The Effects of Attributional Style on Learning: Engagement as a Mediator

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The Effects of Attributional Style on Learning: Engagement as a Mediator

by

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A Master’s Thesis Submitted to the Faculty of

Montclair State University

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This study investigated the effects of attributional style on learning outcomes, with engagement in learning as a mediator. A model was developed to depict this relationship, suggesting that attributional style affects learning both directly and indirectly, with academic and civic engagement as a mediator between attributional style and learning. Hypothesis 1 stated that attributional style is related to academic performance, such that students with a positive attributional style will exhibit higher academic performance than students with a negative attributional style. Hypothesis 2 stated that engagement mediates the relationship between attributional style and academic performance. The data used in this study was collected as part of a larger study comparing the effects of service-learning on depression, alcohol-use, and overall well-being. Attributional style was measured using the CAVE (content analysis of verbatim expression) technique. Student reflections were coded for attributional style, and a series of linear regressions were run to test for mediation. Partial evidence was found in support of hypothesis 1, as attributional style was found to be related to depth of civic learning. No support was found for hypothesis 2, as no evidence of a mediation was found. Findings indicated that rather than mediating the relationship between attributional style and academic performance, engagement may actually play a role in developing individual attributional style, which later predicts academic performance in college.
THE EFFECTS OF ATTRIBUTIONAL STYLE ON LEARNING: ENGAGEMENT AS A MEDIATOR

by

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This research was sponsored in part by the Bringing Theory to Practice Project. The Bringing Theory to Practice Project is sponsored by the Charles Engelhard Foundation of New York City and developed in partnership with the Association of American Colleges and Universities. It explores and advocates the academic community's support of engaged learning and the relationship of such learning to student health and civic development. The project is guided by an interdisciplinary planning group of scholars, researchers, practitioners, and institutional leaders. Currently, there are over 300 colleges and universities across the nation connected to the project, many supported by grants, and many in discussion of these topics on their campuses.
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Introduction

This study sought to investigate the effects of attributional style on learning outcomes, with engagement in learning as a mediator. The following model was developed by the author to depict the hypothesized relationship between learned helplessness, academic and civic engagement, and learning:

\[
\text{Helplessness} \rightarrow \text{Academic/Civic Engagement} \rightarrow \text{Learning Outcomes}
\]

This model suggests that attributional style affects learning both directly and indirectly, with academic and civic engagement as a mediator between attributional style and learning. In other words, college students with a negative attributional style are less likely to be engaged both academically and in the community, and therefore will not learn as successfully in college. Conversely, individuals who have a positive attributional style are more likely to be engaged in their academic studies as well as engaged civically, therefore learning more effectively.

Review of the literature

*Learned helplessness*

Learned helplessness is a psychological condition in which an individual (either an animal or a human being) is forced to withstand aversive inescapable conditions, therefore “learning” to believe that it is “helpless” in certain situations (Seligman, 1975). Significant amounts of empirical research develop and support the learned helplessness model. In Martin Seligman’s original work on helplessness, “Helplessness: On Depression, Development, and Death,” learned helplessness is described as “the psychological state that frequently results when
events are uncontrollable” (Seligman, 1975, p. 9). Seligman describes numerous studies in which helplessness is exhibited by both animals and humans when the outcome of an event is found to be uncontrollable. For example, several studies have been conducted in which an animal such as a rat or a pigeon is placed in a situation where the animal’s responses to stimuli produce an aversive uncontrollable outcome, such as a shock. Regardless of the animal’s behaviors, the outcome remains uncontrollable for an extended period of time, and with repeated exposure to such uncontrollable events, the animal eventually gives up its attempts to stop or control the outcome. Furthermore, when new aversive events are introduced to the animal, the animal will not attempt to control the outcome even if it is actually able to do so.

In his original work, Seligman discusses a particular study in which a colleague and himself restrained dogs and gave them moderately painful (but not damaging) shocks. Seligman states that:

No voluntary response the animal made – tail wagging, struggling in the hammock, barking – could influence the shock. Their onset, offset, duration, and intensity were determined only by the experimenter. (These conditions meet the definition of uncontrollability.) After this experience, the dogs were placed in a shuttle box, a two-sided chamber in which a dog jumping over a barrier from one side to the other side turns off or escapes shock.

When placed in a shuttle box, an experimentally naïve dog, at the onset of the first electric shock, runs frantically about until it
accidentally scrambles over the barrier and escapes the shock. On the next trial, the dog running frantically, crosses the barrier more quickly than on the preceding trial; within a few trials it becomes very efficient at escaping, and soon learns to avoid shock altogether. After about fifty trials the dog becomes nonchalant and stands in front of the barrier; at the onset of the signal for shock it leaps gracefully across and never gets shocked again.

A dog that had first been given inescapable shock showed a strikingly different pattern. This dog’s first reactions to shock in the shuttle box were much the same as those of the naïve dog: it ran around frantically for about thirty seconds. But then it stopped moving; to our surprise, it lay down and quietly whined. After one minute of this we turned the shock off; the dog had failed to cross the barrier and had not escaped from shock. On the next trial, the dog did it again; at first it struggled a bit, and then, after a few seconds, it seemed to give up and to accept the shock passively. On all succeeding trials, the dog failed to escape (Seligman, 1975, p.21-22).

This quotation illustrates the testing trials in which dogs were given inescapable shocks. The dog is not only unable to escape the inescapable shocks, but gives up in attempting escape from escapable shocks. Thus, Seligman provides a description in which uncontrollability affects not only the dog’s initial actions, but subsequent controllable actions after the uncontrollable situation has ended.
After such repeated experiences with uncontrollability, the animal often develops a pattern of behavior which resembles depressive behaviors in humans, such as sitting in one corner of its cage without movement. When exposed to aversive events, the animal no longer tries to escape the situation regardless of the discomfort it experiences because it believes the situation is uncontrollable (regardless of whether the situation is actually uncontrollable or not). This change is described by Seligman as a change in motivation. Seligman (1976) states that uncontrollable events undermine the motivation to initiate voluntary responses that control other events, even those that are controllable. Thus the animal develops characteristics of learned helplessness, as the loss of motivation causes the animal to "learn" that it is "helpless" in its environment.

Learned helplessness and depression

The perceived inability to control one's environment can result in feelings of depression. Seligman (1975) uses examples of several individuals to describe his definition of depression, and summarizes these descriptions by stating that:

"...Every one of us, at one time or another, has felt the mood of depression: we feel blue, small exertions tire us out, we lose our sense of humor and our desire to do much of anything...[in depression] this mood is recurrent, pervasive, and can be of lethal intensity...The depressed person often becomes aware of strong feelings of self dislike; he feels worthless and guilty about his shortcomings. He believes that nothing he can do will alleviate his condition, and the future looks black" (Seligman, 1975, p.77)

A more concise definition states that clinical depression, or major depressive disorder, is a clinical term for a state of intense sadness, melancholia or despair that
has advanced to the point of being disruptive to an individual's social functioning and/or activities of daily living (Diagnostic and Statistical Manual IV-TR, 2000).

Seligman first established the relationship between helplessness and depression, stating that "Depression, as well as learned helplessness, has its roots in the belief that valued outcomes are uncontrollable" (Seligman, 1975, p.105). Seligman's original model suggests that learned helplessness models depression with respect to symptoms, causes, preventions and cures (Peterson & Seligman, 1984). While there are many factors that can cause depression, both biological and situational, empirical evidence supports the idea that the characteristics of helplessness are correlated with symptoms of depression (Abramson, Seligman, & Teasedale, 1978; Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson, Luborsky, & Seligman, 1983 Peterson, & Seligman, 1984; Seligman, Abramson, Semmel, & von Baeyer, 1979; Seligman, Kaslow, Alloy, Peterson, Tanenbaum, & Abramson, 1984).

Reformulation of the learned helpless model: attributional style

After establishing the connection between learned helplessness and depression, further research by Seligman and colleagues called for a reformulation of the learned helplessness model. The reformulated model indicates that helplessness can predict depression by measuring an individual's attributional style, the way an individual explains causes of bad events. According to Seligman and colleagues (1979) "attributing lack of control to internal factors leads to lowered self-esteem, whereas attributing lack of control to external factors does not" (Seligman, Abramson, Semmel & von Baeyer, 1979, p. 242). In other words, when
an individual believes that the causes of events are due to inherent flaws in oneself, rather than controllable outside events, feelings of depression due to learned helplessness occur. The individual feels depressed because he or she feels as if she cannot control negative events. Thus the reformulated model indicates that the effects of helplessness on depression can be measured through an individual’s attributional style; in other words, the way an individual perceives his or her world (his or her attributions) can be measured for indicators of learned helplessness which may create or exacerbate symptoms of depression.

Seligman (1975) cites six main symptoms of learned helplessness which are paralleled in depression: (a) lowered initiation of voluntary responses (reduction in attempts to initiate responses after experiencing uncontrollability, (b) negative cognitive set (difficulty learning that responses produce outcomes), (c) time course (helplessness persists after experiencing multiple uncontrollable events, such as shocks), (d) lowered aggression (fewer competitive responses), (e) loss of appetite (includes eating less, as well as sexual and social deficits), and (f) physiological changes (Seligman, 1975, p. 82). These six symptoms are indicative of depression as a result of learned helplessness, which can be predicted through attributional style.

By measuring an individual’s attributional style, learned helplessness can predict the development of these depressive symptoms. An individual’s attributional style is either positive or negative. It is based on three dimensions: internality, stability, and globality. Depression-prone individuals tend to attribute bad outcomes to global, stable, and internal factors (Seligman et al., 1979).
Internality is the extent to which an individual blames himself or herself for bad events and gives credit to himself or herself for good events. Stability reflects whether a cause is chronic (stable) or transient (unstable). Globality reflects the extent to which a cause affects an individual’s life in many areas (global) or just a few areas (specific). In addition, attributions that individuals make are either positive (“I got an A on the test because I studied hard”) or negative (“I failed the test because my professor is stupid”).

In depressive attributional style, an individual tends to give internal, stable, and global explanations for bad events: “It’s me; it’s going to last forever; and it’s going to affect everything I do” (Peterson & Seligman, 1984, p. 350). In addition, their attributions are consistently more negative, and will attribute positive outcomes to negative causes (“I only got the job because I am a minority”). Furthermore, Peterson & Seligman (1984) state that a person who explains bad events with internal, stable, and global causes often exhibit the more severe psychological problems and symptoms discussed above, such as poor problem solving (negative cognitive set) and passivity (lowered initiation of voluntary responses).

The reformulated model of learned helplessness has been empirically supported by several studies. Seligman, Abramson, Semmel and von Bayer (1979) found that relative to non-depressed students, depressed students attributed bad outcomes to internal, stable, and global factors. They also attributed good outcomes to unstable, external factors compared to non-depressed students. Furthermore, they found that attributional style for bad outcomes appears to be more highly correlated
with depression than attributional style for good outcomes (Seligman et al., 1979, pp. 246). A study by Peterson (1992) reported similar results, indicating that highly internal, stable, and global causes preceded increased depression, and highly external, unstable, and specific causes preceded decreased depression (Peterson, 1992, p. 381).

**Attributional style and learning**

While the reformulated model of learned helplessness supports the existence of attributional style and its ability to predict symptoms of depression, research has yet to discover how knowledge about learned helplessness can alleviate symptoms of depression and enhance daily life. As stated earlier, one major consequence of learned helplessness is motivational (Seligman, 1975). Seligman also asserted that helplessness disrupts the ability to learn. Thus, a second major consequence of learned helplessness is cognitive: once an individual has had experience with uncontrollability, he has difficulty learning that his response has succeeded, even when it is actually successful (Seligman, 1975, p. 37). Clearly, a key element of the relationship between learned helplessness and depressive symptoms are the effects of helplessness on learning.

The reformulated model on attributional style asserts that attributional style should be able to predict levels of depression and helplessness, and should therefore predict how successfully and accurately an individual can learn. If an individual exhibits symptoms of a depressed attributional style, he or she is exhibiting signs of learned helplessness, and therefore will have difficulty learning depending upon his or her particular attributions.
Recent research supports the idea that attributional style affects learning. Sutherland and Singh (2004) found that learned helplessness might further explain academic and behavioral deficits that characterize students with emotional and behavioral disorders. Peterson and Barrett (1987) also examined attributional style and academic performance among college freshman. They discovered that students with a negative attributional style had fewer specific academic goals and sought academic advising less often, which resulted in lower grades than those of students with a positive attributional style. Overall effects indicated that attributional style was related to grades in college among college freshman (Peterson & Barrett, 1987).

This leads to the following hypothesis:

H1: Attributional style is related to academic performance such that students with a positive attributional style will exhibit higher academic performance than students with a negative attributional style.

A study by Yee, Pierce, Ptacek, & Modzelesky (2003) examined the pattern of relationships between learned helplessness attributional style and examination performance in an introductory psychology course. Their results indicated that attributional style was unrelated to exam performance in the first half of the semester and positively related to improvements in performance in the second half. Such ambiguous results suggest that further research is needed to determine the effects of attributional style on learning. In their study on attributional style and academic performance among college students, Peterson and Barrett (1987) asserted that attributional style should affect students’ characteristic approach to
studying and learning. To further examine this relationship, it is necessary to better understand other approaches to learning, such as how engaged a student is in a particular course. More recent research has focused on learning in students with behavioral or emotional disorders (Sutherland and Singh, 2004), rather than the effects of attributional style on learning for the “average student,” and how an individual’s attributional style may be used to help college students learn more effectively. Thus the present study seeks to fill a void in the literature by measuring learning approaches such as how engaged students are in their learning.

Engagement

In her review of the literature on engaged learning, student mental health and well-being, and civic development, Swaner (2005) argues that the term “engagement” has not been clearly defined. She states that two major, although not necessarily discrete, categories emerge from the literature. One strand, which arises from the National Survey of Student Engagement (NSSE), describes engagement as students’ active involvement in their learning. The other strand accounts for the majority of references to engagement in higher education literature, is that of civic engagement, either as the civic development of students or the engaged campus (Swaner, 2005, p. 34). The present study incorporates both of these definitions. The first definition can be viewed as academic engagement, or students’ active involvement in their learning, which encompasses class participation, interaction with professors, and efforts to learn outside of the classroom. The second definition refers to civic engagement, encompassing students’ contributions outside of the
classroom, such as participation in extracurricular activities, involvement on campus, and involvement in their communities.

In the present study, both types of engagement were examined in relation to an individual’s attributional style, and their subsequent effects on learning. The relationship of the mediating variable (engagement) assumes a three-variable system with two casual paths feeding into the outcome variable: the direct impact of the independent variable (learned-helplessness) and the impact of the mediator (depression). There is also a path from the independent variable to the mediator (Baron & Kenny, 1986, p.1176). This leads to the following hypothesis:

H2: Engagement mediates the relationship between attributional style and academic performance. Thus, students who exhibit more internal, global, and stable attributions for bad events are less likely to be engaged and are thus less likely to perform well academically. Conversely, students who exhibit more positive attributional styles are more likely to be engaged and thus more likely to perform better academically.

There have been many attempts to use principles of attribution theory as a therapeutic technique. In past research, attribution therapy has typically been used with people who behave in a dysfunctional manner and attribute their problems to pejorative internal causes. They are encouraged to reattribute their problems to external causes, with the assumption that this will prevent additional worrying and anxiety that exacerbate the problem (Wilson & Linville, 1982, p.367). Past research has indicated that students who are most in need of academic attribution therapy can be identified by their attributional style before encountering difficulties, and
preventative measures can be taken (Peterson & Linville, 1987). For example, Wilson and Linville (1982) attempted to use attribution therapy by changing attributions from stable to unstable in college freshman concerned about academic performance. While these types of interventions are often successful, they are not widely used because most research has focused on changing internal attributions, rather than altering an individual's attributional style in its entirety. Further research could help clinicians and educators develop more practical, effective interventions to improve student learning in individuals with a helpless or depressed attributional style.

Methods

Participants

The data used in this study was collected as part of a larger study comparing the effects of service-learning on depression, alcohol-use, and overall well-being. The original population consisted of 176 freshman students at Montclair State University. There were 80 participants in the experimental group and 96 in the control group. The experimental group consisted of students in the Engaged Leaders Learning Community (ELLC), a living-learning community in which students are required to take a service-learning class and participate in a weekly service activity such as tutoring or mentoring. The 96 students in the control group were non-ELLC students.

For the purposes of this study, only participants from the experimental group were used, as these students turned in final reflection papers which were coded to determine attributional style and depth of learning. Of the 80 available
students, 5 students were absent from all classes, for a total of 75 students available
for participation. Seven students refused participation, leaving a sample of 68
participants. Of these, 63 students completed both pre-test and post-test measures.
Five of these students were removed from the sample because they were enrolled in
an ELLC class but did not participate in the service component, leaving a final
sample of 58 participants in the previous study from which this data was used.

Of these 58 students, five were removed because their reflection papers
were not received, leaving a total of fifty-three participants whose reflection papers
were coded in this study. Seventeen participants were removed because they did not
have enough attributions which were able to be coded for attributional style. Thus
the final sample for this study consisted of 36 participants, 12 males and 24
females. Of these, 61.1% classified themselves as white, non-Hispanic (22), 19.4%
as Hispanic (7), 13.9% as African-American, non-Hispanic (5), and 5.6% as
Asian/Pacific-Islander (2). Participants’ ages ranged from 17-19, with a mean age
of 18.22.

Measures

Content Analysis of Verbatim Expression

Attributional style was measured using Content Analysis of Verbatim
Expression, or the CAVE method (Peterson, 2004). CAVE is a procedure for
extracting statements about life events and attributions from an individual’s
verbatim passage (CAVE References, 2007). This technique involves 2 steps:
extracting verbatim causal explanations, and rating them on 7-point scales
according to their internality, stability, and globality (Peterson, 1992, p. 378).
Causal statements are found in conjunction with an event. “Once an event is located in verbatim material, one looks for an attributed factor that precedes and covaries with it from the perspective of the individual” (Peterson, 1992, p. 384). An example of a causal event, followed by an attribution, is “I was late for my meeting because I got a flat tire.” The lateness to the meeting is the event, and the flat tire is attribution, or explanation, for why the event occurred. This would also be an example of a negative event (late for a meeting) as opposed to a positive event (received an A on an exam).

Scales for each of the three dimensions of explanatory style are as follows:

*Internality vs. Externality.*

This dimension attempts to measure the extent to which individuals blame themselves for bad events or credit themselves for good events (Peterson, 1992, p. 387). The 7-point scale can be divided into three regions:

A. Scale point 1, in which the individual attributes blame or credit to someone or something completely external to the self.

   a. Example: Event (E): I did well on the paper Attribution (A):

      Because the assignment was easy. [Rating = 1]

B. Scale points 2-6, where the individual attributes the cause of an event to some combination or interaction of internal and external factors.

   a. Example: E: We’re getting a divorce A: We’re just not made for each other. [Rating = 4]
C. Scale point 7, where the individual attributes causality to a behavioral, physical, or mental characteristic solely internal to the self (Peterson, 1992, p. 387).

a. Example: E: I didn’t get the job A: Because I’m too young [Rating = 7]

*Stability vs. Instability.*

This dimension reflects whether a cause is chronic (stable) or transient (unstable). In other words, it reflects the persistence of a cause (Peterson, 1992, p. 387). It can be rated depending upon the answer to the question: “In the future when this event occurs, will this cause again be present?” Response choices range from 1 (“will never again be present” to 7 (“will always be present). An example of a cause that will “never again be present” might be “I cannot attend the meeting because I have a family gathering.” An example of a cause that will “always be present” might be “I did well on the GRE because I studied hard” (Peterson, 1992, p. 389).

*Globality vs. Specificity.*

This dimension reflects the extent to which a cause affects an individual’s life in many areas (global) or just a few areas (specific). The greater the impact of the cause, the higher the globality rating. Two broad categories of an individual’s life are distinguished: achievement and affiliation. Achievement includes occupation or academic success, one’s acquisition of knowledge or skills, attainment of a sense of individuality or independence, and economic or social status. Affiliation includes the quality of intimate relationships, one’s sense of belonging or societal integration, sex, play, and marital or family well-being.
(Peterson 389). The globality of the cause is rated primarily, and the event is looked at as one of the effects on the causes only secondarily. An example of an attribution that is specific would be “I got a speeding ticket. I guess the cop had to fill his quota for the day.” [Rating = 1] Conversely, an example of an attribution that is global would be “I’ve lost all zest. I’ve felt devastated since my wife died” [Rating 6 or 7] (Peterson, 1992, p. 390). The death of one’s wife is likely to influence all aspects of life, whereas getting a driving ticket is likely to influence only few aspects. To test the validity of the coding, attributions were correlated with CES-D and the Satisfaction with Life scales.

*Center for Epidemiological Studies-Depression scale (CES-D)*

The CES-D is a 20 item self-report depression scale developed by the Center for Epidemiological Studies-Depression measuring sub-clinical depression. Internal consistency has been assessed among multiple samples with Cronbach alpha between .76-.91 (Radloff, 1977). Sixteen of the items are negatively worded (“I was bothered by things that don’t usually bother me”) and scored on a scale from 0-3, with 0 = Rarely or none (less than one day) and 3 = Most or all of the time (5-7 days). The other four are positively worded (“I enjoyed life”) and reverse coded on a scale from 4-1, with 1= Most or all of the time and 4 = Rarely or never. The total score is found by adding the individual scores of each item. Higher scores indicate higher levels of depression.

*Satisfaction with Life*

Satisfaction with Life scale is a 5-item questionnaire designed to measure global cognitive judgments about one’s life (e.g. “In most ways, my life is close to
ideal”). Items are scored on a scale from 1 = Strongly disagree to 7= Strongly agree, with higher scores indicating higher satisfaction with life. A description of psychometric properties of the scale can be found in Pavot and Deiner (1993) (Sessa, Natale & Hopkins, 2008).

**Academic Performance**

Academic performance was assessed in a number of ways. First, participants’ high-school GPAs and SAT scores were obtained through Montclair State University’s computer database (SIS). After the post-test, the participant’s first semester GPAs were also obtained through the SIS database. Finally, student reflection papers were collected and analyzed at the end of the semester for depth of learning. Reflections were approximately 8-10 pages long, as discussed in Sessa, Natale & Hopkins (2008). See Appendix A for a list of guided reflection questions.

**Depth of Learning**

Student’s reflections were coded for depth of learning to determine exactly what students learned and how deeply they learned. The model used was created by Patti Clayton and others, and was designed to evaluate learning depth in terms of understanding course materials, personal growth, and civic engagement. Possible scores are on a scale from 0 to 6. A score of 0 indicates that the student was unable to articulate one specific thing that he or she learned. A score of 1 indicates that the student was able to articulate a specific learning but could not get beyond identifying what he or she learned. A score of 2 indicates that the student was able to identify and describe what he or she learned; a score of 3 indicates that the student was able to identify, describe, and apply learnings; a score of four indicates
the student identified, described, applied and analyzed learnings; 5 indicates identifying, describing, applying, analyzing, and synthesizing. A score of 6 indicates that the student was able to identify, describe, apply, analyze, synthesize, and evaluate learnings; in other words, he or she learned the material deeply. Appendix D illustrates the specific scoring rubric for depth of learning in personal, civic and leadership areas.

Academic Engagement

Academic Engagement was measured using 19 behavioral indicators. Students rated how often they engaged in each behavior on a 5 point scale during both their final year of high-school (pre-test) and their first semester in college (post-test). Items were conceptually grouped into 4 types of behaviors: curricular engagement, Engagement with Faculty, disengagement, and other responsibilities interfered. Curricular engagement included the following items: Asked a question in class or contribute to class discussions; Made a class presentation; Worked on a paper or project that required integrating ideas or information from various sources; Worked with other students on projects during class; Put together ideas or concepts from different courses when completing assignments or during class discussion; and Studied with other students. The coefficient alpha for the pre-test was .75 (mean=3.0, s.d.=.78) and for the post-test was .77 (mean=2.78, s.d.=.56).

Engagement with Faculty items included: Discussed assignments or grades with an instructor; discussed career plans with a faculty member; and been a guest at a professor’s home. Coefficient alphas for these scales were poor. The item “been a guest at a professor’s home” in the pre-test was dropped, bringing coefficient alpha to .75 (mean=3.00, s.d.=.78). This scale was dropped in the post-test.
Disengagement included the following items: Came to class without completing readings or assignments; failed to complete courses in class; felt bored in class; came late to class; Overslept and missed class or appointment; and Fell asleep during class. Coefficient alpha in the pre-test was .78 (mean=1.79, s.d.= .58) and in the post-test was .70 (mean=1.75, s.d.=.40).

Other responsibilities interfered items included: Missed class due to employment; Didn’t study due to work responsibilities; and Didn’t study due to family responsibilities. Coefficient alpha in the pretest was .64 (mean=1.32, s.d. = .37) and in the post-test was .73 (mean=1.21, s.d. =.31) (Sessa et al, 2008). Appendix B contains a complete list of questions as they appeared in the post-test.

Civic Engagement

Civic engagement was measured a variety of different ways. First, 10 behavioral items measured degree to which students engaged in certain types of civic activities. Second, 12 similar behavioral items asked why students engaged in certain civic activities. For the purpose of this study, responses on these 12 items were collapsed into “did not participate” versus “participated.” In the pre-test, students indicated how often they engaged in these behaviors during their final year in high school. In the post-test, students indicated how often they engaged in these behaviors during the current school year. Using “The 2006 Civic and Political Health of the Nation (Lopez, Levine, Both, Kiesa, Kirby, & Marcelo 2006) as a guide, the items were grouped into 3 categories: civic activities (which generally focus on improving one’s community), electoral activities (concentrate on the political process), and political voice activities (things people do to express their political or social viewpoints).
Civic activities were explored in the following ways. First, general participation was looked at using the item “performed volunteer work” from the first set and a scale from the second set that included the following items: joined a local community group or association; fundraise for a charitable organization; participated in a fundraising run/walk/ride; and volunteered with a local organization or religious community (yes or no). Second, civic engagement in school was examined using the item “Performed community-service as part of a class.”

Electoral activities were assessed in the following two ways. From the first set of items, a scale was developed that included the following items: voted in a student election; discussed politics with friends; discussed politics with family; discussed politics in class; and worked on local, state, or national campaign. From the second set of items a scale was developed that included the following items: Volunteered to work on a political or issue campaign and voted in an election either on or off campus.

Political voice activities were evaluated in the following two ways. From the first set of items, the item “Participated in organized demonstrations” was used. From the second set of items, a scale was developed that included the following items: Sent a letter of email to the media; contacted public officials about an issue (e.g., mayor, secretary of state, member of congress, etc.); signed a petition related to a political or community issue; organized a petition; displayed buttons, signs, stickers, about political or social issues; and participated in a boycott, protest, or rally.

In the third measure of civic engagement, 10 items were used to measure attitudes toward community problems. Factor analysis and scale reliabilities were used to create categories for civic attitudes. Although several possible configurations of attitudes arose
during a factor analysis, subsequent tests of reliabilities determined that only 1 scale was viable for the pre-test and one similar scale was viable for the post-test. This scale is called “Importance of volunteering.”

On the pre-test, the Importance of Volunteering scale included the following items: Adults should give time for the good of the community; The most important community service is to help individuals; I feel I can have an impact on solving the problems in my community; and social problems are not my concern (reverse coded). Coefficient alpha for this scale was .78; m = 3.71 (out of 5), s.d. = .52. On the post-test, the Importance of volunteering scale included: Adults should give time for the good of the community; Social problems are my concern; If I could change one thing about society; it would be to achieve a greater sense of social justice; I feel I can have an impact on solving the problems in my community; and It is important for me to volunteer my time to help people in need. Coefficient alpha in the post-test was .73; m = 3.80, s.d. = .48. All other items were dropped from the analysis (Sessa et al, 2008). Appendix C contains a complete list of questions as they appeared in the post-test.

Data Collection

The data used in this study was collected as part of a larger study comparing the effects of service-learning on depression, alcohol-use, and overall well-being. Data collection took place in eight freshman general education classes (GNED), four consisting of students in the control group, and four consisting of students in the experimental group. The experimental group consisted of students in the Engaged Leaders Learning Community (ELLC), a living-learning community in
which students are required to take a service-learning class and participate in a weekly service activity such as tutoring or mentoring. The 96 students in the control group were non-ELLC students. This study only utilized data from the experimental group because students in this group submitted written reflection papers which were coded for attributional style. A quasi-experimental, non-equivalent, control group design with pre and post measures was implemented.

Two researchers were present at each data collection to hand out materials, answer questions, and distribute student incentives which were provided as compensation for participation in the larger study. In the pre-test data collection, the researchers first explained the purposes of the study to the students and distributed consent forms. Students were given time to read and sign the consent form if they were interested in participating. They were given an opportunity to ask questions prior to signing the consent form. After signing the consent form, a representative from Counseling and Psychological Services (CAPS) provided information to students about the services offered at CAPS, and a pamphlet was distributed containing contact information for CAPS. The CAPS representative also informed students about the self-scoring packet they would receive, including information on a voluntary program called Exploring Healthy Options through Change (ECHO) if students scored an 8 or higher on the Alcohol Use Disorders Identification Tests (AUDIT). Since some of the measures as questions of a sensitive nature, including questions about depression, alcohol use, family relations and major life events, the CAPS representative remained available to talk to students throughout the entire
survey in the event that participations became uncomfortable or upset. The researchers then distributed survey packets and pencils to the students.

Students who consented to participate in the pre-test received packets containing the pre-test, AUDIT, Center for Epidemiological Studies-Depression Scale (CES-D), and Satisfaction with Life Scale. They also received optional scoring packets in which they could choose to self-score the standardized measures, either in class or at home, as well as an additional copy of the CES-D so that if they received a high score, they could take it again in two weeks. Survey completion took anywhere from about fifteen to forty-five minutes. Upon completion, students returned their signed consent forms and their packets. Surveys were checked by researchers to ensure that all pages had been filled out, and students were given $10 cash for their participation. Students then signed a form stating that they had received their incentive.

Post-test data collection proceeded almost identically to pre-test data collection, with the major difference being that students were not required to sign a consent form if they had previously consented to participating in the study. Only students who participated in the pre-test were allowed to participate in the post-test.

Student reflections were also collected electronically. These reflections were the student’s final projects in their leadership class, and ranged anywhere from seven to twenty pages in length, with the average being about ten pages. In these guided reflections, students were provided with specific questions which they used to reflect upon one thing they learned about themselves personally, civically, and as leaders (Appendix A). Personal reflections allowed students to reflect upon their
personal experiences in the class. Civic reflections helped students articulate what
their experiences helped them learn about participating in a group and as a larger
member of the community. Leadership reflections were used to help students
explore and articulate their experiences in the ELLC course. These reflections were
coded using the depth of learning rubric (Appendix B).

Coding for depth of learning

The author and her faculty advisor coded for depth of learning in the following
manner. For the leadership learning, the entire reflection was read. If the student clearly
identified a concept, they received a 1. If not, they received a 0 and no further coding was
done. If they received a 1, the document was analyzed to determine if the student clearly
described the concept. If so, they received a 2. If not, the code was left as a 1 and no
further coding ensued. If they received a 2, the document was analyzed to determine if
they applied the concept in the context of their service-learning. If so, they received a 3,
if not, the code was left a 2 and no further coding ensued. If they received a 3, the
document was analyzed to determine if they analyzed the concept. If so, they received a
4, if not, the code was left a 3. If they received a 4, the document was analyzed to
determine if they synthesized the concept. If not, the code was left a 4. If so, they
received a 5. Finally, if they received a 5, the document was analyzed to determine if they
evaluated the concept. If so, they received a 6, if not, the code was left as a 5 (1=identify,
2=describe, 3=apply, 4=analyze, 5=synthesize, and 6=evaluate).

We coded a number of academic reflections separately, met and consensus coded.
Because we were reading and coding so many reflections across a variety of courses, we
continued in this manner to ensure that we remained in high agreement, coding a number
of reflections then consensus coding before moving to the next set. When finished with academic, we moved to personal, then to civic. Appendix D illustrates the specific scoring rubric for depth of learning in personal, civic and leadership areas.

**Coding for Attributional Style**

Coding using the CAVE technique consisted of two main steps. First, causal events were extracted from student reflection papers. Then, each individual causal event was coded for individual attributional style on a number of dimensions, in accordance with the CAVE technique.

**Extraction of casual events.**

Attributions were extracted from student reflection papers by the author. The author read the reflection paper of each individual participant, looking for events containing casual statements as described by the CAVE technique. An event is defined as any discrete occurrence that has a good or bad impact on the individual (Peterson 384). Following the exact description of the CAVE technique, ambivalent events, in which the subject did not describe as exclusively good or bad (“my class was wonderful and terrible”) were not extracted. Neutral events and events that did not have a direct impact on the subject were also not extracted.

When an event was found, it was copied electronically from the original document and pasted electronically into a blank Microsoft word document, with the participant number at the top of the event. This procedure was continued until all reflections had been read and all events which contained causal explanations were removed by the author. When attributions from each reflection had been removed, the document was printed and cut lengthwise so that attributions were completely
independent from one another. The following is an example of a casual event which was extracted from a student’s reflection:

E: I had a little attitude

A: because the class I had just left had me little upset

Attributions were then numbered by hand in order to determine which participant made the attribution. For example, attributions for participant #1 were labeled 1, 2, 3, and 4 respectively. Attributions for participant #2 were labeled 5, 6, 7, and so on, until all attributions were numbered. A coding sheet was created to track which attributions belonged to which participant. The CAVE technique specifies that to ensure reliability, an individual must have at least four causal attributions (Peterson, 1992). Any participant whose reflection contained fewer than four attributions was re-read by the author to ensure reliability. If four or more attributions could not be found for a participant, that participant was dropped from the sample. Of the 49 original participants, five were dropped for having fewer than four attributions, leaving a final sample of 44 participants whose attributions would be coded for attributional style. As attributions were coded, eight additional participants were dropped because some attributions were unable to be coded, and therefore that participant had fewer than four attributions. The final sample consisted of 36 participants.

Coding of extractions for attributional style.

Coding for attributional style proceeded in the following manner. The author and her faculty advisor met to review and discuss the CAVE technique to ensure reliability and validity during coding, after which they practiced orally coding several attributions. They then met and independently coded a 10% sample (30 attributions) for each
dimension of attributional style specified by the CAVE technique: positive/negative; internal/external; stable/unstable; and global/specific. Pearson’s r was used to determine the level of agreement for each dimension.

The first dimension coded was positive/negative. The author and her faculty advisor met and coded a 10% sample of the attributions, determining whether each attribution was a positive or negative event. Their rate of agreement was 100%. Since this rate was so high, the author of this paper independently coded the remaining 90% of the attributions for positive/negative.

The same procedure was followed for each of the three dimensions: internal/external (r = .86), stable/unstable (r = .73), and global/specific (r = .70). The author independently coded the remaining attributions for internal/external, stable/unstable and global/specific dimensions.

Results

Attributional style and depression

Attributional style was correlated with scores for depression (CES-D) for purposes of demonstrating construct validity. We expected a medium correlation. Correlational coefficients for attributional style and depression were not significant. Table 1 illustrates the correlations between attributional style and depression scores.
<table>
<thead>
<tr>
<th>Correlations Between Attributional Style and Depression Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>CESD-Scores</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Pre-test CES-D</td>
</tr>
<tr>
<td>Post-test CES-D</td>
</tr>
</tbody>
</table>

N = 36
*Correlation is significant at the .05 level
**Correlation is significant at the .01 level
Attributional style was also correlated with scores for well-being (Satisfaction with Life) for the purposes of demonstrating construct validity. We expected a medium correlation. One-tailed correlational coefficients were significant on stable negative attributional style and post-test satisfaction with life, $r = -0.305$. No other significant results were found for one-tailed correlational coefficients. Table 2 contains correlational coefficients between attributional style and scores for well-being on both pre and post-test measures.
### Table 2

**Correlations Between Attributional Style and Satisfaction with Life Scores**

<table>
<thead>
<tr>
<th>CESD-Scores</th>
<th>Positive Attributions</th>
<th>Negative Attributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal</td>
<td>Stable</td>
</tr>
<tr>
<td>Pre-test Satisfaction w/ Life</td>
<td>.151</td>
<td>.165</td>
</tr>
<tr>
<td>Post-test Satisfaction w/ Life</td>
<td>.243</td>
<td>.208</td>
</tr>
</tbody>
</table>

N = 36  
*Correlation is significant at the .05 level  
**Correlation is significant at the .01 level
Hypothesis Testing

To test for mediation, Baron and Kenny (1986) suggest estimating a series of linear regressions: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable, and third, regressing the dependent variable on both the independent variable and on the mediator (Baron & Kenny, 1986).

Hypothesis 1 stated that attributional style is related to academic performance, such that students with a positive attributional style will exhibit higher academic performance than students with a negative attributional style. Hypothesis 2 stated that engagement mediates the relationship between attributional style and academic performance. Thus, students who exhibited a negative attributional style are less likely to be engaged and are thus less likely to perform well academically, as compared with students exhibiting a positive attributional style. Tables 3, 4 and 5, respectively, contain means and standard deviations for post-test engagement measures (both academic and civic), attributional style, and academic performance (depth of learning and GPA). Tables 6, 7, 8, 9 and 10 contain correlations between all of these items.
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community participation 1</td>
<td>3.67</td>
<td>.92</td>
</tr>
<tr>
<td>Community participation 2</td>
<td>1.94</td>
<td>1.52</td>
</tr>
<tr>
<td>School community participation</td>
<td>4.22</td>
<td>.73</td>
</tr>
<tr>
<td>Religious community participation</td>
<td>1.77</td>
<td>.63</td>
</tr>
<tr>
<td>Electoral participation 1</td>
<td>1.82</td>
<td>.56</td>
</tr>
<tr>
<td>Electoral participation 2</td>
<td>.36</td>
<td>.63</td>
</tr>
<tr>
<td>Political voice 1</td>
<td>1.94</td>
<td>1.09</td>
</tr>
<tr>
<td>Political voice 2</td>
<td>.69</td>
<td>1.23</td>
</tr>
<tr>
<td>Social problems are my concern</td>
<td>3.80</td>
<td>.89</td>
</tr>
<tr>
<td>Civic attitude- importance of volunteering</td>
<td>3.80</td>
<td>.49</td>
</tr>
<tr>
<td>Curricular engagement</td>
<td>2.98</td>
<td>.48</td>
</tr>
<tr>
<td>Disengagement</td>
<td>1.75</td>
<td>.40</td>
</tr>
<tr>
<td>Other responsibilities</td>
<td>1.21</td>
<td>.31</td>
</tr>
<tr>
<td>Attributional Style</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Internal- positive</td>
<td>4.65</td>
<td>1.26</td>
</tr>
<tr>
<td>Stable-positive</td>
<td>3.93</td>
<td>1.31</td>
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<tr>
<td>Global-positive</td>
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<td>1.28</td>
</tr>
<tr>
<td>Internal- negative</td>
<td>3.41</td>
<td>2.16</td>
</tr>
<tr>
<td>Stable- negative</td>
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<td>Global- negative</td>
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<td>1.95</td>
</tr>
</tbody>
</table>

N = 36

*Correlation is significant at the .05 level

**Correlation is significant at the .01 level
| Table 5 |
|-------------------|-------|-------------------|
| **Means and Standard Deviations: Academic Performance** | Mean | Standard Deviation |
| Depth of learning - personal | 3.30 | 1.58 |
| Depth of learning - civic | 1.22 | 1.50 |
| Depth of learning - leadership | 3.49 | 1.56 |
| Student GPA | 3.07 | .51 |

N = 36
*Correlation is significant at the .05 level
**Correlation is significant at the .01 level
<table>
<thead>
<tr>
<th></th>
<th>Internal Positive</th>
<th>Stable Positive</th>
<th>Global Positive</th>
<th>Internal Negative</th>
<th>Stable Negative</th>
<th>Global Negative</th>
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</thead>
<tbody>
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<td>.467**</td>
<td>.300*</td>
<td>.118</td>
<td>-.052</td>
<td>-.074</td>
</tr>
<tr>
<td>Stable positive</td>
<td>.467**</td>
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<td>.550*</td>
<td>.021</td>
<td>.025</td>
<td>-.085</td>
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<tr>
<td>Global positive</td>
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<td>.550**</td>
<td>1</td>
<td>.201</td>
<td>.102</td>
<td>.081</td>
</tr>
<tr>
<td>Internal negative</td>
<td>.118</td>
<td>.021</td>
<td>.201</td>
<td>1</td>
<td>.698**</td>
<td>.693**</td>
</tr>
<tr>
<td>Stable negative</td>
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<td>.025</td>
<td>.102</td>
<td>.698**</td>
<td>1</td>
<td>.667**</td>
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<tr>
<td>Global negative</td>
<td>-.074</td>
<td>-.085</td>
<td>.081</td>
<td>.693*</td>
<td>.667**</td>
<td>1</td>
</tr>
</tbody>
</table>

N = 36
*Correlation is significant at the .05 level
**Correlation is significant at the .01 level
<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>SCP</th>
<th>RCP</th>
<th>E1</th>
<th>E2</th>
<th>PV1</th>
<th>PV2</th>
<th>SP</th>
<th>CA</th>
<th>CE</th>
<th>DE</th>
<th>OR</th>
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<tr>
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<td>.087</td>
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<td>-.195</td>
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<td>-.266</td>
<td>-.116</td>
<td>-.025</td>
<td>2.50</td>
<td>.399*</td>
<td>.321</td>
</tr>
<tr>
<td>CP2</td>
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<td>.186</td>
<td>.420*</td>
<td>.330*</td>
<td>.284</td>
<td>.186</td>
<td>.157</td>
<td>.139</td>
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<td>.124</td>
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<td>.095</td>
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<td>-.310</td>
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<tr>
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<td>-.008</td>
<td>.340*</td>
<td>.300</td>
<td>.040</td>
<td>.354*</td>
<td>.231</td>
<td>-.262</td>
<td>.095</td>
</tr>
<tr>
<td>E1</td>
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<td>-.078</td>
<td>.517**</td>
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<td>.325</td>
<td>.427**</td>
<td>.452**</td>
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<td>.422*</td>
<td>.216</td>
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<td>-.310</td>
<td>-.008</td>
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<td>.111</td>
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<td>-.061</td>
<td>.052</td>
<td>.011</td>
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<td>.186</td>
<td>-.065</td>
<td>.340*</td>
<td>.427**</td>
<td>.111</td>
<td>1</td>
<td>.325</td>
<td>.070</td>
<td>.075</td>
<td>-.089</td>
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<td>.157</td>
<td>-.216</td>
<td>.300</td>
<td>.452**</td>
<td>.504**</td>
<td>.325</td>
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<td>.100</td>
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<td>.324</td>
<td>.354*</td>
<td>.422*</td>
<td>.000</td>
<td>.075</td>
<td>.209</td>
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<td>-.020</td>
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<td>.250</td>
<td>.124</td>
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<td>.231</td>
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<td>DE</td>
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<td>-.262</td>
<td>-.233</td>
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<td>-.306</td>
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<td>-.020</td>
<td>.054</td>
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<td>.204</td>
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<tr>
<td>OR</td>
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<td>-.122</td>
<td>-.011</td>
<td>.099</td>
<td>-.159</td>
<td>-.076</td>
<td>-.099</td>
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<td>-.035</td>
<td>.204</td>
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</tbody>
</table>

N = 36

*Correlation is significant at the .05 level

**Correlation is significant at the .01 level
Table 8

<table>
<thead>
<tr>
<th>Correlations between Depth of Learning and GPA</th>
<th>GPA</th>
<th>Semester GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOL personal</td>
<td></td>
<td>.557**</td>
</tr>
<tr>
<td>DOL civic</td>
<td>.222</td>
<td>1</td>
</tr>
<tr>
<td>DOL leadership</td>
<td>.108</td>
<td>.091</td>
</tr>
<tr>
<td>High-school GPA</td>
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<td>.227</td>
</tr>
<tr>
<td>Semester GPA</td>
<td>.266</td>
<td>.092</td>
</tr>
</tbody>
</table>

*Correlation is significant at the .05 level
**Correlation is significant at the .01 level

N = 36
### Table 9

Correlations Between Attributional Style, Post-test Engagement & Academic Performance

<table>
<thead>
<tr>
<th></th>
<th>Positive Attributional Style</th>
<th>Negative Attributional Style</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Stable</td>
</tr>
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<td>DOL-C</td>
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<td>DOL-L</td>
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<tr>
<td>GPA</td>
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<td>-.021</td>
</tr>
</tbody>
</table>
Table 10

Correlations between Post-test Engagement, Depth of Learning and GPA

<table>
<thead>
<tr>
<th></th>
<th>DOL Personal</th>
<th>DOL Civic</th>
<th>DOL Leadership</th>
<th>High-school GPA</th>
<th>Semester GPA</th>
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</thead>
<tbody>
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<td>.218</td>
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<td>.133</td>
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Linear regressions: first series

In the first series of linear regressions, the mediator (engagement) was regressed on the independent variable (attributional style) using three equations: positive attributional style, negative attributional style, and combined positive and negative (overall attributional style). The first engagement scale regressed on attributional style was academic engagement, utilizing all three equations (positive, negative, and combined) in the following order: curricular engagement, disengagement, and other responsibilities interfered. No significant results were found.

The second engagement scale regressed on attributional style was civic engagement, again using all three equations. Civic engagement measures were regressed in the following order: community participation, school community participation, religious community participation, electoral participation, political voice, social problems are my concern, and civic attitude – importance of volunteering. Combined attributional style was found to be related to community participation, $R^2 = .348$, $p < .05$, with internal positive attributional style positively associated with community participation, $\beta = .384$, $p < .05$.

Similar significant results were found for overall attributional style on political voice participation (post-test): overall attributional style was related to political voice, $R^2 = .353$, $p < .05$, with global negative attributional style as negatively associated with political voice participation, $\beta = -.517$, $p < .05$, and global positive attributional style as positively related to political voice participation, $\beta = .418$, $p < .05$. 
No significant results were found for the following civic engagement scales on post-test measures: school community participation, social problems are my concern, and civic attitude – importance of volunteering. Table 11 contains a complete list of beta weights for attributional style and civic engagement.
<table>
<thead>
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<th>Civic Engagement</th>
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<th>Negative</th>
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<tr>
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<td>Electoral Participation</td>
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<td>Social Problems are my concern</td>
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<td>Civic attitude</td>
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</table>

N= 36
* Denotes significance at the 0.05 level (2-tailed)
**Denotes significance at the 0.01 level (2-tailed)
Linear regressions: second series

In the second series of linear regression analyses, the dependent variables (depth of learning and student GPA) were each regressed on the independent variable (attributional style), again in three separate equations (positive, negative, and combined attributional style). No significant results were found for student GPA.

Overall attributional style was related to depth of learning civic, $R^2 = .344$, $p < .05$, with global positive attributional style negatively related to depth of learning civic, $\beta = -.485$, $p < .05$, and global negative attributional style also negatively related to depth of learning civic, $\beta = -.556$, $p < .05$. No other significant results were found between the dependent variable and the independent variable.

Linear regressions: third series

In a test for mediation, Baron and Kenny (1986) suggest a third linear regression in the series, in which the dependent variable is regressed on both the independent variable and on the mediator. Thus, in the third linear regression the dependent variables (depth of learning and student GPA) were regressed on both the independent variable (attributional style) and on the mediator (engagement). No significant results were found.

These results suggest partial support for hypothesis one, which stated that attributional style is related to academic performance. Attributional style was found to be related to depth of learning civic, but not depth of learning personal, depth of learning leadership, or student GPA. Hypothesis 2 was not supported, as engagement did not mediate between attributional style and depth of learning.
Post-hoc analyses

Because hypotheses were not well supported, post-hoc analyses were conducted to determine whether engagement in high-school leads to attributional style in college. No significant correlations were found between attributional style and academic engagement in high-school. However, several dimensions of attributional style were found to be significantly correlated with pre-test measures of civic engagement. These dimensions included community participation (2), religious community participation, civic attitude-importance of volunteering, electoral participation (2). Table 12 contains a complete list of correlational coefficients between attributional style and pre-test engagement scores on both academic and civic dimensions.
<table>
<thead>
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<th>Engagement</th>
<th>Positive Attributional Style</th>
<th>Negative Attributional Style</th>
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<tr>
<td>OR</td>
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</table>
Attributional style, learning & engagement 51

Discussion

Depression and satisfaction with life

The purpose of this study was to examine the effects of attributional style on learning, exploring engagement (both academic and civic) as a possible mediator. First, correlational coefficients were calculated between attributional style and depression for the purpose of demonstrating construct validity. Previous research indicates that an individual's attributional style may be used to predict depressive symptoms (Seligman, 1979). A medium correlation was expected. Surprisingly, attributional style and depression were not found to be significantly correlated. These findings are contradictory to results from previous studies in which attributional style was found to be correlated with the scores on the CES-D (Rodriguez-Naranjo & Godoy, 1998). A likely explanation for this result is small sample size, which could have caused low statistical power.

Although attributional style was not found to be related to depression, it was related overall well-being, as measured by the Satisfaction with Life scale. Specifically, scores on the post-test satisfaction with life scale was negatively related to negative stable attributional style, indicating that those participants who exhibited more satisfaction with life exhibited less negative attributional style. Although no other dimensions of attributional style were related to satisfaction with life, this relationship should be further investigated in future studies, as small sample size may again have caused low statistical power. A more robust sample size in future studies may reveal this relationship more fully.
Engagement and Learning Outcomes

Hypothesis one of this study stated that attributional style is related to academic performance, such that students with a positive attributional style will exhibit higher academic performance than students with a negative attributional style. Attributional style was found to be significantly related to Depth of Learning (Civic), indicating that an individual’s attributional style may impact how deeply he or she learns in terms of civic understanding. More specifically, this analysis revealed negative results for both global positive and negative attributional style on the civic dimension of depth of learning, indicating that students who attribute causes to more global outcomes ("this affects everything I do") do not learn as deeply on civic topics.

This relationship is notable as it may impact many areas other of learning in college. If students who exhibit global attributional style learn less deeply on civic topics, then these students may be severely limited in many areas of potential academic growth. "Civic learnings" generally encompass topics such as team work, working as part of a larger system, and helping others. Students with an extremely global attributional style could be at a disadvantage during their college educations because their ability to learn on a variety of topics may be limited by their individual attributional style. These students may be more hesitant to take part in civicly related activities or have a difficult time understanding cause and affect relationships of various community and government systems. Conversely, students with a less global attributional style may learn more deeply in terms of civic depth
of learning, indicating that these students may be more open to learning on a wider variety of subject matter.

No significant results were found for attributional style on depth of learning personal, depth of learning leadership, or GPA. Correlations revealed that depth of learning scales and GPA were highly correlated with one another, but not with attributional style. One possibility for this relationship is that depth of learning and student GPA were not appropriate measures of academic performance. Results from previous studies support this idea, as past research has used a variety of measures for academic performance; typically, GPA and exam performance. These measures have proved somewhat ambiguous in terms of their relationship to attributional style. For example, Yee et al (2003) found that attributional style was unrelated to exam performance in the first half of the semester, and was positively related to improvements in performance in the second half.

This ambiguous nature of results from the present study and previous studies demonstrates two major points regarding the effects of attributional style on performance. First, that the nature of the relationship between attributional style and academic performance remains vague. Second, future research should consider examining various measure of academic performance (GPA, depth of learning, exam performance), as it remains unclear as to what is the most appropriate measure or measures for academic performance. This study is unique in its use of the depth of learning scale. While substantial significant relationships were not found, the relationship between attributional style and depth of learning civic
indicates depth of learning should be further explored as a measure of academic performance, particularly in studies with larger sample sizes.

Another possibility for the lack of relationship between attributional style and academic performance in this study is its time frame. As GPA and depth of learning were measured at the end of the fall semester, it may be too early in students’ college career to accurately measure academic performance. The first semester of freshman year is often considered a difficult adjustment period for students, as they are living, working and studying in a completely new environment. Previous studies which have shown a correlation between attributional style and GPA examined this relationship over a nine-month period (Peterson & Barrett, 1987). This study examined attributional style and GPA over a three-month period, which may not have allowed enough time for any significant changes. Future studies would benefit from employing a longitudinal design in which GPA and depth of learning are looked at over the course of the entire freshman year, and possibly beyond. Such a design would allow researchers to track academic progress after a student’s initial adjustment period to their new environment.

Engagement as a mediator

Hypothesis two stated that engagement mediates the relationship between attributional style and academic performance. Thus, students who exhibited a negative attributional style are less likely to be engaged and are thus less likely to perform well academically, as compared with students exhibiting a positive attributional style. No significant results were found for this relationship. Again, several factors could have inhibited revealing results about engagement as a
mediator for attributional style and academic performance. These include small sample size and improper measurements of academic performance. A larger, longitudinal study using these same measures (and perhaps additional measures for academic performance) may provide more in-depth information about the role of engagement in terms of attributional style and subsequent effects on academic performance.

An interesting finding of post-hoc analyses is that some dimensions of attributional style were significantly correlated with pre-test engagement measures. These dimensions included the two community participation measures, religious community participation, the civic attitude of importance of volunteering, and the two electoral participation measures, for a total of six pre-test measures which were found to be significantly related to attributional style. Thus it appears that the more internal and stable an individual's attributional style, the less likely the individual is to participate in various forms of community engagement.

These post-hoc analyses bring into question the direction of this relationship, such that it is possible that engagement actually leads to learned helplessness through attributional style: an individual's levels of civic and academic engagement in high-school may predict his or her attributional style, which can later affect college performance. In this new model, engagement in high-school may actually contribute the development of one's individual attributional style, therefore determining whether an individual will exhibit symptoms of learned helplessness.

According to the reformulated model of learned helplessness, helplessness is developed when an individual repeatedly experiences uncontrollable events, such
that he or she beings to believe that there is no way to control one’s world or one’s future, and exhibits depressive symptoms. However, the results of this study indicate that engagement may play a role in the development of individual attributional style by exposing students to events which are more positive and within their own control. It is possible that engagement in high-school, comprised of civic engagement (volunteer work, participation in clubs, extracurricular activities, sports, etc) and academic engagement (interaction with teachers and classmates, active participation in class discussions and projects, etc) may actually help an individual develop his or her individual attributional style by involving that individual in qualitatively different experiences than an individual who is disengaged. For example, a high-school student who is actively involved in Student Government Association, volunteer work, and participates actively in the classroom is likely to experience fewer uncontrollable events because his or her involvement means that the individual makes contributions to the academic environment, therefore increasing feelings of control through participation. Engaged students may therefore experience significantly fewer uncontrollable events, resulting in the development of a more positive attributional style. These results indicate that an entirely new study must be conducted in which the effects of high-school engagement are examined on the development of individual attributional style, and subsequently, academic performance, throughout high-school and into college.

**Strengths**

This study had many strengths. One major strength of this study is that it utilized a distinctive combination of measures, employing instruments which have
been widely used and well-validated (CES-D, Cave technique, GPA), as well as instruments unique to this particular study, many of which illustrated the potential to provide promising results in future studies (depth of learning, satisfaction with life, academic and civic engagement scales). This mixture ensured that concepts were accurately measured, while adding new measures which may provide more fine-grained information than those used in previous research. For example, as most previous research has used GPA and test scores as measures of academic performance, the depth of learning scale, though not widely used to date, provided novel information about the relationship between attributional style and performance. Unlike purely numerical measures of academic performance, depth of learning allowed a more detailed examination of what students are learning and how they deeply they understand academic material on a number of dimensions.

Another major strength of this study was its exploration of engagement, an area previously thought to be unrelated to attributional style. While strong evidence for engagement as a mediator between attributional style and academic performance was not found, the results of this study suggest the opposite relationship, in which engagement may actually influence the development of one’s attributional style. Thus this study provided evidence for an entirely new model of attributional style, engagement and academic performance.

**Limitations**

This study had several noteworthy limitations. First, because of the involved nature of the CAVE technique, this study had an extremely small sample size, which could have caused low statistical power. Sample size was affected by the use
of the CAVE technique, as opposed to other measures such as the Attributional Style Questionnaire (ASQ) as a measure of attributional style. The CAVE technique has been found to be highly effective; however, for future studies, the ASQ might be a simpler instrument which would not limit sample size. The effects of small sample size when coding for attributional style should be assessed in future studies. Furthermore, while the sample was relatively diverse, it was not an adequate representative of the entire college student population, thus it is difficult to generalize the results of this study to larger groups. A second limitation was inter-rater reliability. For purposes of practicality, the author was the primary coder for attributional style. Future studies should use multiple coders with extensive training in coding using the CAVE technique to ensure maximum reliability.

Another limitation was the questionable accuracy of academic performance measures. For first-semester college freshman, first-semester GPA may have been an inaccurate indicator of academic performance, as many participants may not have had the opportunity to adjust to a more rigorous academic environment. In future studies, it may be beneficial to follow students longitudinally in order to examine academic progress and growth. In terms of explanatory style and well-being, it is possible that the Satisfaction with Life scale was an inappropriate measure of well-being for the purposes of this study.

Practical Implications

If it is true that engagement helps develop overall attributional style, then practical implications of this study are substantial. Past research has indicated that students in most need of academic attribution therapy can be identified by their
explanatory style before encountering difficulties (Peterson & Barrett, 1987). By increasing our understanding of attributional style and its subsequent effects on learning, a variety of techniques can be used on college campuses to improve student performance.

One future implication of this study involves the use of engagement to alter individual attributional style, thereby increasing academic performance. Previous research indicates that attributional interventions for college freshman are highly effective in improving GPA throughout the course of their college careers. In a study by Peterson and Linville (1982), college freshman whose attributions were changed from stable to unstable causes were significantly less apt to leave college by the end of the sophomore year, had a significantly greater increase in GPA one year after the study, and performed significantly better on sample items from the Graduate Record Exam (Wilson & Linville, 1982). While the results of Wilson and Linville's study are important, they focus on changing only one dimension of an individual's attributional style. If a significant increase in performance results by changing just one dimension of an individual's attributional style, then changes in an individual's entire attributional style would produce even more dramatic increases in academic performance.

Rather than using traditional methods of altering attributional style, such as showing college freshman videotaped interviews of upperclassmen reporting temporary problems (Wilson & Linville, 1982), the present research suggests a behavioral approach by way of engagement. An individual's level engagement may predict his or her attributional style. If engagement is, indeed, a powerful predictor
of attributional style, then it may be used on college campuses to help students in
develop more positive attributional styles, therefore alleviating symptoms of
depression and increasing academic performance. Through engagement in
community service, extracurricular activities, and active classroom participation,
symptoms of learned helplessness may be lessened, resulting in lowered depression
and increasing academic performance for college-aged students.
References


*Psychology in Spain, 2*(1), 17-26.


http://www.personal.kent/edu-dfresco/cave.html


Appendix A: Guided Reflection Questions

Personal Learnings
1. Identify one specific personal characteristic of yours that you now understand better as a result of reflection on your service learning experience. Specifically, what one (1) personal strength, weakness, assumption about yourself or others, belief, conviction, trait, etc. have you become aware of, or more aware of, as a result of reflection on your service learning experience?

2. Describe and define this one characteristic so that someone who does not know you would understand what you are talking about.

3. Apply your understanding of this personal characteristic in the context of your service learning. How does this personal characteristic positively and/or negatively affect your interactions with others, your decisions, and/or your actions in your service-learning activities and (as applicable) in other areas of your life?

4. Analyze the source of this characteristic. What are the possible sources of reasons for this personal characteristic? How does your understanding of the sources of this personal characteristic help you to better understand what will be involved in using, improving, or changing it in the future?

5. Develop the steps necessarily to use, improve upon, or otherwise change this personal characteristic in the short term, in your service-learning activities and (as applicable) in other areas of your life. In what specific way(s) can you use, improve upon, or otherwise change this characteristic, in your service-learning activities and (as applicable) in other areas of your life over the short term? What are the potential personal benefits and risks/challenges you might face as you do so?

6. Finally, evaluate your strategies for personal growth over the long term. What is a more general and significant way to use this new understanding of yourself in your life over the long term, so that you continue, improve upon, and increasingly become more responsible for your own process of personal growth? What challenges or setbacks might you face in this ongoing personal growth process and how might you deal with them? How will you assess your progress in this process so that you may make changes to your personal growth strategies as needed?

Civic Responsibility
1. Identify one (1) specific thing you learned about working as part of a larger system as a result of your reflection on your service learning experience. Take into account the objectives of all the clients who were part of this service learning (leadership class, CCBL, MSU, the organization, yourself, AND the individual(s) you worked with).

2. Describe and define this one thing about working as part of a larger system so that someone who does not know you would understand what you are talking about. Describe also the approach you took toward meeting your service learning “clients” objectives (leadership class, CCBL MSU, the organization, yourself, AND the individual(s) you worked with) as one part
of this larger system. Specifically, identify and describe the objectives from each perspective. And describe the approach you undertook with respect to those objectives.

3. How did your approach positively and/or negatively affect the fulfillment of the different objectives of your service? Were any of these in conflict and how did your approach take this into account? How did your approach take into account the larger system?

4. Analyze the appropriateness of this approach(es) in light of alternatives and the steps necessary to make any needed improvements. Specifically, what were your reasons for taking the approach you did (attitudes, interests, agendas, assumptions, knowledge, resources). What alternative approaches could you have taken (were available)? Which approach, in hindsight, was/would have been more appropriate (more effective, more efficient, etc) and why? And in what specific ways could you improve on your involvement in collective action and what are the benefits and risks/challenges of doing so?

5. Evaluate your role as an agent (as one part of the system) of change. Pretend you are in this for the long term—What would be involved in moving this project into one that has long-term, sustainable, and systematic change? What challenges or setbacks might you (or the larger organization) face if you were to remain involved in moving this program forward? How might you assess or monitor progress in this change process so that you can continue to make changes for greater success?

Academic/Leadership Learnings

1. Identify one (1) specific leadership concept related to your service-learning experience that you now understand better as a result of reflection on that experience. Only discuss 1 here.

2. Describe the leadership concept. Explain the concept (so that someone not in your class would understand it).

3. Apply the one (1) leadership concept in the context of your experiences. How does the concept apply to your service-learning experience? (E.g., When did you see it, or note its absence? How did, or could, you or someone else use it?)

4. Analyze your initial understanding of the concept in light of the experience. Compare and contrast your initial understanding of the concept and your experience of it: In what specific ways are your understanding and the experience the same and in what specific ways are they different? What are the possible reasons for the difference(s) (E.g., bias, assumptions, lack of information on your part or on the part of the author/instructor/community)

5. Develop an enhanced understanding of the academic concept in light of the experience. How do you now understand the concept differently than you did before? In other words, what do you now see in the concept that you had not seen before (complexities, subtleties, new dimensions, etc)?

6. Evaluate the completeness of your understanding of the concept and of its use in the community. How specifically, might you now explain the concept
differently, to express your enhanced understanding of it? What additional questions need to be answered and/or evidence gathered in order to test the appropriateness of this preliminary revision in your understanding of the concept? Based on this enhanced understanding of the concept, how, specifically, might you and/or your service organization need to act differently in the future? AND what are the associated benefits and challenges?

Appendix B: Academic Engagement Items

2. During the current school year, how often have you done the following:
   
   Asked a question in class or contribute to class discussions
   
   Made a class presentation
   
   Worked on a paper or project that required integrating ideas or information from various sources
   
   Came to class without completing readings or assignments
   
   Worked with other students on projects during class
   
   Put together ideas or concepts from difference courses when completing assignments or during class discussions
   
   Discussed assignments or grades with an instructor
   
   Discussed about career plans with a faculty member or advisor

3. Since entering college, indicate how often you:
   
   Have been a guest at a professors home
   
   Participated in intramural sports
   
   Failed to complete courses in class
   
   Felt bored in class
   
   Came late to class
   
   Studied with other students
   
   Missed class due to employment
   
   Didn’t study due to work responsibilities
   
   Didn’t study due to family responsibilities
   
   Overslept and missed class or appointment
Fell asleep during class

Appendix C: Civic Engagement Items

1. For the past semester, indicate how often you were engaged in the following:
   - Attended religious services
   - Participated in organized demonstrations
   - Performed volunteer work
   - Voted in student election
   - Performed community service as part of a class
   - Discussed religion
   - Discussed politics with friends
   - Discussed politics with family
   - Discussed politics in class
   - Worked on a local, state or national campaign

2. During the last semester, how often did you participate in the following:
   - Tutoring or teaching
   - Counseling or mentoring
   - Environmental activities
   - Child care
   - Elder care
   - Hospital work
   - Substance abuse education
   - Other health education
   - Service to the homeless
   - Community improvement/construction
   - Conflict mediation
Service to my religious community
Other community service

4. Did you participate in any of the following activities during the last semester? If you participated in an activity, indicate the reasons why you participated (choose as many as apply):

- Joined a local community group or associate
- Fundraise for the charitable organization
- Participated in a fundraising run/walk/ride
- Volunteered with a local community organization or religious group
- Sent a letter or email to the media
- Contacted public officials about an issue (e.g., mayor, secretary of state, member of congress, etc)
- Signed a petition related to a political or community issue
- Organized a petition
- Displayed buttons, signs or stickers about political or social issues
- Participated in a boycott, protest, or rally about an issue that is important to you.
- Volunteered to work on a political or issue campaign
- Voted in an election either on or off campus

5. Indicate your agreement with the following:

- Adults should give time for the good of the community
- Social problems are not my concern
- People who receive social services have only themselves to blame for needing such services
- Social problems are more difficult to solve than I think
- If I could change one thing about society, it would be to achieve a greater sense of social justice
- For the most part, individuals can control if they are wealthy or poor
The most important community service is to help individuals
I feel I can have an impact on solving the problems in my community
It is important for me to volunteer my time to help people in need
I feel uncomfortable working with people who are different than me in terms of race, wealth and life experience

Appendix D: Depth of Learning Scoring Rubric

Personal Growth Learning Objectives

Learning Objective 1: Identify
• Identify a personal characteristic that you now understand better as a result of reflection on your service-learning experiences.

Learning Objective 2: Describe
• Explain the personal characteristic (so that someone who does not know you would understand it).

Learning Objective 3: Apply
• How does/might this personal characteristic positively and/or negatively affect your interactions with others, your decisions, and/or your actions in your service-learning activities and (as applicable) in other areas of your life?

Learning Objectives 4: Analyze
• 4.1 What are the possible sources of/reasons for this personal characteristic?
• 4.2 How does your understanding of the sources of this personal characteristic help you to better understand what will be involved in using, improving, or changing it in the future?

Learning Objectives 5: Synthesize
• 5.1 In what specific way(s) can you use, improve upon, or otherwise change this characteristic, in your service-learning activities and (as applicable) in other areas of your life over the short term?
• 5.2 What are the potential personal benefits and risks/challenges you might face as you do so?

Learning Objectives 6: Evaluate
• 6.1 What is a more general and significant way to use this new understanding of yourself in your life over the long term, so that you continue, improve upon, and increasingly become more responsible for your own process of personal growth?
• 6.2 What challenges or setbacks might you face in this ongoing personal growth process and how might you deal with them?
6.3 How will you assess your progress in this process so that you may make changes to your personal growth strategies as needed?

**Civic Engagement Learning Objectives**

**Learning Objective 1: Identify**

- 1.1 Identify the collective objective(s)
- AND-
- 1.2 Identify the approach that was taken with respect to those objectives

**Learning Objective 2: Describe**

- Describe the objectives and the approach (so that someone who was not involved would understand what you/others were trying to do and how you went about it).

**Learning Objective 3: Apply**

- How does/might the approach positively and/or negatively affect the fulfillment of the objectives?

**Learning Objectives 4: Analyze**

- 4.1 What alternative approach(es) was (were) available and how would it (they) affect the fulfillment of the objectives? (E.g., directing action towards a group vs. an individual; towards a root cause vs. a symptom; towards a long-term v. a short-term solution).
- AND-
- 4.2 What are the possible reasons for the approach you (they) took and/or for not taking the alternative(s)? (E.g., attitudes, interests, agendas, assumptions, knowledge, resources).

**Learning Objectives 5: Synthesize**

- 5.1 In what specific way(s) can you (they) improve on your (their) involvement in processes of collective action in the short term [Note: such improvement might include reconsidering the objectives as well as the approach]?
- AND-
- 5.2 What are the benefits and risks/challenges in doing so?

**Learning Objectives 6: Evaluate**

- 6.1 What could be involved in moving future action in the direction of long-term, sustainable, and/or systematic change? (E.g., change that addresses the underlying causes and that does not cause inappropriate dependencies).
- AND-
- 6.2 What challenges or setbacks might you face in this process and how might they be dealt with?
- AND-
- 6.3 How might progress be assessed in this process of change agency?

**Academic Enhancement Learning Objectives**

**Learning Objective 1: Identify**

- Identify a specific academic concept related to your service-learning experience that you now understand better as a result of reflection on that experience.
Learning Objective 2: Describe

- Explain the academic concept (so that someone who does not know you would understand it).

Learning Objective 3: Apply

- How does the academic concept apply to your service learning experience (E.g., when did you see it, or note its absence? How did, or could, you or someone else use it?)

Learning Objectives 4: Analyze

- 4.1 Compare and contrast your initial understanding of the academic concept and your experience of it: In what specific ways are your understanding and the experience the same and in what specific ways are they different?
  --AND--

- 4.2 What are the possible reasons for the difference(s) (E.g., bias, assumptions, lack of information on your part or on the part of the author/instructor/community?)

Learning Objectives 5: Synthesize

- How do you now understand the concept differently than you did before? In other words, what do you now see in the concept that you had not seen before (complexities, subtleties, new dimensions, etc.)?

Learning Objectives 6: Evaluate

- 6.1 How, specifically, might you now explain the concept differently, to express your enhanced understanding of it?
  --AND--

- 6.2 What additional questions need to be answered and/or evidenced gathered in order to test the appropriateness of this preliminary revision in your understanding of the concept?
  --AND--

- 6.3 Based on this enhanced understanding of the concept, how, specifically, might you and/or your service organization need to act differently in the future (or, how might you have acted differently in the past) AND what are the associated benefits and challenges?