participants made up 61.40% of the total sample.

Members of the PWPD group were recruited from a number of sources. These sources included the Office of Disability Accommodations (ODA), University of North Texas (UNT) orientation program for new students with physical disabilities, and psychology or rehabilitation classes. Controls were recruited from either psychology or rehabilitation classes as well as a posted bulletin announcing extra credit for research participation. Data were not available as to what portion of the research sample came from which source. Eligible participants in either group (those enrolled in either psychology or rehabilitation classes) received two points of extra credit towards their final grade.

The disabilities represented in the present study were as follows: visual impairment = 10; hearing impairment = 7; hidden = 5; and motor/skeletal = 16. The mean duration of disabilities in the present sample was 16.99 years, $SD = 12.68$.

The two groups did not differ significantly on various demographic variables, as measured by two-tailed $t$-tests. The two groups were similar on: age ($m = 32.13$, $SD = 10.55$);
Table 1
Demographic Information

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<td>SAT</td>
<td>M</td>
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<tr>
<td></td>
<td>SD</td>
</tr>
</tbody>
</table>

NOTE. PWPD = persons with physical disabilities; PNPD = persons not physically disabled; COMB = combined group; YRS = years enrolled; HRS = hours completed; GPA = grade point average; SES = socioeconomic status (Hollingshead rating); t = data not available.

Years enrolled in school (m = 4.28, SD = 2.50); hours completed (m = 94.90, SD = 55.96); grade point average (GPA; m = 3.09, SD = .48); socioeconomic status (SES) as measured by the Hollingshead (1975) Four Factor Rating (m = 38.57, SD = 13.66). Table 1 shows means, standard deviations, t scores, degrees of freedom, and p values for these measures for each group. Because of the inadequate number of aptitude scores (as measured by the Scholastic Aptitude
Test, SAT), these scores were not included in the analyses. Only 8 PWPD individuals provided this information and only 13 PNPD individuals did so.

Materials

Demographic Information. A brief demographic questionnaire was administered (see Appendix B). This asked questions concerning: identifying information; disability; educational background; and parental education/occupation.

Four Factor Index of Social Status. This index (Hollingshead, 1975) was used to determine participant SES. From information gathered in the Demographic Information questionnaire concerning both parents' education level and occupation, SES scores were determined. Scores can range from a high of 66 (which includes such occupations as executives and professionals with graduate professional training) to a low of 8 (which includes such occupations as farm laborers/menial service workers with less than a seventh grade education). A correlation coefficient of .84 for males and .85 for females was obtained between educational level and occupation rating (Hollingshead, 1975).

University Services Inventory. A brief checklist of
various services available at the University of North Texas was used to gather information concerning the utilization of university services (see Appendix C). In total, 11 university services were listed.

*Academic Goals Questionnaire.* The Academic Goals Questionnaire (Peterson & Barrett, 1987) was used to assess the specificity/non-specificity of the academic goals of the participants (see Appendix D). Participants were asked to generate as many as five academic goals they hoped to accomplish. Independent raters then determined the specificity versus non-specificity of each goal on a four point scale; from 4 (specific) to 1 (nonspecific). Goals that mentioned a concrete accomplishment (e.g., obtain a 3.0 GPA this semester) were rated as 4 (specific). Goals with no specific outcome (e.g., I want to better myself) were rated as 1 (nonspecific). The students' goal specificity score was derived by averaging all of the ratings assigned by the raters.

The participants were also asked to rate the degree to which they felt confident that they would meet each goal. These self-ratings ranged from 0 (not at all confident) to 100 (totally confident). These ratings were then averaged
to obtain the goal efficacy score.

*Academic Attributional Style Questionnaire.* The Academic Attributional Style Questionnaire (AASQ) was used to measure ES (Peterson & Barrett, 1987). The AASQ is a 36 item questionnaire describing 12 negative school related events (e.g., you cannot get all the reading done that your instructor assigns) that is patterned after the ASQ (Peterson et al., 1982). The AASQ requires approximately 20 minutes to complete under normal conditions and approximately 30 minutes if administered orally.

The participant was asked to state a single cause for each negative event. He or she was then asked to rate each cause along each of the three dimensions (external/internal-unstable/stable-specific/global) on a seven point scale. The causes that were attributed to external, unstable, and specific factors received low ratings (i.e., towards 1); the remaining three attributions received high ratings (i.e., towards 7). Scores for each dimension were averaged across the 12 events as well as averaged across the three dimensions; this yielded a composite ES score, which ranged from 1 to 7. The scores obtained by averaging across the 12 situations within each dimension provided dimension scores,
which also ranged from 1 to 7.

One minor change to the standard AASQ was made for the purpose of the present study. Formerly, item 5 asked the examinee to rate the importance of the negative event. However, because this item is not used in determining the explanatory style score, it was replaced by the brief Coping with Academic Failures questionnaire (cf. Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980). This questionnaire gives examinees eight options from which to choose how they might respond to the negative academic event presented by the standard AASQ. Half of these items were thought to depict active coping (seek help from a professor or TA) and received 2 points if selected. The other half were thought to depict passive coping (not seek help but work less) and received 1 point if selected. Therefore, scores could range from 12 to 24. With this minor change, the version of the AASQ used in the present study was administered and scored as usual.

Peterson and Barrett (1987) considered the reliability information for the original ASQ as applicable to the AASQ. The ASQ has shown moderate test-retest reliability for the Composite Positive (CP) score and the Composite Negative
(CN) score, .70 and .64 respectively. The test-retest correlation coefficients for good events were as follows: internal = .58; stable = .65; and global = .59. For bad events, these correlation coefficients were: internal = .64; stable = .69; and global = .57. Cronbach's coefficient alpha was used to assess internal reliability for the CP and CN scores as well as for each individual dimension score. These coefficients were .75 for CP and .72 for CN. The mean coefficient for the individual dimensions was .54. Peterson and Barrett (1987) reported satisfactory internal consistency of .84 for the AASQ and a mean score of 4.31. Additionally, the partial correlations found between ES and various academic factors provide some evidence of the AASQ's construct validity: GPA, $r = -.28$; academic goal specificity, $r = -.30$; and advising visits, $r = -.29$ (Peterson and Barrett, 1987).

Revised Beck Depression Inventory. The revised Beck Depression Inventory (BDI; Beck & Steer, 1987) was used as a measure of depression. The BDI is a 21 item self-report questionnaire that is said to measure depression. Increased scores are said to denote severity of the depression. It requires 5 to 10 minutes to complete under normal self-
administered conditions and may take up to 15 minutes if orally administered. Internal consistency using Cronbach's coefficient alpha for the BDI was reported to be high for both clinical and nonclinical samples. Clinical samples obtained coefficients of: .80 for single episode major depression; .86 for recurrent episode major depression; and .79 for dysthymia (Beck & Steer, 1987). Test-retest reliability was determined to be .90 for a sample of 204 undergraduates after two weeks (Lightfoot & Oliver, 1985). Also, with regards to construct validity, BDI scores were moderately to highly correlated with measures of helplessness, from .38 for major depression, single episode to .76 for alcoholism.

Procedures

Questionnaire packets were distributed to complete on a take-home basis. After reading and signing an Informed Consent form (see Appendix E), participants were asked to sign a Release of Information form (see Appendix F). The purpose of the latter form was to obtain objective information concerning participants' academic performance (e.g., GPA and hours earned versus hours attempted). Four participants (two in each group) did not sign a Release of
Information form, which did not allow the investigator access to their academic records. In these instances, the participants' self-report data (from the Demographic Information questionnaire) were used for statistical analyses.

The Demographic Information questionnaire followed the Release of Information form. Upon completing this questionnaire, the participants moved on to complete the brief University Services Inventory checklist. The Academic Goals Questionnaire was the next item in the questionnaire packet. Next, the participants completed the slightly modified Academic Attributional Style Questionnaire (AASQ). The final instrument in the questionnaire packet was the BDI. The scoring of this instrument required some modification. Item 20 was incorrectly typed prior to its inclusion into the questionnaire packet. Consequently, item 20 read "0-I am more worried about my health than usual" when it should have read "0-I am not more worried about my health than usual." This item was eliminated from the scoring of the BDI and the obtained results reflected this.

The participants were asked to complete the questionnaire packet in a medium with which they were most
comfortable. This primarily affected the participants with physical disabilities. The packets were available in different formats. Three participants with visual impairments completed the packet using large print text. Two other participants with visual impairments listened to an audio recorded version of the questionnaires; one returned responses via audio cassette and the other returned responses in a braille format. Others required the use of a reader and/or scribe. Because packets were completed on a take-home basis, the exact number of those using this latter method was uncertain.
CHAPTER 3

RESULTS

Descriptive Statistics

The University Services Inventory showed that—with the exception of the ODA, adaptive labs, and mentoring programs—service utilization was similar for both groups. Table 2 shows the mean number of items in the University Services Inventory endorsed by the participants, chi square values, and p values. Table 3 shows mean scores of the AASQ individual dimensions for all participants. A correlation matrix for the individual AASQ dimensions as well as the ES score can be found in Table 4. An inter-correlation matrix for the University Services Inventory, goal specificity, and goal efficacy scores can be found in Table A1. The correlations between ES and BDI with these measures can be found in the tables corresponding with their regression output. A correlation matrix for measures with demographic information can be found in Table A2. Table A3 contains the inter-correlation matrix for demographic information.
### Table 2

**University Services Inventory**

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**Note.** PWPD = persons with physical disabilities; PNPD = persons not physically disabled; COMB = combined group; AA = academic advising; DA = office of disability accommodations; AL = adaptive lab; CT = counseling and testing center; SS = study skills training; TU = tutoring; MP = mentoring program; SW = seminars and workshops; AC = academic labs; LI = libraries; CL = computer labs.
Table 3
AASQ Individual Dimensions

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Note. PWPD = persons with physical disabilities; PNPD = persons not physically disabled; COMB = combined group; I/E = internal/external; S/U = stable/unstable; G/S = global/specific.

Table 4
AASQ Correlation Matrix

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Note. I/E = internal/external; S/U = stable/unstable; G/S = global/stable; EX = explanatory style (AASQ); subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); * indicates significance at the $p \leq .05$ level; ** indicates significance at the $p \leq .01$ level.
Reliability of Measures

*Academic Attributional Style Questionnaire.* The mean inter-item correlation coefficient for the internal/external dimension of the AASQ was .13. The minimum value was -.14 and the maximum value was .60. The alpha internal consistency for this portion of the measure was .42. The mean inter-item correlation for the stable/unstable dimension was .19. The minimum value was -.31 and the maximum value was .92. The alpha internal consistency was .69. For the global/specific dimension, the inter-item correlation was .27. The minimum value was -.09 and the maximum value was .72. The alpha internal consistency value was .82. The mean inter-item correlation for the AASQ as a whole was .09. The minimum value was -.37 and the maximum value was .93. The alpha internal consistency value was .69.

*Beck Depression Inventory.* The mean inter-item correlation was .22. The minimum value was -.16 and the maximum value was .67. The alpha internal consistency value was .84.

**Hypothesis Testing**

*Hypotheses 1 and 2.* A hierarchical multiple regression
analysis was used to test the relation between ES (the independent variable) and college performance as determined by the participants' GPA (the dependant variable). The questions under investigation were: does a pessimistic ES predict a lower GPA among the individuals tested; and, would this relation remain even after the effects of depression were held statistically constant? The results (summarized in Table 5) indicated that for the PWPD group, ES was a valid predictor of GPA: $R = .42$, $R^2 = .18$; $F(1, 32) = 6.84$, $p = .007$. After BDI scores were entered as step 1, the association between BDI and GPA was significant: $R = .39$, $R^2 = .15$; $F(1, 32) = 5.82$, $p = .01$. After both steps (BDI and ES) were entered into the regression equation: $R = .52$, $R^2 = .27$; $F(2, 31) = 5.74$, $p = .004$. This addition of ES into the equation significantly contributed to the prediction of GPA, beyond what was contributed by BDI: $t = -2.22$, $p = .02$.

A similar pattern of results was found for the PNPD group. ES was a valid predictor of GPA when entered into the equation alone: $R = .38$, $R^2 = .15$; $F(1, 28) = 4.78$, $p = .02$. The relation was not significant after BDI was entered as the first step in the equation: $R = .06$, $R^2 = .003$; $F(1, 28) = .10$, $p = .38$. With all steps entered into the
equation, ES was a marginal predictor of GPA for the PNPD group: \( R = .39, R^2 = .15, F(2, 27) = 2.37, p = .06. \)

However, ES did contribute significantly to the regression: \( t = -2.15, p = .02. \) As with the PWPD group, members of the PNPD group with a more pessimistic ES were more likely to have obtained lower GPAs. Unlike the PWPD group, depression did not show a significant relation to GPA.

The results were similar for the combined groups. When ES was entered into the equation by itself, a significant relation existed: \( R = .40, R^2 = .16; F(1, 62) = 11.65, p = .0006. \) After BDI scores were added as the first step in the regression equation, the relation was significant: \( R = .22, R^2 = .05, F(1, 62) = 3.08, p = .04. \) ES remained a good predictor of GPA after all steps were included in the equation: \( R = .42, R^2 = .18; F(2, 61) = 6.46, p = .001. \)

Moreover, the contribution of ES was significant beyond what could be explained by BDI alone: \( t = -3.07, p = .002. \)

Again, the relation was in the predicted direction. That is, those individuals holding a more pessimistic ES had a tendency to obtain lower GPAs.
Table 5
Hierarchical Regression of ES and BDI on GPA

<table>
<thead>
<tr>
<th>Variable</th>
<th>GPA(DV)</th>
<th>BDI</th>
<th>ES</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>-0.41,*</td>
<td>-0.02</td>
<td>-0.32</td>
<td>-2.01</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.07</td>
<td>-0.01</td>
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<td>0.37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.23</td>
<td>-0.01</td>
<td>-0.13</td>
<td>-1.11</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>ES</td>
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<td>2.22</td>
<td>0.02</td>
</tr>
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<td></td>
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<td>-0.32</td>
<td>-0.40</td>
<td>2.15</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>-0.40,**</td>
<td>0.23</td>
<td>(0.42)</td>
<td>-0.23</td>
<td>-0.37</td>
<td>3.07</td>
</tr>
<tr>
<td>M</td>
<td>5.12</td>
<td>9.76</td>
<td>4.23</td>
<td>R² = 0.27</td>
<td>F = 5.74</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>3.06</td>
<td>7.63</td>
<td>4.26</td>
<td>= 0.27</td>
<td>= 2.37</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>3.09</td>
<td>8.75</td>
<td>4.25</td>
<td>= 0.27</td>
<td>= 6.46</td>
<td>0.001</td>
</tr>
<tr>
<td>SD</td>
<td>0.47</td>
<td>6.75</td>
<td>0.87</td>
<td>Adj. R² = 0.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.50</td>
<td>6.13</td>
<td>0.63</td>
<td>= 0.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.48</td>
<td>6.52</td>
<td>0.76</td>
<td>= 0.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. GPA = grade point average; BDI = Beck Depression Inventory; ES = explanatory style (AASQ); subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); Adj. R² = Adjusted R²; * indicates significance at the p ≤ .05 level; ** indicates significance at the p ≤ .01 level.

Hypothesis 3. A hierarchical multiple regression was used to test Hypothesis 3. The question being investigated was whether or not ES could predict the students' utilization of university services. The University Services Inventory was used to examine how many university services were utilized by the participants.

For the PWPD group, ES was not a significant predictor
of services utilization. With ES entered into the equation as the only step, the relation was not significant: \( R = .06, R^2 = .004; F(1, 36) = .15, p = .35 \). When BDI was entered first, the relation between BDI and services utilization was only marginally significant: \( R = .25, R^2 = .06; F(1, 35) = 2.42, p = .06 \). Controlling for depression, ES did not significantly enhance the ability to predict services utilization: \( R = .25, R^2 = .06; F(2, 35) = 1.18, p = .16 \).

Similar results were found for the PNPD group. There was no significant relation between ES and services utilization after ES was entered alone in the equation: \( R = .23, R^2 = .05; F(1, 30) = 1.70, p = .10 \). After entering BDI as step 1, there was no significant relation: \( R = .07, R^2 = .005, F(1, 30) = .15, p = .35 \). After ES was entered into the equation as step 2, the results were similar: \( R = .23, R^2 = .05, F(2, 29) = .82, p = .23 \).

For the combined groups, an \( R \) of .10 and an \( R^2 \) of .01 were obtained after ES was used alone as the predictor. This was not significant: \( F(1, 68) = .72, p = .20 \). When BDI was entered as step 1, it was a significant predictor of services utilization: \( R = .23, R^2 = .05; F(1, 68) = 3.81, p = .03 \). The prediction was not enhanced by entering ES as
step 2: $R = .24$, $R^2 = .06$; $F(2, 67) = 1.98$, $p = .07$. The statistical data for these analyses are in Table 6.

Table 6
Hierarchical Regression of ES and BDI on US

<table>
<thead>
<tr>
<th>Variables</th>
<th>US (DV)</th>
<th>BDI</th>
<th>ES</th>
<th>B</th>
<th>S</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>.24</td>
<td>.08</td>
<td>.25</td>
<td>1.49</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.07</td>
<td>.00</td>
<td>.01</td>
<td>.04</td>
<td>.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.22</td>
<td>(.84)</td>
<td>.07</td>
<td>1.79</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES</td>
<td>.06</td>
<td>.22</td>
<td>.03</td>
<td>.01</td>
<td>.08</td>
<td>.47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.23</td>
<td>.28</td>
<td>.61</td>
<td>1.22</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.10</td>
<td>(.42)</td>
<td>.15</td>
<td>.44</td>
<td>.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>5.19</td>
<td>9.76</td>
<td>4.23</td>
<td>$R^2 = .06$</td>
<td>$F = 1.18$</td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.62</td>
<td>7.53</td>
<td>4.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.45</td>
<td>8.79</td>
<td>4.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD$</td>
<td>2.25</td>
<td>6.57</td>
<td>.87</td>
<td>Adj. $R^2 = .01$</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.68</td>
<td>6.13</td>
<td>.63</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.14</td>
<td>6.52</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. US = University Services; BDI = Beck Depression Inventory; ES = explanatory style (AASQ); subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); Adj. $R^2 =$ Adjusted $R^2$.

Hypothesis 4. A hierarchical multiple regression was used to test how well ES predicted students' academic goal specificity. For the PWPD group, ES was a valid predictor of goal specificity when entered as the only step in the regression equation: $R = .36$, $R^2 = .13$; $F(1, 36) = 5.24$, $p = .01$. When BDI was entered first, it was not a significant
predictor of goal specificity: $R = .21$, $R^2 = .04$, $F(1, 36) = 1.59$, $p = .11$. After step 2, with ES in the equation, the prediction was strengthened: $R = .38$, $R^2 = .15$; $F(2, 35) = 2.98$, $p = .03$. Although the association was significant, it was not in the predicted direction: $\beta = .33$, $t = 2.06$, $p = .02$. That is, those individuals in the PWPD group with a more pessimistic ES tended to have their academic goal specificity rated as more specific by the independent raters.

For the PNPD group, the association between ES and goal specificity was not significant when ES was in the equation alone: $R = .15$, $R^2 = .02$; $F(1, 30) = .66$, $p = .22$. Entered first, BDI showed a significant relation with goal specificity: $R = .27$, $R^2 = .07$; $F(1, 30) = 2.48$, $p = .07$. After controlling for depression, the association between ES and goal specificity was strengthened but remained marginal: $R = .36$, $R^2 = .13$; $F(2, 29) = 2.12$, $p = .07$. Again, this relation was not in the predicted direction: $\beta = .24$, $t = 1.33$, $p = .10$.

When the two groups were collapsed, ES was a significant predictor of goal specificity when entered into the equation alone: $R = .29$, $R^2 = .09$; $F(1, 68) = 6.37$, $p =$
.007. Entered first, the relation between BDI and goal specificity was not significant: \( R = .01, R^2 = .0001; F(1, 68) = .01, p = .46 \). However, after entering ES as step 2, the prediction of goal specificity was significantly enhanced: \( R = .30, R^2 = .09; F(2, 67) = 3.25, p = .02 \).

Again, the relation was not in the predicted direction: \( \beta = .30; t = 2.55; p = .007 \). Statistical data for this set of analyses are in Table 7.

Hypothesis 5. A hierarchical multiple regression was used to test the relation between ES and the dependent variable, goal efficacy. The goal efficacy measure was intended to estimate the degree to which the participants thought that they could accomplish their stated academic goals.
### Table 7
Hierarchical Regression of ES and BDI on GS

<table>
<thead>
<tr>
<th>Variables</th>
<th>GS(DV)</th>
<th>BDI</th>
<th>ES</th>
<th>B</th>
<th>S</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
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<td>.14&lt;sub&gt;1&lt;/sub&gt;</td>
<td>.87&lt;sub&gt;1&lt;/sub&gt;</td>
<td>.20&lt;sub&gt;1&lt;/sub&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>-.02&lt;sub&gt;2&lt;/sub&gt;</td>
<td>.02&lt;sub&gt;2&lt;/sub&gt;</td>
<td>-1.88&lt;sub&gt;2&lt;/sub&gt;</td>
<td>.04&lt;sub&gt;2&lt;/sub&gt;</td>
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</tr>
<tr>
<td></td>
<td>.00&lt;sub&gt;3&lt;/sub&gt;</td>
<td>(.84)&lt;sub&gt;3&lt;/sub&gt;</td>
<td>-.00&lt;sub&gt;3&lt;/sub&gt;</td>
<td>-.05&lt;sub&gt;3&lt;/sub&gt;</td>
<td>- .45&lt;sub&gt;3&lt;/sub&gt;</td>
<td>.33&lt;sub&gt;3&lt;/sub&gt;</td>
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<td>.22&lt;sub&gt;4&lt;/sub&gt;</td>
<td>.18&lt;sub&gt;4&lt;/sub&gt;</td>
<td>.33&lt;sub&gt;4&lt;/sub&gt;</td>
<td>2.06&lt;sub&gt;4&lt;/sub&gt;</td>
<td>.02&lt;sub&gt;4&lt;/sub&gt;</td>
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<td>.28&lt;sub&gt;5&lt;/sub&gt;</td>
<td>.13&lt;sub&gt;5&lt;/sub&gt;</td>
<td>.10&lt;sub&gt;5&lt;/sub&gt;</td>
<td>1.33&lt;sub&gt;5&lt;/sub&gt;</td>
<td>.10&lt;sub&gt;5&lt;/sub&gt;</td>
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<tr>
<td></td>
<td>.29&lt;sup&gt;*&lt;/sup&gt;&lt;sub&gt;6&lt;/sub&gt;</td>
<td>.23&lt;sub&gt;6&lt;/sub&gt;(.42)&lt;sub&gt;6&lt;/sub&gt;</td>
<td>.17&lt;sub&gt;6&lt;/sub&gt;</td>
<td>.30&lt;sub&gt;6&lt;/sub&gt;</td>
<td>2.55&lt;sub&gt;6&lt;/sub&gt;</td>
<td>.007&lt;sub&gt;6&lt;/sub&gt;</td>
<td></td>
</tr>
</tbody>
</table>

| M         | 2.82<sub>1</sub> | 9.76<sub>1</sub> | 4.23<sub>1</sub> | R<sup>2</sup> = .15<sub>1</sub> | F = 2.98<sub>1</sub> | .03<sub>1</sub> |
|           | 2.94<sub>2</sub> | 7.63<sub>2</sub> | 4.28<sub>2</sub> | = .13<sub>2</sub> | = 2.12<sub>2</sub> | .07<sub>2</sub> |
|           | 2.88<sub>3</sub> | 8.79<sub>3</sub> | 4.25<sub>3</sub> | = .09<sub>3</sub> | = 3.25<sub>3</sub> | .02<sub>3</sub> |

| SD        | .48<sub>1</sub> | 6.75<sub>1</sub> | .87<sub>1</sub> | Adj. R<sup>2</sup> = .10<sub>1</sub> |
|           | .34<sub>2</sub> | 6.13<sub>2</sub> | .63<sub>2</sub> | = .07<sub>2</sub> |
|           | .43<sub>3</sub> | 6.52<sub>3</sub> | .76<sub>3</sub> | = .06<sub>3</sub> |

R = .38<sub>1</sub>
= .36<sub>2</sub>
= .30<sub>3</sub>

**Note.** GS = goal specificity; BDI = Beck Depression Inventory; ES = explanatory style (AASQ); subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); Adj. R<sup>2</sup> = Adjusted R<sup>2</sup>; * indicates significance at the p ≤ .05 level.

Contrary to the research hypothesis, ES was related to goal efficacy for the PWPD group when ES was in the equation alone: R = .56, R<sup>2</sup> = .31; F(1, 36) = 16.10, p = .0002.

Entering BDI first, the relation between goal efficacy was significant: R = .36, R<sup>2</sup> = .13; F(1, 36) = 5.42, p = .01.

After controlling for depression, the relation between ES and goal efficacy was significant: R = .62, R<sup>2</sup> = .37; F(2,
35) = 10.44, \( p = .0002 \). ES contributed significantly to the relation: \( \beta = -.50, t = -3.68, p = .0004 \). This relation was in the negative direction; that is, those individuals with higher pessimistic ES scores demonstrated lower goal efficacy scores.

Hypothesis 5 was supported for the PNPD group when ES was entered alone into the equation: \( R = .18, R^2 = .03; F(1, 29) = .92, p = .17 \). Entered first, BDI did not demonstrate a significant relation with goal efficacy: \( R = .07, R^2 = .005; F(1, 29) = .13, p = .36 \). After ES was entered into the equation as step 2, the association was not significantly strengthened: \( R = .21, R^2 = .05; F(2, 28) = .66, p = .26 \). Although this relation was not significant, it was in the predicted direction: \( \beta = -.21, t = -1.09, p = .14 \).

For the combined groups, ES was a valid predictor of goal efficacy, when entered into the equation alone: \( R = .43, R^2 = .19; F(1, 67) = 15.31, p = .0001 \). BDI, entered first, showed a significant relation with goal efficacy: \( R = .26, R^2 = .07; F(1, 67) = 4.76, p = .02 \). The relation was strengthened after ES was entered at step 2: \( R = .46, R^2 = .21; F(2, 66) = 8.99, p = .0002 \).
### Table 8
Hierarchical Regression of ES and BDI on GE

<table>
<thead>
<tr>
<th>Variables</th>
<th>GE (DV)</th>
<th>BDI</th>
<th>ES</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>-.38</td>
<td>-.62</td>
<td>-.26</td>
<td>-1.90</td>
<td>.03</td>
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<tr>
<td></td>
<td>.07</td>
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<td>.12</td>
<td>.64</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.26</td>
<td>(.84)</td>
<td>-.38</td>
<td>-.17</td>
<td>-1.54</td>
<td>.07</td>
</tr>
<tr>
<td>ES</td>
<td>-.56**</td>
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<td>-9.73</td>
<td>-.50</td>
<td>-3.68</td>
<td>.00</td>
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<td>-.18</td>
<td>.28</td>
<td>-3.70</td>
<td>-.21</td>
<td>-1.09</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>-.43**</td>
<td>.23</td>
<td>(.42)</td>
<td>-7.62</td>
<td>-.39</td>
<td>-3.52</td>
</tr>
</tbody>
</table>

\[ M = 74.35, \quad 9.76, \quad 4.23, \quad R^2 = .37, \quad F = 10.44, \quad .00, \]
\[ 80.92, \quad 7.63, \quad 4.26, \quad = .02, \quad = .66, \quad .26, \]
\[ 77.30, \quad 8.79, \quad 4.25, \quad = .21, \quad = 8.99, \quad .00, \]

\[ SD = 16.72, \quad 6.75, \quad .87, \quad \text{Adj.} R^2 = .34, \]
\[ 11.39, \quad 6.13, \quad .63, \quad = -.02, \]
\[ 14.84, \quad 6.52, \quad .75, \quad = .19, \]

\[ R = .61, \quad = .21, \quad = .46, \]

Note. GE = goal efficacy; BDI = Beck Depression Inventory; ES = explanatory style (AASQ); s subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); Adj. R^2 = Adjusted R^2; ** indicates significance at the p \leq .01 level.

ES contributed significantly to the prediction of goal efficacy, beyond that which could be attributed to BDI: \( t = -3.52, \quad p = .0004 \). This relation was in the negative direction. That is, individuals with a more pessimistic ES had a lower sense of goal efficacy. The statistical data for this set of analyses are in Table 8.

**Hypothesis 6.** A hierarchical multiple regression was used to analyze this research hypothesis. The question...
being investigated was whether or not the stable/unstable-
global/specific dimensions of ES were related to the manner
in which participants reportedly responded to academic
setbacks. It was hypothesized that those individuals with a
more pessimistic ES would be more likely to respond
passively to such setbacks.

For the PWPD group, the stable/unstable-global/specific
dimensions did not significantly predict an active response
style: $R = .27, R^2 = .07; F(2, 35) = 1.39, p = .13.$
Statistically controlling depression did not significantly
improve the prediction: $R = .28, R^2 = .08; F(3, 30) = .86, p
= .24.$

For the PNPD group, the stable/unstable-global/specific
dimensions of ES were not predictive of active responding: $R
= .17, R^2 = .03; F(2, 29) = .42, p = .33.$ This lack of
association remained after depression was statistically
controlled: $R = .14, R^2 = .02; F(3, 26) = .18, p = .46.$ The
results for the entire sample were also not significant ($p = .48$).
The statistical data for this set of analyses are in
Table 9.
Table 9
Hierarchical Regression of Stable-Global and BDI on ACT/PASS

<table>
<thead>
<tr>
<th>Variables</th>
<th>ACT(DV)</th>
<th>BDI</th>
<th>S-G</th>
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<td></td>
<td></td>
<td>1.18</td>
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</table>

Note. ACT = Active/Passive Responding; BDI = Beck Depression Inventory; ES = explanatory style (AASQ); subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); Adj. R^2 = Adjusted R^2; global data are in boldface type.

Hypotheses 7 and 8. To determine whether gender or disability status influenced ES, a 2 x 2 ANOVA was conducted. The results showed that there were no main effects for gender or disability status: F(1, 56) = .43, p = .54 and F(1, 56) = .06, p = .81 respectively. However, the
data showed a significant gender by disability interaction: \( F(1, 66) = 3.87, p = .05 \) (see Table 10). Figure 1 shows the slopes, and group differences for this interaction.

**Hypothesis 9.** A one-way analysis of variance was used to test the means of ES for different groups of individuals with physical disabilities. Because of the relatively small sample size, these individuals were placed into two groups: 1) sensory impairment (visual and hearing, \( n = 15 \)); and 2) motor/skeletal (\( n = 17 \)). The mean ES scores of these two groups (\( 4.53, SD = .92 \), and \( 4.13, SD = .87 \), respectively) did not differ significantly: \( F(1, 30) = 1.62, p = .21 \). The data for this analysis are in Table 11.
Table 10

ES by Gender and Disability

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
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<td>2-Way Interactions</td>
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<tr>
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<td>Total</td>
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</table>

Note. PWPD females = 21, PNPD females = 22, PWPD males = 17, PNPD males = 10.
Figure 1

2 x 2 Interaction
(Gender by Disability)

ES - Pessimism

- PWD
- PNPD

Male Female

Note. PWPD = persons with physical disabilities; PNPD = persons not physically disabled; test of PWPD Slope: $F(1, 36) = 2.50, p = .12$; test of PNPD Slope: $F(1, 30) = 1.66, p = .21$; test of females with and without disabilities: $F(1, 41) = 2.51, p = .12$; test of males with and without disabilities: $F(1, 25) = 1.45, p = .24$.

Table 11
ES by Disability Groups

<table>
<thead>
<tr>
<th>Source of Variation</th>
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<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig of F</th>
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<td>1.62</td>
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<tr>
<td>Residual</td>
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<td>30</td>
<td>.80</td>
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</tr>
<tr>
<td>Total</td>
<td>25.22</td>
<td>31</td>
<td>.81</td>
<td></td>
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</tr>
</tbody>
</table>

Note. PWPD females = 21, PNPD females = 22, PWPD males = 17, PNPD males = 10.
Exploratory Analyses

In order to investigate the statistical properties of the individual dimensions, the multiple regression tests were run again with each component of the explanatory style measure. The individual dimension scores were less powerful predictors of the dependant variables. For the PWPD group, the stable/unstable dimension was the only measure that was a significant predictor of GPA: $R = .42, R^2 = .18; F(1, 32) = 6.99, p = .006$. Likewise, for the PNPD group, only one dimension, internal/external, was a good predictor of GPA: $R = .31, R^2 = .10; F(1, 28) = 3.06, p = .05$. These were the only two dimensions that reached significance for the sample. The results of these analyses suggested that the AASQ as a whole was a better predictor of college performance, with regards to GPA.

A multiple regression was used to measure how frequently students dropped classes. To determine this drop rate, the number of hours completed was divided by the number of hours attempted. The results showed that ES was not a good predictor of this index for either group. The values for the combined sample were: $R = .04, R^2 = .002; F(1, 50) = .08, p = .39$. 
As further evidence of the relation between academic performance and ES, past studies have shown that when individuals are separated into high and low ES groups, there tends to be a significant difference between their GPAs. This trend was also replicated in the present study. To accomplish this analysis in the present study, a one-way ANOVA was used. The sample was split at the median ES score (4.08). The group with the more pessimistic ES (n = 33) had a mean GPA of 2.93, SD = .46; the group with the more optimistic ES (n = 31) had a mean ES of 3.26, SD = .45. This difference was statistically significant, $F(1, 62) = 8.15, p = .006$. 
Discussion of Hypothesis Testing

The primary research hypothesis of the present study was upheld. The results showed that a pessimistic explanatory style was negatively associated with college GPA; the more pessimistic one became, the lower his or her grades tended to be. These individuals tended to attribute the causes of bad academic events to factors that were: internal (it happened because of me); stable (it will always turn out the same way); and global (it will happen with everything I try to do). This pattern is in contrast to individuals who implemented a more optimistic explanatory style. Individuals with the more optimistic explanatory style made attributions that were: external (it did not go wrong because of anything I did); unstable (this is temporary); and specific (this will affect only this situation). Also, when dividing ES scores along a median split, those students with a more optimistic ES had a significantly higher GPA than did those with a more
pessimistic ES. These results support the conclusion of Peterson and Barrett (1987) examination of college freshmen.

Additionally, the relation between explanatory style and college grade point average remained when the initial effects of depression were controlled. Unfortunately, attempts to account for the variance contributed by achievement scores (Scholastic Aptitude Test scores), as found by Peterson and Barrett (1987), were unsuccessful. Very few participants in either group provided a self-report account of their scores. Therefore, the data were not included in the multiple regressions.

The results of the present study suggested that similar psychological factors that were demonstrated in the research literature (Peterson & Barrett, 1987; Peterson, Colvin, & Lin, 1992) were at work for members of the present study. Specifically, the manner in which an individual habitually explains to himself or herself the occurrence of bad academic events was important in the degree of success they achieved in college.

The most important aspect in which the present study differed from the Peterson and Barrett (1987) study was the inclusion of the group of students with physical
disabilities and the group of control students without physical disabilities. This not only allowed for the direct examination of students with physical disabilities, but it also allowed for the comparison of that group with the nondisabled sample. The results of the present study showed that the relation between ES and GPA existed for the overall sample, regardless of the presence or absence of a physical disability. This particular finding leads to a discussion of the seventh research hypothesis, which examined ES differences between individuals who had physical disabilities and those who did not.

A 2 x 2 Analysis of Variance showed that no statistically significant difference existed between the PWPD and the PNPD mean ES scores. This lack of a significant difference on explanatory style scores seems to match the findings of other studies comparing individuals with physical disabilities against those without. This similarity seems to hold for various psychological characteristics, such as self-esteem and social-competence (Beatty, 1994) and self-concept (Martinez & Sewell, 1996) at least with college students.

This similarity has been addressed elsewhere in the
literature. Vash (1981) stated, that regardless of physical variations, individuals with disabilities and those without are more alike than different. She added that individuals with physical disabilities are nothing more than psychologically normal people responding to abnormal events. She maintained that all individuals experience and react to loss in similar ways and that individuals with disabilities are simply reacting to the loss of some physical ability. With this apparent similarity in mind, other aspects of disability, ES, and academic variables will be addressed.

The third research hypothesis of the present study examined the relation between ES and the tendency to make use of university services. The results showed that for the most part, service utilization was similar for both groups. The only differences tended to show up in those services especially designated for assisting students with physical disabilities, such as disability accommodations and computer labs consisting of adaptive technology. The only other service that showed a significant difference in services usage, mentoring programs, showed that only 5 PWPD members made use of this service. This particular finding suggests that services utilization is roughly similar between the two
The results also showed that ES did not predict the frequency of use of university services and resources. These results were somewhat contrary to the findings of Peterson and Barrett (1987). Those results showed that a university Freshman with a more pessimistic ES would be less likely to take an active role in the pursuit of her or his education.

The reason for this apparent contradiction is unclear. The nature of the sample in the present study might have contributed to these findings. The present participants were older than the typical college student and had an average classification of senior. Unfortunately, Peterson, Colvin, and Lin (1992) did not give the age or experience level of their sample so this evaluation can not be more readily made. Nonetheless, perhaps this potential difference in age and experience somehow contributed to the present findings. For example, perhaps those individuals who were less likely to make adequate use of university services had long since dropped-out of college. This might have resulted in a more homogenous group with regards to services utilization.
However, the contradiction between the outcomes might also be attributable to the manner in which services utilization was measured in the present study. The University Services Inventory was a crude inventory which asked participants to endorse those services they had utilized, on a yes/no basis. Unfortunately, it only measured whether or not each service had ever been used by the participants but did not assess actual frequency of use. This might have resulted in the instrument's decreased precision, making it an ineffective instrument. A measure that included frequency of use, perhaps on a weekly basis, might have yielded more interesting results.

However, the research hypotheses that investigated academic goal specificity and goal efficacy did yield interesting results. The results of the present study indicated that a significant relation existed between ES and goal specificity, but only for the PWPD group; furthermore, this relation was not in the predicted direction. Specifically, those individuals with physical disabilities who implemented a more pessimistic ES tended to have goal specificity scores that were rated as more specific. This was contrary to what Peterson and Barrett (1987) found in
their study. Furthermore, these researchers found that goal specificity was related to a higher GPA (values not reported). The results of the present study showed that this relation was in a negative direction but not significant (see Table A2). This relation within the PNPD group was only marginally significant \( (p = .07) \) and was also not in the predicted direction.

It is unclear why these particular results were obtained. However, it seems fairly clear that the attainment of goals not only depends on interpersonal characteristics, but also on external issues. Therefore, perhaps the presence of environmental and societal obstacles facing individuals with physical disabilities might have contributed to these results.

Rather than goal specificity being a positive trait that connotes focus and direction, it might be more of a hindrance to those with disabilities who make use of a pessimistic ES. It is possible that they view their environment in a more rigid and restrictive way, which can be conceptualized as a depressive outlook. This outlook may be markedly different than their optimistic counterparts with physical disabilities.
It may be the case that those individuals with physical disabilities who possess a more optimistic ES can view their environmental obstacles in a more flexible light and overcome them more effectively. In indirect support of this, Vash (1981) reported that those individuals with physical disabilities who hold a unifocal goal will be more profoundly influenced by the presence of a disability. Therefore, perhaps high goal specificity in the present study is analogous to unifocal goals among the PWPD group, which might explain the correlation with the pessimistic ES. However, the relation within the PNPD group was similar and also in the negative direction. This suggests that they too performed differently than did Peterson and Barrett's (1987) sample. One possible explanation for why the present sample seemed to respond differently from the former sample might be due to some characteristic other than physical disability.

One of the most striking differences between the sample in the present study and the Peterson and Barrett (1987) sample is the age and experience of the participants. In the present study, the average participant was 32.16 years of age and a college senior. In contrast, every member in
the Peterson and Barrett study was a college freshman (ages of the participants were not reported). Might this difference in age have contributed to the results? Perhaps, particularly when one considers Healey's (1993) statement that women with disabilities and elderly women have many similar characteristics. Although the age of the participants in the present study is far younger than elderly, perhaps some threshold has been crossed.

The measure of goal efficacy (the degree to which participants thought that they could reach their stated academic goals) also yielded interesting results. On this particular measure, there was a significant negative relation between ES and goal efficacy for both groups. That is, the more pessimistic ES an individual held, the less likely he or she felt that their goals could be accomplished. The fact that no relation was found in the Peterson and Barrett (1987) study makes the present finding even more compelling. Given the characteristics of learned helplessness, this negative relation between ES and goal efficacy was originally expected (Peterson & Barrett, 1987).

However, the pattern of results once again suggests that when issues concerning academic goals are involved, the
participants in the present study are somehow different from those in the Peterson and Barrett (1987) study. As with goal specificity, perhaps the individuals in the present study view their ability to attain their stated goals as being more closely tied to societal barricades than do younger individuals. Therefore, they might perceive these societal barricades as significant hindrances to the accomplishment of their academic goals. Once again, Healey's (1993) comparison between the elderly and disabled might be influencing these results.

Vash (1981) offered some information as to how goal efficacy and the presence of a disability might be related. She pointed out that individuals with physical disabilities may tend to experience powerlessness when attempting to navigate through societal barriers. She added that this powerlessness can result in learned helplessness. Eventually, as hypothesized in the present study, the sense of efficacy for the individuals with more pessimistic ES scores may have been diminished.

The research hypothesis which investigated responses to academic setbacks was not substantiated. ES did not predict
the manner in which an individual reportedly responded to academic failures. These results seemingly contradicted those of Peterson, Colvin, and Lin (1992), in which a significant association between the two variables was found. One important difference that might have affected this outcome involves the manner in which responses was assessed. The present study implemented the technique used by Peterson and Barrett (1987), which also yielded insignificant results. In an attempt to remedy this lack of significant findings in the present study, only the stable/unstable-global/specific dimensions were used in the analysis, as was the case in Peterson, Colvin, and Lin (1992). This suggested that the manner in which responses to academic failures were measured might have been responsible for the lack of significant findings.

The results of the present study that concerned gender differences were interesting. Contrary to what was hypothesized, the PWPD females in the present study obtained the lowest ES scores. Although follow-up ANOVAs showed only marginal significance \((p = .12)\), the initial 2 x 2 ANOVA showed a significant interaction by gender that suggested the differences in ES scores between PWPD males and the PNPD
females might be important.

The reasons for this pattern is not entirely clear but some evidence in the literature might offer some tentative explanations. Females with disabilities often tend to be viewed as highly passive and dependant (Vash, 1981; Healey, 1993). This pattern of behaviors can be rather easily conceptualized as describing an individual with a pessimistic ES. However, the females with disabilities in the present study had the most optimistic ES.

An examination of a study conducted by Baucom and Danker-Brown (1979) might shed some light on this issue. In their study, Baucom and Danker-Brown did not directly examine ES. However, they did look at responses to forced failures with regards to sex role types. They determined that individuals with androgenous sex role types did not react with performance or mood deficits in the face of forced failures. An extrapolation of these findings is that individuals who are androgenous are more likely to possess a more optimistic ES. Also, research has shown that individuals with an androgenous sex role type are more likely to possess response strategies that are not only greater in number, but also more flexible (cf. Bem, 1975).
Therefore, perhaps those females with physical disabilities who chose to attend college and remained enrolled possessed more androgenous traits than their non-college bound counterparts. However, this hypothesis is only tentative as the present study did not directly address this issue.

The final research hypothesis formally examined showed that individuals from different disability categories did not differ significantly with regards to their explanatory style. This suggests that the members of each group react to academic setbacks in similar manners. However, this should be viewed with some hesitation because the relatively small sample sizes necessitated the collapsing of groups. Therefore, any subtle difference that might actually have existed could have been diluted when the groups were collapsed. Regardless, one should keep in mind Vash's (1981) contention that individuals both with and without physical disabilities were basically the same. It therefore seems logical that similar conditions would exist between disability groups.

The exploratory analyses in the present study indicated that ES as a whole was a better predictor of academic performance than were the characteristics reportedly
measured by each individual dimension. Abramson and her colleagues (1978) reported that the internal/external dimension was associated with self-esteem, stable/unstable was related to chronicity, and global/specific was related to pervasiveness. The present results suggest that all of these characteristics taken together might be related to the academic deficits found in learned helplessness. This interpretation is supported by Peterson's (1991b) contention that there might be some higher order latent variable among these three dimensions that accounts for the variance.

The final exploratory analysis not yet discussed (GPA differences were touched on earlier in this section) involved the tendency for students to withdraw from classes. Although one might expect to find higher drop rates for students with a more pessimistic ES, no such results were found. To explain these results, the age and experience of the participants is once again given.

Had the sample been obtained from a markedly younger population, such as incoming freshmen, and followed for a period of perhaps two semesters, one might have found that a pessimistic ES was a strong predictor of dropping classes and eventually dropping out of college. However, it is
possible that those students with whom such results might have been found left college long ago. Therefore, remaining students have possibly developed strategies for overcoming the potential presence of a risk factor for dropping out. Regardless, deficits might have been manifested in other ways. For example, as discussed earlier, those individuals with a more pessimistic ES obtained lower GPAs. This finding suggests that even at the mean age of the present sample, ES still plays a role in academic performance.

Clinical Implications

The results of the present study have implications that are not only relevant to the status and condition of individuals with physical disabilities, but also to the body of research supporting the importance of explanatory style. First, the results suggest that individuals with physical disabilities can operate at both a psychological and an academic level that is comparable to the mainstream. For the most part, the individuals with disabilities not only scored similarly with regards to explanatory style scores, but they also performed similarly on indices such as college GPA. Furthermore, the relation between these two variables were basically the same for the two groups.
The results of the present study should also be viewed in the context that the two groups were statistically similar with regards to their demographic backgrounds, such as years of college attended, hours completed, age, and SES. This suggests that all things being equal, individuals with physical disabilities need not feel less capable of performing well in school. This can be invaluable information for individuals with physical disabilities who might feel apprehension about being successfully able to navigate through the university environment. Fichten, Goodrick, Tagalakis, Amsel, and Libman (1990) reported that college students with physical disabilities tended to be more concerned about nonacademic factors than they did about academic factors. Admissions and guidance counselors can take all necessary efforts to share this kind of information with such students in an attempt to orient them toward college with the most effective cognitive framework.

Additionally, this information can be forwarded to the college faculty. Such information is important in the classroom as it lets professors know that they need not assume that a student with a physical disability will find classroom requirements insurmountable. This is particularly
important when one considers research findings that address how students with physical disabilities interact with their teachers. Fichten et al. (1990) reported that professors tended to be more concerned about various nonacademic characteristics of their students with physical disabilities than was necessary. This kind of dynamic between professor and student can lead to a less productive experience for all parties involved. Stewart (1990) reported that negative teacher attitudes can create difficulties in the learning environment of students with disabilities, whereas positive attitudes can facilitate learning. One recommendation of the present study involves this point. Specifically, these nonacademic factors should be less of a concern and the academic requirements should receive all of the attention.

A second recommendation of the present study involves what actions should be taken if it is determined that a student has a pessimistic ES. In any instance in which an individual possesses a pessimistic ES, a referral to a university counseling center could be made. There, the student could undergo cognitive remediation in an attempt to adjust his or her explanatory style. It seems feasible that such an assessment can be readily made during initial intake
procedures at the university’s office that handles accommodations for students with physical disabilities.

Furthermore, such cognitive remediation should be coupled with the direct teaching of concrete behaviors that can help students improve their academic performance (Kunnen, 1993). In this instance, the students receiving cognitive remediation can also be encouraged to attend university classes that teach skills such as time management and study skills. If no such resources are available in any given institution, this too can be dealt with within the counseling center.

Although such actions would benefit all students, it seems especially important for students with physical disabilities. This statement is made in light of the findings that concern academic goals. As discussed earlier, students with physical disabilities seem to operate under different mechanisms where their goals are concerned. If this is the case, then the recommended attempts at remediation might be helpful.

Research studies have shown that interventions can positively influence the college performance of students with physical disabilities. Balcazar, Fawcett, and Seekins
(1991) trained college students with physical disabilities to actively recruit assistance from others. It warrants mentioning that this active behavior can be conceptualized as coinciding with a more optimistic ES. Their findings demonstrated that such training resulted in an increase in the attainment of stated academic, vocational, and personal goals.

The results of the present study also suggest that explanatory style is a viable predictor of college success. The present study applied the research techniques of ES to a population of college students with physical disabilities. Additionally, the results for all in the present study were generally comparable to past research findings. These two factors are important because they add to the validity of explanatory style as a predictor of academic success.

Shortcomings of the Present Study

Although the results of the present study seem to support the utility of ES as a predictor of academic performance, they should be interpreted in light of several shortcomings. The first and perhaps most important factor to consider involves data collection. The diversity of manners in which the survey questionnaires were distributed
made monitoring the return rate difficult. Therefore, it cannot be determined if other variables might have contributed to the results. For example, perhaps the individuals who responded were more likely to have been performing well in college, while those performing less well declined to participate.

Evidence of this can be seen in the relatively high grade point averages found in the present study (2.93 for the more pessimistic group and 3.26 for the more optimistic group). However, the fact that the pattern of results obtained in the present study were similar to results found in previous research outings cannot be ignored. This seems to be evidence that, at the very least, the results of the present study are as valid as past projects.

Another possibly related shortcoming that merits attention also involves the representativeness of the sample of students with physical disabilities. In particular, their mean age and college experience level is likely not representative of the typical college student, either with or without physical disabilities. As stated earlier, the mean age of the present sample was 32.13 with an average of 94.89 hours completed. This age and experience level makes
them much older than the average college student. A conversation with the UNT Office of Research and Planning revealed that the average UNT undergraduate student was 23.1, the average Masters student was 31, and the average Ph.D. student was 37. This age discrepancy might have contributed to the obtained results. However, it should be noted that the PWPD participants were comparable on age with the control group and did not differ significantly with regards to either age or experience. Therefore, they still compared favorably to their counterparts. This too suggests that the results of the present study are valid, although the generalizability might be limited.

The present study also failed to adequately obtain information concerning the participants' initial level of aptitude, as measured by the Scholastic Aptitude Test scores. The absence of this information did not allow for the statistical control of variance attributable to initial ability. However, given that the results of the present study have tended to reflect past research findings, perhaps it can be tentatively concluded that the results would have shown similar patterns to the ones obtained.
Areas for Future Research

The present research concerning explanatory style and individuals with physical disabilities can be extended to other areas. First, different populations of students can be examined with regards to their explanatory style. For example, elementary school aged children with physical disabilities can be compared with their nondisabled counterparts. Like the present study, a straight examination of explanatory style scores could be compared to their matched controls. Then, the association with such academic variables as grade point average, retention rates, and academic pursuits beyond secondary school can be examined.

The ideal research design of such a study would be longitudinal. This would allow for the examination of the development of one's explanatory style as well as how ES may influence one's academic career and beyond. By tracking these students throughout their primary and secondary schooling, attempts could be made to determine if a more pessimistic ES is correlated with a higher drop-out rate. Additionally, it would be interesting to examine whether or not ES was associated with a decision to attend college,
receive vocational training, or directly enter the work force. Such information not only has important implications for children with disabilities, but also for their nondisabled peers, as research has shown that these two populations seem to operate similarly.

When undertaking such future studies, care should be taken to obtain information concerning the ability or aptitude of the students. Information from school records such as standardized achievement test scores can be used to hold ability constant. If not available, an intellectual screen could be used to control for this variable.

Studying children at a young age also has important clinical implications. Primarily, the explanatory style that one possesses might be more readily remediated at this early age. If it is determined that the child has a pessimistic outlook, intervention steps such as those found in Aydin (1988) can be taken in the classroom. This way, the child can look forward to a life in which the potential for success is increased. School psychologists can help in the training and monitoring of classroom teachers in such undertakings.

Another important area that merits investigation
involves individuals with physical disabilities in different settings. For example, junior college students with physical disabilities could be tested and compared to their university counterparts. By evaluating factors such as those examined in the present study, a comparison between the two populations can be made. This could possibly offer some insight into whether or not explanatory style is associated with why certain students attend a junior college while others attend a university. Additionally, the junior college students could be compared to their own junior college peers without physical disabilities. This way, characteristic differences and similarities within the junior college population can be examined.

Another population that could benefit from explanatory style research is the non-college group. These individuals can be found in either a sheltered workshop environment or in the competitive work place. However, because there is likely nothing comparable to a sheltered workshop for individuals without disabilities, the sheltered workshop worker could probably only be compared to other populations of individuals with physical disabilities. Nonetheless, this does not diminish the importance of examining this
population.

The final area for future research that will be addressed involves the possible addition of dimensions to explanatory style. As stated earlier, criticisms of explanatory style and the direction for future research have come to light. Many authors feel that including a controllability dimension is necessary in explanatory style research (Anderson & Deuser, 1991; Deuser & Anderson, 1995; Weiner, 1991). These authors feel that the dimensions currently implemented do not adequately account for how the individual perceives and explains the occurrence of a bad event and the associated mood and behavior deficits. This is said to be important because the perceived controllability is at the heart of how one reacts to a bad event. These researchers are dissatisfied with the contention of ES researchers that controllability is assumed in the pessimistic causal attributions. Therefore, future studies might look into adding a controllability dimension and determining if this significantly contributes to the predictive power of ES.

Conclusions

The findings of the present study showed that, for the
most part, participants in the present study had results similar to those found in past research projects. Specifically, one's level of pessimism was shown to be negatively correlated to one's level of college success with regards to grade point average. In addition to that particular finding, it was shown that the results were evident for both individuals with and without physical disabilities.

The similarity of the responses and performance of the two groups suggest that individuals with physical disabilities are basically similar to their nondisabled counterparts. Furthermore, the results offer evidence that individuals with physical disabilities are also able to perform in an academic setting comparably to individuals without disabilities. It seems as though such information would benefit new incoming college students with disabilities and their professors. This can greatly benefit both of these parties, particularly when one considers research that has shown that both of these groups tend to be overly concerned with nonacademic aspects of education.

Preexisting university resources such as the office responsible for providing services to students with
disabilities can be the mechanism by which explanatory style is assessed. When appropriate, referrals to university counseling services for cognitive intervention can be made. These recommendations could eventually work to provide college students with physical disabilities with a college experience that is maximally positive.

The present study cannot be concluded without once again reviewing the issue of academic goals. These results might represent areas that require special attention for students with physical disabilities. It seems as though this area could be one way in which students with physical disabilities are markedly different from students without disabilities. Therefore, steps to remediate these difficulties may warrant serious consideration.

To conclude, the findings of the present study suggest that explanatory style warrants further investigation. As stated earlier, further research with different populations and perhaps different dimensions seems important. The findings of such studies will likely add to the significance of the theory of explanatory style as an important psychological construct.
APPENDIX A

SUPPLEMENTARY TABLES
Table A1  
**Intercorrelations of Measures**

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*Note.* US = university services; GS = goal specificity; GE = goal efficacy; subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); * indicates significance at the $p < .05$ level.

Table A2  
**Correlation Matrix for Measures and Demographic Information**

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</table>

*Note.* US = university services; GS = goal specificity; GE = goal efficacy; ES = explanatory style (AASQ); BDI = Beck Depression Inventory; subscripts indicate group values: 1 = PWPD, 2 = PNPD, 3 = combined (COMB); * indicates significance at the $p < .05$ level; ** indicates significance at the $p < .01$ level.
Table A3

Intercorrelations of Demographic Information

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</table>

Note. YRS = years; HRS = hours; GPA = grade point average; SES = socioeconomic status (Hollingshead rating); * indicates significance at the $p \leq .05$ level; ** indicates significance at the $p \leq .01$ level.
APPENDIX B

DEMOGRAPHIC INFORMATION
Demographic Information

1) Participant no. ______________________________________

2) Date of birth

3) Age

4) Sex

5) Disability info.
   a) Type of Disability: __________________________
   b) Date of Onset of Disability: _________________

6) Educational background
   a) years enrolled
   b) hours completed
   c) classification
   d) GPA
   e) SAT

7) Parents education (if parent is retired, give former occupation)
   a) mother
      1) education
      2) occupation
   b) father
      1) education
      2) occupation
APPENDIX C

UNIVERSITY SERVICES INVENTORY
University Services Inventory

Check the following university services that you have used.

1) ___ Academic advising
2) ___ Office of Disability Accommodations
3) ___ Adaptive Lab
4) ___ Counseling and Testing center
5) ___ Study skills training
6) ___ Tutoring
7) ___ Mentoring Program
8) ___ Seminars/Workshops
9) ___ Academic labs
10) ___ Libraries
11) ___ Computer labs
APPENDIX D

ACADEMIC GOALS
Academic Goals

1) Briefly list 5 academic goals.

2) Now write a percentage from 0% to 100% of how confident you are that you will achieve each goal. Use 0% to mean that you are not at all confident; use 100% to mean that you are completely confident; use intermediate percentages to mean you have intermediate degrees of confidence.

1. __ _____________________________
2. __ _____________________________
3. __ _____________________________
4. __ _____________________________
5. __ _____________________________
APPENDIX E

INFORMED CONSENT FORM
University of North Texas
College of Arts and Sciences
Department of Psychology
P.O. Box 13587
Denton, Texas 76203

You are invited to participate in a study of the way that students with disabilities view the occurrences of good and bad events and how this affects their school performances. Participation will involve responding to various questions over the course of approximately one hour.

Data compiled from your performance will be kept in strict confidence at all times. Only the investigator, the supervising professor, and a research assistant will have access to the information. Following the collection of data your individual identity will be removed from all data forms. In this manner, information regarding your participation will be kept confidential.

Possible risk factors from your participation are no greater than normal daily activity. The investigator in this study is Ramiro Martinez, M.A. The supervising professor is Kenneth Sewell, Ph.D. If you have any questions that we have not
answered in person, you may contact either of us at 565-2671.

Your signature below indicates that you have decided to participate in this study and that you have read and understood the information in this consent form. Your decision whether or not to participate in this study will not prejudice your present or future association with this university. If you decide to participate, you are free to withdraw consent and discontinue participation at any time without prejudice. A copy of this consent form will be provided for you.

Thank you.

Participant: ___________________________ Date: _______

Investigator: __________________________ Date: _______ Witness:

_______________________________ Date: _______
APPENDIX F

RELEASE OF INFORMATION
University of North Texas
College of Arts and Sciences
Department of Psychology
P.O. Box 13587
Denton, Texas  76203

Release of Information

I, _______________________, (SS#  -  -  ) do
give permission for my academic records (Grade Point Average,
hours enrolled, and hours completed) to be accessed from the
Registrar's office at the University of North Texas (UNT) by
Ramiro Martinez, M.A. of the Psychology Department at UNT.
To the Receiving Person/Agency:

It is understood that this information, as with all student records, will remain strictly confidential and will be used solely for the present research study entitled "Explanatory Style and College Performance in Students with Physical Disabilities."

Student: ___________________________ Date: ___________

Witness: ___________________________ Date: ___________
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