

AN ABSTRACT FOR THE THESIS OF

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This study investigated the effect of a student-set, mastery-focused goal setting intervention on academic achievement and academic locus of control in underachieving college students in a quasi-experimental repeated measures mixed design. Twenty-three undergraduate college students participated in the study at a mid-sized university in the Midwest. The Academic Locus of Control (ALC) scale measured student placement on an internal-external locus of control continuum. Student test scores in introductory and developmental psychology classes measured academic achievement. Intervention results indicated participants increased internal scores on the ALC. Goal setting behavior improved psychology test scores significantly, positively impacting participants' academic achievement. Most participants stated their self-set, mastery-focused goals benefited their academic achievement, and the majority planned to set goals in the future.

THE EFFECT OF GOAL SETTING ON UNDERACHIEVEMENT AND
LOCUS OF CONTROL IN COLLEGE STUDENTS

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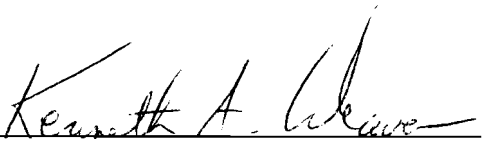
Master of Science

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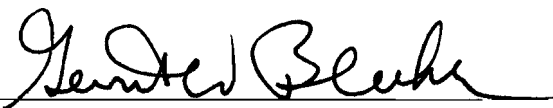
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CHAPTER 1

INTRODUCTION

At all educational levels, student underachievement significantly impedes academic success. Bright or even gifted students fail to reach their academic potential measured through means such as IQ scores and aptitude tests (Lubinski & Benbow, 2000; Phillips & Gully, 1997). This is a problem often faced by parents, teachers, and the students themselves. Underachieving college students fail to fulfill their academic potential in this critically important phase of their academic training. Extracurricular activities, academic course work, and part-time jobs compete with the demands for producing quality academic work. Moreover, without academic support and self-regulatory skills, some college students may underachieve under the best of circumstances. Students who fail to realize the importance of academic achievement until after their grade point average (GPA) has suffered irreparably may miss many opportunities in life.

Academic underachievement occurs when the quality of a student's classroom work determined by teacher report or GPA is not equivalent to the student's ability level measured by IQ or aptitude tests (McCoach & Siegle, 2003). Tests such as the American College Test (ACT), the Scholastic Aptitude Test (SAT), or the Weschler Intelligence Scale for Children (WISC) measure potential ability level (Lubinski & Benbow, 2000; Phillips & Gully, 1997). The degree of underachievement reflects the discrepancy between low quality work product and high ability level; the more pronounced the discrepancy, the more severe the underachievement.

One important issue which affects underachievement is goal-setting behavior. Students who underachieve typically set fewer goals for themselves as compared to average to high achieving students (Phillips & Gully, 1997). When students set academic goals, they feel more control over the academic setting which may increase their internal locus of control, thus giving them a better chance of improving academic achievement (Phillips & Gully).

Research on underachievement is primarily qualitative. Studies such as Neumeister and Hébert (2003) focus on a small number of case study participants. The information from the case studies synthesizes certain features common to all participants brought together to form or further a theory of underachievement. Qualitative research through case studies provides valuable information but does not access the crucial cause and effect relationship among variables impacting underachievement.

The current study examines the effect of goal setting on underachievement and locus of control through a quasi-experimental repeated measures mixed design. The research question in this study is: How does setting goals affect the individual's academic locus of control in the college classroom, and ultimately, the individual's academic achievement? The following literature review examines the complex relationship between underachievement, goal setting, and locus of control.

Review of the Literature

Academic underachievement in any aspect of student life frustrates and becomes problematic for all parties involved. Academic achievement decreases in some children as they age. Children's extracurricular activities and interests consume increasing

amounts of time, leaving less time to study. Parents and teachers often wonder why students with so much potential earn below average grades in the classroom.

Goal setting increased academic achievement in a number of studies (e.g., Church, Elliot, & Gable, 2001; Elliot & Harackiewicz, 1994; Phillips & Gully, 1997). The process of setting goals engaged the student in the classroom and increased the amount of perceived control the student felt over course work. This perceived control, referred to as internal locus of control, meant the individual felt personally responsible for success or failure (Kalsner, 1992). When the individual felt more in control of the educational environment, academic achievement increased.

While many studies separated variables related to underachievement, goal setting behavior, and locus of control, few studies attempted to combine them. The current study manipulated goal setting behavior of underachievers while monitoring locus of control and academic achievement, a gap missing in the literature. In addition, many underachievement studies utilized a qualitative method and a small number of participants (e.g., Kanevsky & Keighley, 2003). Goal setting and locus of control studies focused primarily on case study and correlational survey data without manipulation of variables (e.g., Wilhite, 1990).

Underachievement

Definition. Individuals who underachieve fail to reach their academic potential. In classroom settings, underachievement occurs when a student's quality of work is substantially lower than the ability level (Peterson, 2000). Standardized intelligence or achievement test scores commonly measure potential ability. Tests measuring ability include the Wechsler Intelligence Scale for Children (WISC), the SAT, and the ACT,

although much discussion questioned whether these tests measure potential or achievement (Peterson). However, numerous studies utilize these measures for ability potential without issue (Peterson; Phillips & Gully, 1997). The cumulative GPA generally measures the quality of a student's academic work. When a determined level measured discrepancy between the ability and the achievement level as measured in a school setting, the student underachieves.

Qualities. Underachievers exhibit qualities that help define the group.

Underachievers more frequently view academic tasks negatively when compared to achievers (Carr, Borkowski, & Maxwell, 1991). McCoach and Siegle (2003) found underachievers differed from achieving students in general self-perception, attitude towards school, motivation, and goal valuation. Interestingly enough, academic underachievers did not differ from academic achievers in academic self-perception, meaning they knew they are smart; they just chose not to perform at a level which matched their ability (McCoach & Siegle).

Underachievers were more likely to attribute task performance to external or uncontrollable factors such as luck, and they generally sought external praise such as a reward for a good grade (Carr et al., 1991). In academic achievers, ability, regardless of level, predicted attributions; if the student's ability level was high, internal attributions resulted, while low ability level predicted external attributions (Carr et al.). However, in academic underachievers, ability level predicted attribution style in the opposite direction; underachievers exhibited a highly external attributional style overall (Carr et al.).

Phillips and Gully (1997) proposed that goal-setting processes mediated locus of control on academic achievement. Individuals' perception of control in an environment is expressed through the goals set, while they produce the level of academic achievement eventually obtained. Kanevsky and Keighley (2003) reported boredom can produce underachievement; however, students in an academic environment that provides control, choice, and challenge alleviated the boredom. Student academic goals provided control otherwise absent from an academic environment.

Underachievement is a trait assessed by comparing a student's academic ability with the student's quality of work. Underachievers shared the common trait of external attributional style; if placed in an academic environment which allows control and challenge, they react differently compared to a very rigid academic environment allowing no flexibility. The role of goal setting explored in the academic environment follows.

Goal Setting

Importance of educational environments. The type of learning environment an underachiever experienced had a large impact on whether or not the student performed at an optimal level. The more control students felt over their environment, the more likely they intrinsically valued the importance of academic tasks and felt learning is meaningful (Maehr, 1992). Thus, one important aspect of an environment was perceived control.

Each student has a unique perception of the classroom environment. Whether positive, negative, or neutral, the student's perception influences variables such as achievement goal adoption (Church et al., 2001). Classroom environment factors such as student engagement in lecture, perceived instructor focus on grades, and difficulty of grading system influences the type and number of goals a student set (Church et al.). The

adoption of goals by students influences graded performance as well as intrinsic motivation for the course subject (Church et al.). In this way, student perception of the classroom environment impacts the goals adopted, and these goals then influenced the student's graded performance of the task. Goal setting is one way the classroom environment had an effect on student academic achievement.

Setting goals. In an academic environment, other individuals often set goals for students through course objectives or a preset grading scale. While these goals allowed acceleration for average student achievers, these preset goals did not have the same positive effect for underachieving students. Student-set goals relating to course content or possibly teacher-assigned goals adapted by the student had a more positive effect than teacher assigned goals on student performance (Locke & Latham, 2002). Students who set goals benefited the most when they referred to their goals often (Locke & Latham). Several studies identified a positive correlation between student underachievement and commitment to fewer, less difficult goals (Church et al., 2001; Phillips & Gully, 1997). Although students typically accomplish an increased level of performance with difficult and specific preset goals (Phillips & Gully), underachieving students have lower levels of goal valuation, which means they do not value or respond to goals set by others in an academic environment (McCoach & Siegle, 2003). Without goals for an academic environment, the student exerts less effort to achieve since the student makes no connection between the effort and an end result (McCoach & Siegle). Goal-setting, both predetermined and self-set, distinguish achieving students from underachieving students.

Types of goals. The process of simply setting goals positively impacted academic performance. However, two categories describe goal-setting behaviors more accurately:

performance- and mastery-focused goals (Elliot & Harackiewicz, 1994). Performance-focused goals state a certain criterion to reach in order to consider the goal complete (Elliot & Harackiewicz). Mastery-focused goals do not determine a set performance level which a person must achieve, but rather emphasize skill development (Elliot & Harackiewicz). Individuals who demonstrate chronic low achievement generally respond more positively to mastery-focused goals with no exact number or level to meet in order to complete the goal (Elliot & Harackiewicz). Individuals who generally underachieve respond less favorably to performance-focused goals, and their interest in the topic and achievement related to the goal decreases dramatically. In addition, the difficulty of the goal influenced achievement as performance and effort were highest of moderately difficult goals which were neither too easy nor too hard (Locke & Latham, 2002).

Occasionally, the structure and subject matter of the class, not the student, dictate the types of goals adopted (Church et al., 2001). Some classroom environments are more structured, thus they foster performance-focused goals. Other classrooms are not as structured and mastery-focused goals match the classroom environment well. Underachieving students are more academically productive in classes that fostered mastery-focused goals; thus, the outcome was higher academic achievement (Church et al.).

Overall, underachievers tend to set fewer and less difficult goals for themselves compared to average academic achievers. Underachievers work best with self-set mastery-focused goals which assess performance through skill knowledge instead of reaching set performance levels. The ability to set goals within a class allowed the

student to have an element of control over learning or perceived control addressed in the next section.

Locus of Control

Definition. Rotter (1990) defined locus of control as the degree to which individuals expected the outcome of their behavior to be contingent on the same behavior. An individual's locus of control level occurs on an external to internal continuum with the external end characterized by the individual feeling no control over a situation and the internal end described by the individual feeling complete control over a situation (Kalsner, 1992). Locus of control generally develops as a result of past experience. Students who achieved in the past have a higher sense of control in learning environments; thus, they have higher levels of internal locus of control. In addition, they have a better outlook on academic settings (Schonwetter, Clifton, & Perry, 2002). Both of these factors allow students to achieve, thus creating a relationship between locus of control and achievement.

Most underachievers have an external locus of control (Phillips & Gully, 1997). Students in poor academic standing are also at risk for higher external levels of locus of control (Ogden & Trice, 1986). Students with an external locus of control do not attribute their success or failures to their own actions and thus reduce the amount of effort and quality of the work produced. Students with a more external locus of control also do not set as many goals for themselves as students with a more internal locus of control (Phillips & Gully). These variables work against achievement; as a result, underachievement is more likely to occur (Phillips & Gully).

Qualities. When asked, high achievers said persistence was the most important variable in their academic achievement (Lebedina-Manzoni, 2004). However, when asked to identify important elements in academic achievement, individuals who generally underachieved identified luck, emotional mood, and circumstances beyond their control (Lebedina-Manzoni). The underachievers exhibited more qualities of external locus of control and focused on their surroundings to explain their low achievement (Lebedina-Manzoni).

Underachievers were less likely to attribute higher performance to higher effort (Carr et al., 1991). Underachievers also exhibited stronger external attributions to success, as well as a reduced belief in the importance of specific content knowledge and its role in academic achievement (Carr et al.). If an individual did not have a favorable attitude towards content knowledge and academic achievement, then the likelihood for that student to achieve was extremely small.

Cappella and Weinstein (2001) found students who exhibited a high internal locus of control exhibited academic resiliency because they were better at overcoming low levels of achievement early in their academic careers. The researchers also found high locus of control predicted high academic resiliency better than demographic data or school environment characteristics, thus rendering locus of control a powerful predictive factor (Cappella & Weinstein). Wilhite (1990) reported locus of control stood out from other variables such as self-efficacy and academic self-concept as the most predictive variable of academic achievement.

Constancy of variable. Inconsistencies exist in the literature about the permanence of locus of control. Armour (1999) found weekly teacher progress reports of student

performance did not have an effect on locus of control. Similarly, Phillips and Gully (1997) referred to locus of control as a trait mediated by certain variables. Both of these studies held locus of control constant. However, studies which dealt with goal setting (e.g., Elliot & Harackiewicz, 1994; McCoach & Siegle, 2003) reported setting goals increased internal motivation and perceived control; thus, measured locus of control can change. In addition, a group of studies researched the concept of attributional retraining, an attempt to alter students with external attributional styles toward a more internal locus of control (Hall, Hladkyj, Perry, & Ruthig, 2004). In one study, college students underwent training designed to internalize locus of control or attributional style for a specific academic course, and the results indicated the training increased academic achievement (Hall et al.). These types of studies demonstrated successful manipulation of attributional style such as locus of control in a specific course environment.

Locus of control strongly influences overall academic success. Underachievers exhibit more external locus of control, attributing their failures to causes over which they had no control. Locus of control is a major basis for academic success with other variables mediating its effects.

Gaps in the Literature

Methodology. The majority of studies on underachievement utilized a case study (Kanevsky & Keighley, 2003) or survey method (McCoach & Siegle, 2003; Peterson, 2000). While these methods were quite helpful in understanding correlations between underachievers and certain traits, they did not explain how an educational setting affects underachievement. Research indicated the need for a quasi-experimental design to manipulate variables and examine causation.

Studies that investigated goal setting behavior were mostly surveys and asked participants questions about how they set goals (Church et al., 2001; McCoach & Siegle, 2003). One study measured the effectiveness of goals on performance; however, the researcher rather than participants set the goals, which related to a recreational game, not to academics (Elliot & Harackiewicz, 1994). Another study asked students to set a performance-focused goal at a certain percentage they would like to obtain on the midterm exam (Phillips & Gully, 1997). While this study was more effective by asking students to set their own goals, it did not encourage students to set mastery-focused goals which would benefit academic underachievers. Locus of control measured exclusively through self-report attempted to assess academic achievement (e.g., Wilhite, 1990).

Combining variables. Although underachievement, goal-setting behavior, and locus of control are studied separately, some researchers have combined underachievement and goal-setting behavior (e.g., McCoach & Siegle, 2003) and underachievement and locus of control (e.g., Carr et al., 1991). Participants also link locus of control or academic attribution with achievement goals, but not in the context of academic underachievement (e.g., Church et al., 2001). The current study examined the effect of goal setting as the independent variable on the dependent variables of academic achievement and locus of control in underachieving students.

Present Study

In an academic classroom, many variables influence student achievement. Underachievers attribute their success or failure to external means more than average achievers (Carr et al., 1991). Underachievers also fail to set difficult or numerous goals which means they exert less effort in academic achievement (McCoach & Siegle, 2003).

Goal setting and locus of control are two factors important to academic achievement, but especially pertinent to underachievement. Underachievers achieved more with mastery-focused goals which center on understanding concepts and learning skills rather than reaching preset levels (Elliot & Harackiewicz, 1994). Finally, academic underachievers have a more external locus of control and attribute their successes and failures to external causes such as environmental factors or luck (Lebedina-Manzoni, 2004).

Few academic studies utilized experimental design, making causal inferences about goal setting, underachievement and locus of control difficult. In addition, no studies focused on the effect of goal-setting behavior on locus of control in underachievers, a relationship which the current study examined. In order to infer causation, the researcher selected a quasi-experimental design, with goal setting manipulated as the independent variable.

Hypotheses

The present study investigated the following hypotheses:

Hypothesis 1. Academic achievement for underachieving participants in a psychology course will increase as a result of goal setting intervention as indicated through significantly increased psychology test scores. As students set course-content-related goals, they should have greater likelihood of increasing test scores and thus academic achievement for the course (Church et al., 2001).

Hypothesis 2. Underachieving students' academic locus of control will shift toward a more internal focus as a result of goal setting intervention as measured by ALC scale results. The process of setting goals shall engage the participant in the classroom

and increase the amount of perceived control the student feels over course work, thus making locus of control more internal (Phillips & Gully, 1997).

Hypothesis 3. Academic locus of control and academic achievement will be significantly negatively correlated in the psychology course for the underachieving sample. As an individual feels more control over an educational environment, academic locus of control should shift more internally, and correlate with increased academic achievement (Phillips & Gully, 1997).

Hypothesis 4. Students will have positive comments about goal setting, and the majority will respond positively by answering *yes* to questions regarding the possibility of setting goals in the future. If students set goals and see the positive academic consequences of those goals, the students should be more likely to have a positive outlook on goal setting and more willing to continue setting goals in the future.

CHAPTER 2

METHOD

As demonstrated, a gap exists in the literature about the effect of goal setting behavior on academic locus of control, and ultimately, academic achievement of students who qualify as underachievers. The current study intended to narrow the gap by using a quasi-experimental within-subjects design to investigate the effect of goal on academic achievement and locus of control.

Participants

Thirty student volunteers qualified to participate in the study; 23 students made up the final participants who responded and completed all aspects of the research. Participants included 10 men and 13 women selected from a pool of undergraduate college students enrolled in Introduction to Psychology ($n=17$) and Developmental Psychology ($n=6$) classes at Emporia State University (ESU). The mean age of participants was 19.65 years ($SD = 1.92$) with a range of 17 to 25 years, and the mean ACT score was 26.04 ($SD = 2.12$). The participants included 15 freshmen, five sophomores, three juniors and one senior. Of the study participants, 69.57% were self-reported academic underachievers, and 34.78% had eligibility at some time for gifted education services. These participants received compensation through research points toward their psychology class final grade. All participants received safe and ethical treatment in accordance with the American Psychological Association ethical code of conduct (American Psychological Association, 2002).

Design

The participants in the study were not randomly selected since they met stated criteria requirements to qualify as underachievers for inclusion. In this way, the study was a quasi-experimental design. In addition, the study implemented the independent variable of goal setting with every participant, and each participant served as his or her own control. This study was a within-subjects repeated measures design. Finally, the study included multiple qualitative questions in the form of weekly self-progress reports which made the study a mixed design.

Instrumentation

The Initial Questionnaire (see Appendix A) gained participants' cumulative high school and college GPAs and ACT composite scores through a series of 17 questions. The questions were straightforward demographic questions aimed at obtaining information for participant selection. The Academic Locus of Control (ALC) scale assessed academic locus of control (see Appendix B; Trice, 1985). Ogden and Trice (1986) specifically designed the 28 item true-false format to measure academic locus of control in undergraduates after they found general locus of control scales invalid in specific situations. Previous research on locus of control scales revealed Likert Scales resulted in high ratings due to social desirability; thus, a forced-choice true or false format addressed this tendency (Rotter, 1990). The academic locus of control has a test-retest reliability of .92. The ALC's predictive validity was verified by participants scoring high on the internal locus of control performed at higher academic achievement levels than participants who scored high on external locus of control (Ogden & Trice). The ALC also demonstrated criterion validity with academic success (Trice, 1987). Finally,

predictably high correlations with both locus of control and need for achievement scales demonstrated construct validity (Trice, 1985).

Procedure

The student pool of 123 undergraduate students filled out the Initial Questionnaire (see Appendix A) indicating their current college GPA, high school GPA, and ACT cumulative score (see Table 1). ACT scores, required for admission to the university, measured academic ability in the current study. The qualifying criteria for the study began with the respondent's cumulative high school GPA below 2.75 and ACT composite score at or above a 28 or the 92nd percentile. McCoach and Siegle (2003) utilized these criteria as qualifying scores for a large, nationwide underachievement study. Originally, only two respondents in the student pool met the proposed criteria; thus, the researcher adjusted the criteria to increase the sample size by widening participant GPA and ACT scores and including consideration of Initial Questionnaire responses such as self-reported underachievement and history of eligibility for gifted education services in a qualification process. The revised criteria included ACT scores from 23 up and GPAs rising to 3.75 in addition to answers given on self-report questions.

The first selection criteria included assessing students who self-reported underachievement. With the exception of overachievers with high GPA and ACT scores, all participants who responded positively to the question, "Do you consider yourself an underachiever in regard to academics?" qualified to participate in the study ($n = 27$). Peterson (2002) used similar self-assessment strategies as criteria for participation in an underachievement study. For example, Participant 19 in Table 1 reported an ACT score of 26 and a 3.4 GPA in college and high school. Since she responded *yes* to the

Table 1

Summary of Participant Information from Initial Questionnaire

Participant	Sex	Class	Course	Age	ACT	GPA		Questions		
						HS	College	AU	Gifted	Interest
1	M	J	PY100	20	26	2.5	3.1	1	0	3
2	F	S	PY211	19	23	3.2	3	1	0	3
3	M	F	PY100	19	28	3	2.9	1	0	4
4	F	F	PY211	19	27	3.7	3.3	1	0	3
5	F	F	PY100	19	27	3.6	3.1	0	1	3
6	F	F	PY100	17	26	2.65	--	1	1	3
7	M	F	PY100	19	28	3.75	2.5	1	1	3
8	F	F	PY100	18	28	3.52	3.5	0	0	3
9	F	S	PY100	20	27	3.5	3	0	1	3
10	M	R	PY100	25	23	3.5	2.4	1	0	2
11	M	J	PY211	20	27	3.14	3.35	1	0	4
12	F	F	PY100	19	31	3.6	3.48	0	1	2
13	F	S	PY211	20	23	2.75	2.18	1	0	5
14	F	F	PY211	18	28	3.5	3.27	0	1	5
15	F	F	PY100	18	24	3.6	3.3	1	0	2
16	F	F	PY100	18	25	3.9	3	1	0	4
17	M	J	PY100	22	24	3.2	2.8	1	0	3
18	F	F	PY100	19	27	3.56	3.38	0	0	3

19	F	S	PY100	19	26	3.4	3.4	1	0	5
20	M	F	PY100	18	24	2.75	3	1	1	4
21	M	F	PY100	23	26	--	0.97	0	0	4
22	M	S	PY100	20	23	2.9	--	1	1	4
23	M	F	PY211	23	28	3.1	3	1	0	5

Note. Dashes indicate GPAs not available. F = Freshman; S = Sophomore; J = Junior; R = Senior. PY100 = Introduction to Psychology; PY211 = Developmental Psychology. Academic underachievers = AU and Gifted = G; 1 = Yes; 0 = No. Interest in psychology class measured as 1 (*low*) – 5 (*high*) on a Likert scale.

underachievement question, she qualified to participate. The study used self-report as an integral aspect for selection and data collection.

The second selection criteria investigated the difference between potential participants' ACT and high school or college GPA. Comparison of both high school and college GPAs used to select participants placed more weight on the college GPA with all students except Freshmen since these students lacked adequate data in their GPA records. Dividing the student's GPA, either high school or college, by the student's ACT score yielded a ratio to determine a qualification criteria cut-off, a ratio of approximately 0.125. For example, a student ACT score of 28 and GPA of 3.5 or lower yielded such a ratio. Although Participant 12 in Table 1 reported a higher GPA, she qualified for the study with a 0.116 ratio for high school GPA and a 0.112 ratio for college GPA. The criteria followed the pattern of identifying underachievers as individuals whose achievement level measured by GPA was lower than the individual's ability level measured by ACT.

The third selection criteria investigated participants with lower ACT scores and a *yes* response to the question, "Have you ever been eligible for services for gifted education?" For example, Participant 20 in Table 1 reported an ACT score of 24 and a high school GPA of 2.75. Because he indicated eligibility for gifted education as a valid measure of ability potential, he qualified despite a lower ACT score. Eligibility for gifted education services provided a valid measure for ability potential since a standard procedure for these services includes the top 5% of the general population. Thus, the study considered the academic achievement potential among the gifted population as a reasonable expectation for eligibility in the study.

Two Initial Questionnaire items screened for students who received support for a learning disability (see Appendix A). Individuals answering *yes* to either of these questions were ineligible for participation. The report profile of a high ACT score and low GPA for an individual with a learning disability falsely identify an individual as an underachiever. This study excluded underachievement considerations attributed to learning disabilities. An additional question addressed whether or not the students' interest level in the course would influence participant selection through low interest; however, the actual ratings varied widely and did not serve this purpose.

Before the six-week goal-setting intervention period began, the researcher solicited the Internal Review Board (IRB) approval by submitting the appropriate form (see Appendix C). The IRB approved the research project (see Appendix D). Since the study focused on underachievers, the first step involved administering the Initial Questionnaire to determine eligibility for the goal-setting intervention to the Introduction to Psychology student population (see Appendix E for Experimental Intervention Timeline). Students in a class setting completed the Initial Questionnaire (see Appendix A) and two Participant Selection Informed Consent sheets (see Appendix F). Students signed and returned one copy and kept one copy for their records. The researcher informed potential participants that completing the Initial Questionnaire alone did not secure them as participants in the study. The questionnaire also contained language informing students that completing and signing allowed the researcher access to their records to verify self-reported high school GPA and ACT scores (see Appendix A). Although the language was a ruse, it intended to ensure participants reported accurate and correct data. After the Introduction to Psychology class assessment, the researcher needed

more participants and contacted the IRB to request permission to expand participant selection to Developmental Psychology classes. The IRB gave approval, and the study implemented the above procedure with Developmental Psychology classrooms as well.

Students who qualified as participants received notification through e-mail with information requiring three intervention checkpoints. The initial meeting occurred during week 11 after a course test which then served as the participant baseline for academic performance (see Appendix E for a timeline). The study intended to include only students in classes with five semester tests to ensure consistency. However, the psychology classes varied in test assessment number and order. The first checkpoint included two sessions; however, if participants could not attend a session, the researcher administered the first checkpoint individually with the participant. During Checkpoint 1, participants completed a second informed consent sheet for the intervention study itself (see Appendix G). To ensure active and full participation, participants utilized a Blackboard site set up for students to input their goals and complete the ALC scales and self-report questionnaires. All participants had utilized a Blackboard site for a previous class, so little navigation instruction was needed. Participants completed the first of three ALC scales on Blackboard during the study and wrote five specific mastery-focused goals related to upcoming class content for the first intervention segment implemented during weeks 11-13. The researcher provided a definition and examples of specific mastery-focused goals in the format of a short powerpoint presentation to the participants, with examples such as, "Before the next test, I will be able to name in order all levels of Maslow's Hierarchy of Needs without looking in my book." The researcher instructed participants to write specific course content goals that qualified as mastery-focused goals

because they contained no set level of achievement (e.g., the correct answer four out of five times). Finally, the researcher asked participants to input their goals on Blackboard. In this way, the researcher accessed participant goals through their study-specific identification number on Blackboard, and the participant kept a written copy for reference. Participants placed their written goal sheet in a frequently viewed location such as the inside cover of their psychology notebook.

During the first intervention segment, participants received a weekly email reminder from the researcher to access the Blackboard site and complete the week's self-report. Participants submitted self-reports through Blackboard only during weeks without goal setting or ALC scales. Self-report questions measured the amount of study time and effort the participant devoted to their psychology goals (see Appendix H).

During Week 14, participants participated in a second checkpoint on Blackboard and a second ALC with a second set of goals. After the last test during finals week, participants repeated the ALC a third time. They responded to the qualitative question, "Did setting and reviewing your course goals help you study and do better in this class? Why or why not?" Participants also responded about whether or not they planned to continue setting goals in the future: "Do you plan to continue setting goals for your academic classes in the future? Why or why not?"

CHAPTER 3

RESULTS

The researcher screened lower level psychology classes to identify and invite underachieving students to participate in the current study. All participants in the study set mastery-focused goals as part of a six-week goal setting intervention. Baseline and the subsequent intervention test scores collected provided a means to assess the hypothesized increase in academic achievement. The Academic Locus of Control (ALC) scale administered before and during the goal setting implementation assessed a hypothesized shift from external to internal academic locus of control.

Data Analysis

The researcher analyzed the data using the Statistical Package for the Social Sciences (SPSS) data analysis program with one one-factor repeated measures analysis of variance (ANOVA) for academic locus of control and one dependent *t* test for academic achievement. The *t* test evaluated the first hypothesis on the baseline test score compared with an average of test scores taken during the intervention period to measure the dependent variable of academic achievement. The average of intervention test scores was essential since the number of psychology course tests varied between psychology classes. The baseline test reflected no goal setting; the study utilized only the average of intervention test scores to determine the effectiveness of goal setting after the baseline test. The ANOVA tested the second hypothesis for the academic locus of control dependent variable. The independent variable for both analyses was goal setting. The researcher correlated locus of control and course test scores to determine whether or not a relationship existed between these variables.

An analysis of qualitative questions for central themes determined how effective the participants perceived goal setting. Derived from weekly self-progress reports, this information answered the qualitative question, “Did setting and reviewing your course goals help you study and do better in this class? Why or why not?” Analyzed for differences and similarities, central themes emerged from the responses. Used in an explanatory manner, these qualitative questions helped interpret the quantitative data.

Hypothesis 1

A dependent *t* test determined if goal setting intervention affected the participants’ academic achievement as measured by psychology test scores. Test scores of the 23 participants distinguished between their baseline scores, which occurred just prior to the six-week intervention, and their test scores obtained and recorded during the goal setting intervention. The data supported the research hypothesis with a significant difference between baseline test scores ($M = 80.87, SD = 11.71$) and the intervention test scores ($M = 84.25, SD = 11.64$) for the underachieving participants, $t(22) = -2.42, p < .05$.

Hypothesis 2

A repeated measures design determined if the goal setting intervention impacted participants’ academic locus of control score measured by the ALC scale, a within-subjects variable. The 23 participants took the ALC three times: before, during, and after the goal setting intervention. The ALC scores ranged from 0 to 28 with a lower score indicative of a more internal locus of control (Trice, 1985). The mean scores for the first ALC was 14.87 ($SD = 4.55$); the second ALC, 13.83 ($SD = 4.80$); and the third ALC, 13.70 ($SD = 5.27$). The model met all assumptions with the results reported according to the Greenhouse-Geiser adjustment because of questionable sphericity. A significant

difference appeared between the three ALC scores, $F(2, 44) = 4.32, p = .02$ (see Table 2 for the ANOVA summary). An investigation of pairwise comparisons found the only significant ($p < .05$) comparison occurred between ALC 1 and ALC 3. Thus, participants had more internal locus of control at the end than they did at the beginning of the study. Hypothesis 2 was supported.

Hypothesis 3

Because the hypothesis predicted a negative correlation between the ALC and test scores, a one-tailed test contrasted all three ALC scores with both baseline and intervention test scores (see Table 3 for a summary of correlation results). Significant correlations at the .01 level existed among the three ALC scores and between the baseline and intervention test scores. The third hypothesis focused on the negative correlation between ALC and test scores. The analysis resulted in significant negative correlations of ALC with baseline test scores; however, only one significant correlation existed between ALC and intervention test scores. The initial ALC negatively correlated with baseline and intervention test scores at levels $-.53$ and $-.37$ respectively. Participants' increasingly lower, more internal ALC scores correlated significantly with higher test scores, but not across all levels. Hypothesis 3 was partially supported.

Hypothesis 4

The question, "In regard to this past week, did setting and reviewing your course goals help you study and do better in this class? Why or why not?" investigated participant perception of goal setting effectiveness through an analysis for central themes. Two central themes emerged from the qualitative data pertaining to goal setting effectiveness. First, participants noted how setting mastery-focused goals increased the

Table 2

Summary of Repeated Measures One Way ANOVA Testing the Effect of the Goal Setting Intervention on Academic Locus of Control as Measured by the ALC Scale

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
ALC	19.04	2	9.95	4.32*
Error	96.96	44	2.20	

* $p < .05$

Table 3

Correlations Between Each of the ALC Scores and Test Scores Prior To and After the Goal Setting Intervention (n=23)

Variable	1	2	3	4	5
1. ALC 1		.88**	.92**	-.53**	-.37*
2. ALC 2			.93**	-.48*	-.31
3. ALC 3				-.51**	-.35
4. Baseline					.84**
5. Intervention					

* $p < .05$, one-tailed

** $p < .01$, one-tailed

productiveness of their study time as the goals helped them focus on aspects of the material they needed to learn. Second, participants commented that goal setting contributed to their paying more attention while studying for and during class. Essentially, two major themes emerged from participant responses to open-ended questions: the goals increased the participants' study time outside of class and the participants focused on course content both inside and outside of class.

Participants made many positive comments about goals and how they improved their study time quality; however, three participant comments indicated indifference toward their goals since they did not review them, even when clearly instructed and reminded to place goals in a frequently viewed location. Although this tendency occurred at the beginning of the study, results for participants' mean review time was 1.41 in the second week and 2.14 in the sixth week.

A surprising but promising trend occurred when the researcher reviewed participant goals and observed virtually all participants set mastery-focused goals during both goal setting sessions. Only an occasional goal did not match the mastery-focused designation, such as, "I want to finish my group project this week." However, no participant wrote more than one out of five of these errant goals per session; overall, only one or two participants wrote goals outside of the category during the entire intervention period.

One of the questions on the Self-Progress Questionnaire asked how much effort the participants invested in studying for their psychology classes that week. The question included a seven-point Likert scale ranging from 1 as "no effort" to 7 as "maximum effort." The average responses for this question ranged from 2.00 to 2.91 with "average

effort” reported as 2.44. During all weeks, all scores ranged from 1 to 5 except for one participant who rated “effort” as a 7 during one week of the intervention.

On the Initial Questionnaire (see Appendix A), 30.43 % of the participants responded *yes* to the question, “Do you regularly set goals to help increase your academic performance?” A Chi-squared analysis of this data found this number not statistically significant, $\chi^2(1, N = 23) = 3.52, p = .06$. Then, 85% of the participants responded *yes* to the statement, “I plan to continue setting goals for my classes in the future,” which indicated both positive attributions toward the goals and increased likelihood of continued goal setting behavior. A Chi-squared analysis of this question found that with three *no* answers and seventeen *yes* answers, results differed significantly $\chi^2(1, N = 20) = 9.8, p = .002$. Hypothesis 4 was supported, as goals were seen positively and participants planned to continue setting goals in the future.

CHAPTER 4

DISCUSSION

The results indicate setting goals can significantly increase academic achievement and internal academic locus of control. In addition, qualitative data show participants' overall positive response to the goal setting intervention. The following section discusses and integrates the results in addition to investigating the relevancy and limitations of the present study.

Hypothesis 1

Hypothesis 1 stated academic achievement for underachieving participants in lower-level psychology courses increases as a result of goal setting intervention indicated through significantly increased psychology test scores. Students who set academic goals are more likely to experience academic success (McCoach & Siegle, 2003). The significant increase in participants' test scores from the baseline test data to the intervention test data supports the hypothesis. Since the participants comprise their own control group, the only manipulated variable in the academic environment is the goal setting intervention. Students who qualify as underachievers are notorious for responding in less than positive ways to goals and the subsequent expectations set by others (McCoach & Siegle). Although other studies report the influence of goal setting (e.g., Elliot & Harackiewicz, 1994), the present study investigated students' self-set goals. The difference with participants who set mastery-focused goals for themselves relates to the classroom, which results in higher test scores, and thus increases academic achievement.

Hypothesis 2

Hypothesis 2 stated underachieving participants' academic locus of control shifts internally as a result of goal setting intervention measured by the Academic Locus of Control (ALC) scale results. When students feel control over their academic environment, their academic locus of control becomes more internal (Phillips & Gully, 1997). Goal setting provides a way for participants to feel increased control over the academic environment; thus, the academic locus of control for these participants shifts internally and supports the hypothesis. The data analysis of ALC scores makes this apparent. During the goal setting intervention, participants' lower ALC scores indicated an internal shift in academic locus of control. The increased control the participants felt over their academic environment could explain the internal shift in academic locus of control. Underachieving students normally exhibit an external locus of control in academic and educational settings (Ogden & Trice, 1986). Instead of attributing their success to luck, mood, or circumstances beyond their control, students are more likely to attribute their success to internal variables like persistence when exhibiting an internal locus of control (Lebedina-Manzoni, 2004). Qualitative data from the present study supported this view, as participants stated they study and focus more because of their goals. By implementing student-set mastery-focused goals, participants felt more responsible for their academic accomplishments, thus their academic locus of control shifts internally.

Hypothesis 3

Hypothesis 3 stated academic locus of control and academic achievement significantly correlates negatively in psychology courses for the underachieving sample.

According to Phillips and Gully (1997), when students set goals in an academic environment, they increase their level of performance because of the control they feel over their environment. When this occurs, the correlation between academic achievement and a more internal academic locus of control should increase; however, this is only somewhat apparent in the study. The study utilizes a one-tailed correlation since the hypothesis predicted the negative direction of the correlation, but the results are not consistent. While the baseline test score significantly correlated with all three ALC scores, the intervention average of test scores significantly correlates with only the first ALC measured prior to the goal setting intervention. This finding seems unusual as only the ALC done prior to the goal setting intervention correlates with intervention test scores. One explanation for this finding is that the difference in ALC and test scores over the course of the intervention is large enough to cause statistical significance in the ANOVA and *t* test; however, the difference is not large enough to cause a statistically significant correlation between the two variables. Hypothesis 3 anticipates some of the correlations between ALC and test scores; however, the study failed to find all of the predicted correlations.

Hypothesis 4

Hypothesis 4 stated participants will have positive comments about goal setting, and the majority will respond positively by answering *yes* to questions regarding future goal setting. The qualitative data collected in the study supports this hypothesis. If the students follow through and refer back to their goals, they will likely achieve academically and set goals in the future (Locke & Latham, 2002). In order to understand how participants' positive or negative feelings toward goal setting impacts internalized

academic locus of control and academic achievement, an analysis of participant comments during the intervention provides further insight.

Through an analysis of central themes, two major areas emerged related to the question, “Did setting and reviewing your course goals help you study and do better in class? Why or why not?” Participants feel the goals increased study time and helped them focus both during and outside of class. The mastery-focused goals allowed participants to focus on one specific course concept to avoid overwhelming themselves with the entire course material. Most participants praised these specific mastery-focused goals such as the participant who stated, “Having a set of goals that weren’t really big ones like getting an *A* in the class made it seem easier to be motivated to reach them.” Only 2 out of 23 participants reported a dislike for mastery-focused goals, feeling they were too specific. One participant commented, “I need to make my goals less mastery-focused and more comprehensive. By this I mean that my goal should be to read the entire chapter twice instead of knowing 4-5 things very well.” Ten participants commented positively on the specific nature of the goals being and how they assist their focus on course content. The positive response to mastery-focused goals is typical of underachieving students as seen in previous research (Elliot & Harackiewicz, 1994).

How participants rated their effort on the self-progress reports provided particularly interesting data. Their extremely low effort scores reinforced the researcher’s participant selection methodology. Surprisingly, only one participant indicated maximum effort exerted during only one week during the entire intervention period. All other participant effort ratings ranged from 1-5 on the Likert scale and averaged in the 2-3 range, indicating the students identified as underachievers in this study did in fact exhibit

low effort, a characteristic strongly indicative of underachieving students (McCoach & Siegle, 2003).

The participants viewed their goals positively with 85% stating they planned to continue academic goal setting, a considerable increase from the initial 30% who reported academic goal setting behavior prior to the study. The significant Chi-squared analysis for the percentage of participants who plan to set goals in the future indicated that positive responses do not happen by chance; nearly all planned to set goals in the future. This positive view toward student-set mastery-focused goals reiterates similar research findings related to goal setting in underachieving students (Elliot & Harackiewicz, 1994; Locke & Latham, 2002). Data gathered for Hypothesis 4 help explain the academic achievement increase found in Hypothesis 1 since the goals help participants focus more on specific course content as well as motivating participants to study more often.

Relevancy to Education

Academic success for underachieving students potentially increases student GPA which subsequently may increase opportunities as a result of their achievement. Therefore, educators need to seriously consider any supportive action to improve student academic success. Implementing a goal setting program with student-set goals increases student control over their academic environment resulting in higher test scores. The results also contribute to the research concerning goal setting on the academic achievement and academic locus of control of underachieving students.

Many studies that investigate goal setting behavior simply ask if students set goals themselves or comply with goals previously set (Church et al., 2001; Elliot &

Harackiewicz, 1994). Other studies utilize student-set performance-focused goals based on outcomes such as what grade students wished to attain on an upcoming test (Phillips & Gully, 1997). Research on underachievers indicates these types of goals fail to benefit chronic underachievers; self-set mastery-focused goals produce more productive academic gains for students (Elliot & Harackiewicz). The current study utilized self-set mastery-focused goals and found quite positive outcomes. Teachers and individuals working with underachieving students in educational environments may find traditional teacher-set goals less than optimally effective. Educators should consider student-set mastery-focused goals for maximum benefit to student academic achievement. Teaching students how to set these goals increases achievement potential since many students lack essential goal-setting skills.

The goal-setting intervention forces students to cue themselves about upcoming course content both during and outside of class. Their metacognitive behavior forms an important link between goal setting and increased internal academic locus of control in the current study. Carr et al. (1991) states underachievers are less likely to connect higher performance with increased effort. In many cases, underachieving students may not put forth the effort; therefore, they do not see any subsequent academic ramifications. The current study requires students to put forth continuous effort over a period of six weeks. Students make the connection between their effort and increased academic achievement as reflected in their psychology test scores. Studies addressing goal-setting behavior report students who set goals experience increased perceived control (Elliot & Harackiewicz, 1994; McCoach & Siegle, 2003). These studies report tendencies closely related to internal locus of control, a variable which significantly increases through the

duration of the current study. Essentially, the students in the current study experience a type of attributional retraining where they explain their achievement using internal locus of control. Educators should encourage students to find ways to take responsibility for their own academic success and failure. The current study indicated this can occur through goal setting intervention.

As a whole, students reacted positively to the goal setting with comments such as “I had never really studied for anything before, and through making these goals it has helped me to develop better study habits.” An participant comment stated, “They [the goals] reinforced what I was trying to accomplish and they helped me stay more focused on what I needed to do. They also helped me break things down.” The quantitative data reinforced the benefits of goal setting on student academic locus of control and academic achievement.

Limitations and Suggestions for Future Research

A number of limitations interpreting the data from the current study exist. The relatively small number of participants limited the power of statistical analyses performed due to the difficulty in recruiting participants who met the criteria as underachievers. This difficulty also related to the limitation regarding the degree of participants’ underachievement since the sample is not a homogeneous group of students. Some students qualified because they met the high ACT and low GPA criteria, while other students responded *yes* to the self-report as an underachiever but had borderline ACT or GPA scores. The researcher broadened the original qualifying criteria as described in the methods section so each participant related in some way to academic underachievement.

The study centered on participation in lower level Introduction to Psychology and Developmental Psychology courses. Each student experienced a different classroom environment and interacted within that environment in a different way (Church et al., 2001). The psychology course instructors potentially vary in teaching methods and the number of course tests available, both prior to and during the intervention period. A more optimal grouping would compare participants in similar classroom experiences with the same instructor. However, the need to increase the sample size eliminated this option.

One final limitation included the possibility of reactivity (Heiman, 2001). People tend to behave differently when they know others observe them. Participants were fully aware of their participant status in the current study, and they knew the study concerned underachievement. This knowledge may bias the results since they may view their classification as underachievers as less than positive.

Experimental research of goal setting intervention for academic underachievers has a promising future; however, before conducting this type of research, some considerations must be addressed. A larger sample size would strengthen the validity and the power of the analyses. The current study focused on college undergraduates; however, an interesting study would explore goal-setting effects on younger students, such as those in high school. High school students might ideally serve this purpose since they could achieve goal setting skills prior to entering college. To date, research on underachieving high school students' goal setting behavior primarily draws upon case studies (e.g., Kanevsky & Keighley, 2003). Therefore, a replication of the current study with underachieving high school students would fill a void of knowledge that would increase academic achievement and internal locus of control through goal setting.

The current study focused on how goal setting impacts undergraduate students' lower-level psychology test scores. However, little experimental data exist concerning goal-setting outcomes on academic underachievement with college students in fields other than psychology. Various disciplines across the academic spectrum involve different content domains, methodologies, and approaches to learning. While mastery-focused goal setting functions as a valid and useful strategy in psychology classes, other interventions may also increase academic achievement in other disciplines. In addition, research on demographics such as gender or socioeconomic status could determine how these variables affect goal setting on academic achievement and locus of control. A reasonable expectation regarding student interest level in a course is that students with lower interest may exert less effort and influence the effectiveness of the goal setting implementation. Diverse academic disciplines, the effect of gender, and the participant interest level in the class are all variables which if investigated could further explain the relationship between goal setting, academic achievement and academic locus of control.

Studies implementing other measures of attribution than locus of control may suggest other influences on academic underachievement. Another measure indicating a multi-dimensional approach to attributions is the Survey of Achievement Responsibility (Ryckman, Peckham, Mizokawa, & Sprague, 1990). While the ALC implemented in this study measures academic locus of control across the academic spectrum, the attributions of a student with more background in the psychology content domain may compare unevenly to a student with less academic background in psychology. While different students may have the same locus of control concerning academics generally, their attributions may vary greatly within lower-level psychology courses.

While the current study gives a comprehensive understanding of how goal setting increases achievement in underachieving students, research with students across the academic achievement spectrum would provide additional information on the effectiveness of goal setting intervention. Carr et al. (1991) compares underachievers and high achievers using the motivation variable; testing goal setting and academic locus of control through a more inclusive academic achievement spectrum would further validate the findings of the current study. If goal setting works just as well for students who achieve at a higher or average rate as it does for underachievers, it could provide increased academic achievement for all students.

Conclusion

The current study implemented a repeated measures design by manipulating student-set mastery-focused goal setting behavior to determine its impact on academic achievement and academic locus of control, using a quasi-experimental in order to determine causation. Most other studies investigate goal setting behavior with underachievers implementing a case study or survey method designs. In the present study, participants received goal setting instruction and set goals related to their psychology course content during an initial meeting. Using the ALC throughout the study, the researcher measured academic locus of control on academic achievement through psychology class test scores. Data analysis showed a significant increase in both academic achievement and internal academic locus of control. The study limited generalization only to underachieving college students as described in the study. The results of the study indicated participants who set course related mastery-focused goals themselves experience increased control over their academic environment, and, thus,

achieved greater academic success. Educators should note these findings and encourage underachieving students to set mastery-focused goals themselves that reflect course content. Ultimately, increased internal academic locus of control results in students who self-set mastery-focused goals in a supportive academic environment to increase academic achievement.

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Appendix A

Initial Questionnaire

Name: _____ Student ID#: _____ PY 100 section: _____

E-mail address: _____ Phone number: _____

Gender: Male Female Age: _____

Classification (circle): Freshman Sophomore Junior Senior

Please rate your interest in your Intro to Psychology course (circle a number):

(not at all interested) 1 2 3 4 5 (extremely interested)

Please accurately report the following scores. Leave blank if not applicable:

ACT Composite Score: _____ College Cumulative GPA: _____

High School Cumulative GPA (out of 4.0 scale, not weighted): _____

Do you consider yourself an underachiever in regard to academics? Yes No

Do you regularly set goals to help increase your academic performance? Yes No

Have you ever been eligible for services for gifted education? Yes No

Have you ever been eligible for services for a learning disability? Yes No

Are you currently eligible for accommodations for a learning disability? Yes No

If you are selected for participation in this study, you will be contacted at the e-mail address and/or phone number listed above. By signing below, you give the researcher permission to access ESU records to verify ACT test scores and high school GPA. All information over the course of the study will be kept strictly confidential and will be destroyed upon completion. In addition, if selection, you will be asked to allow your Introduction to Psychology teacher to share your test grades with the researcher. Thank you for your interest and potential participation in this project!

I give consent to release my test scores, high school GPA, and college GPA to the researcher.

Signature: _____ Date: _____

Appendix B

Academic Locus of Control Scale

Please answer each of the following questions by circling either true or false as it pertains to you. Thank you!

1. T F College grades most often reflect the effort you put into classes.
2. T F I came to college because it was expected of me.
3. T F I have largely determined my own career goals.
4. T F Some people have a knack for writing, while others will never write well no matter how hard they try.
5. T F I have taken a course because it was an easy good grade at least once.
6. T F Professors sometimes make an early impression of you and then no matter what you do, you cannot change that impression.
7. T F There are some subjects in which I could never do well.
8. T F Some students, such as student leaders and athletes, get free rides in college classes.
9. T F I sometimes feel that there is nothing I can do to improve my situation.
10. T F I never feel really hopeless—there is always something I can do to improve my situation.
11. T F I would never allow social activities to affect my studies.
12. T F There are many more important things for me than getting good grades.
13. T F Studying every day is important.

14. T F For some courses it is not important to go to class.
15. T F I consider myself highly motivated to achieve success in life.
16. T F I am a good writer.
17. T F Doing work in time is always important to me.
18. T F What I learn is more determined by college and course requirements than by what I want to learn.
19. T F I have been known to spend a lot of time making decisions which others do not take seriously.
20. T F I am easily distracted.
21. T F I can be easily talked out of studying.
22. T F I get depressed sometimes and then there is no way I can accomplish what I know I should be doing.
23. T F Things will probably go wrong for me some time in the near future.
24. T F I keep changing my mind about my career goals.
25. T F I feel I will someday make a real contribution to the world if I work hard at it.
26. T F There has been at least one instance in school where social activity impaired my academic performance.
27. T F I would like to graduate from college, but there are more important things in my life.
28. T F I plan well and I stick to my plans.

Appendix C
Application for Approval to Use Human Subjects

For R&G Use Only Date approved Approved by

Protocol No. _____ Full Review Expedited Review _____
Exempted Review _____

This application should be submitted, along with the Informed Consent Document and supplemental material, to the Institutional Review Board for Treatment of Human Subjects, Research and Grants Center, Plumb Hall 313F, Campus Box 4003.

This form must be typed. This form is available online at www.emporia.edu/research/docs/irbapp.doc.

1. Name of Principal Investigator(s) (Individual(s) administering the procedures): Cassandra M. Russell

2. Departmental Affiliation: Psychology and Special Education

3. Person to whom notification should be sent: Cassandra M. Russell

Mailing Address: 132 W. 13th Ave

Telephone: (620) 341-9867 Email address: Russell_cassandra@stumail.emporia.edu

4. Title of Project: An Examination of the Relationship between Goal Setting, Locus of Control, and Academic Underachievement

5. Funding Agency (if applicable): N/A

6. This is a: _____dissertation X thesis _____ class project _____ other research study

7. Time period for which you are requesting approval (maximum one year): from Feb. 27, 2006 to May 12, 2006. If the research project extends past the end date requested, you will need to submit a request for a time extension or an annual update. This form is available at www.emporia.edu/research/docs/irbmod.doc.

8. Project Purpose (please be specific): The purpose of the project is to assess the effect of goal setting on academic performance in students who are underachievers. If a student is forced to set specific class related goals, that student will feel more control over the learning environment, and thus will show increased academic achievement as witnessed by grades.

9. Describe the proposed subjects: (age, sex, race, expected number of participants, or other special characteristics, such as students in a specific class, etc.) The proposed subjects will be both men and women who are enrolled in an introduction to psychology course. They can be of any age or race, but must be enrolled in an introduction to psychology course, and fit the selection criteria as described below.

10. Describe how the subjects are to be selected. If you are using archival information, you must submit documentation of authorization from applicable organization or entity. The participants will be classified as either normal achievers or underachievers, in regards to the discrepancy between an aptitude measure (ex. ACT score), and an achievement measure (ex. high school or college GPA). All students in selected Introduction to Psychology classrooms will fill out an Initial Questionnaire, and if their High School GPA and cumulative ACT score fall in the appropriate range, they will qualify and be asked to participate in the study. The students will be made aware that by completing the questionnaire, they will be allowing the researcher to access their academic records in order to verify High School GPA and cumulative ACT scores.

11. Describe in detail the proposed procedures and benefit(s) of the project. This must be clear and detailed enough so that the IRB can assure that the University policy relative to research with human subjects is appropriately implemented. Any proposed experimental activities that are included in evaluation, research, development, demonstration, instruction, study, treatments, debriefing, questionnaires, and similar projects must be described here. Copies of questionnaires, survey instruments, or tests should be attached. (Use additional page if necessary.)

Before the six-week intervention period begins, the researcher will secure IRB approval after submitting the appropriate form (see Appendix C). Since the proposed study aims to focus on underachievers, the first step will be to assess the general Introduction to Psychology student population for the underachieving sample through the Initial Questionnaire determining eligibility to participate in the six-week goal setting intervention. (The basic process has been described above in the participant section.) The researcher will gain access to and receive class rosters including student ID numbers for five Introduction to Psychology classrooms. The Initial Questionnaire (see Appendix A) will be distributed along with two Participant Selection Informed Consent sheets (see Appendix D); one copy the student will sign and return, and one copy that the student will keep. The researcher will inform students that just completing the Initial Questionnaire does not secure them as participants in the study. The questionnaire contains language informing students that completing and signing the questionnaire allows the researcher access to their records in order to verify high school GPA and ACT scores (see Appendix A). The researcher will analyze questionnaire responses for a discrepancy between high school GPA and ACT to determine eligibility for the study as an underachiever by prescribed measures.

Students qualifying as underachievers will be notified by phone and/or e-mail with information on three required meetings. The initial meeting will occur during week 11 after the third test out of five semester tests. (This test will be referred to as Test One in this study.) During meeting one, participants will complete a second informed consent sheet for the intervention study (see Appendix E). Participants will also complete the first of three ALC scales and write five specific goals for the first intervention segment of weeks 11-13, between Test One and Test Two. Students write their own goals as an attempt to increase the amount of internal locus of control they feel over the academic environment. The researcher will provide examples of specific mastery goals to the participants, such as, "Before the next test, I will be able to name in order all levels of Maslow's Hierarchy of Needs without looking in my book." The goals will be specific; however, they qualify as mastery focused goals because no set level (e.g., the correct answer four out of five times) will be required. Each student will also be asked to report his/her first test grade. Finally, the researcher will copy the goal sheet, making one copy for the researcher and one for the student. Each student will be instructed to put the sheet with their goals on it in a place where they will see it frequently such as the inside cover of their Psychology notebook.

To ensure participation, students may utilize a Blackboard site set up for the intervention segments. During the first intervention segment, students will receive a weekly emailed reminder to self-check progress on their goals through Blackboard communication email tools. Included in the weekly emails, students will submit self-reports through Blackboard evaluating progress with their goals. Self-report questions measure the amount of study time and effort the student devoted to their psychology goals on a weekly basis for six weeks.

During week 14 and after Test Two, the students will meet for their second meeting, either face to face or virtually. Students will complete a second ALC and report Test Two scores. Students will also answer the question, "How did setting and reviewing your course goals help you in studying and doing better in this class?" for qualitative data. The students will also write a second set of goals for the second intervention segment in preparation for Test Three. Finally, after the last test, students repeat the ALC a third time during finals week. Students will respond to the qualitative question, "How did setting and reviewing your course goals help you study and do better in this class?" Participants will also respond about whether or not they plan to continue setting goals in the future. When students meet for the third and final session, they will receive a debriefing from the researcher. The researcher will verify student reported Test One and Two scores with the Introduction to Psychology teachers. The researcher will also obtain from the instructors test scores prior to the goal setting implementation in week 11 to establish a student achievement baseline.

12. Will questionnaires, tests, or related research instruments not explained in question #10 be used?
 Yes No (If yes, attach a copy to this application.)

13. Will electrical or mechanical devices be applied to the subjects? Yes No (If yes, attach a detailed description of the device(s) used and precautions and safeguards that will be taken.)

14. Do the benefits of the research outweigh the risks to human subjects? Yes No (If no, this information should be outlined here.) The only possible risk to students may be slight anxiety while setting goals and taking exams, however this will be outweighed by acquiring the goal setting knowledge and increasing academic achievement.

15. Are there any possible emergencies which might arise in utilization of human subjects in this project?
 Yes No (If yes, details of these emergencies should be provided here.)

16. What provisions will you take for keeping research data private/secure? (Be specific – refer to p. 3 of Guidelines.) The privacy of the participants will be assured by issuing participant numbers during the initial session. After the initial session, participants will be referred to only by their participant number, and the initial documentation (including the ACT score and GPAs) will be kept in a locked cabinet. In this way, all sensitive information provided by the participants will be protected. Once the study has been completed and data analyzed, all questionnaires, either on paper or stored in computer files, will be destroyed through shredding or deleting and destroying any discs.

17. Attach a copy of the informed consent document, as it will be used for your subjects.

INVESTIGATOR'S ASSURANCE: I certify that the information provided in this request is complete and accurate. I understand that as Principal Investigator I have ultimate responsibility for the protection of the rights and welfare of human subjects and the ethical conduct of this research protocol. I agree to comply with all of ESU's policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

- The project will be performed by qualified personnel according to the research protocol,
- I will maintain a copy of all questionnaires, survey instruments, interview questions, data collection instruments, and information sheets for human subjects,
- I will promptly request approval from ESU's IRB if any changes are made to the research protocol,
- I will report any adverse events that occur during the course of conducting the research to the IRB within 10 working days of the date of occurrence.

 Signature of Principal Investigator

 Date

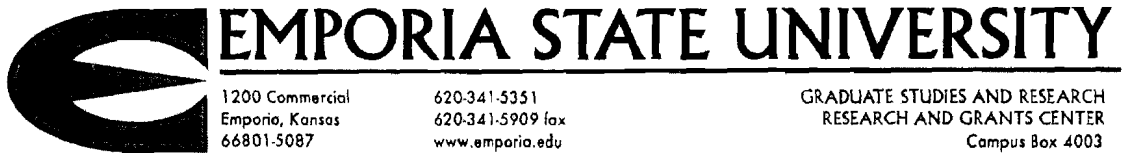
FACULTY ADVISOR'S/INSTRUCTOR'S ASSURANCE: By my signature on this research application, I certify that the student investigator is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct this particular study in accord with the approved protocol. In addition,

- I agree to meet with the student investigator on a regular basis to monitor study progress,
- Should problems arise during the course of this study, I agree to be available, personally, to supervise the principal investigator in solving them,
- I understand that as the faculty advisor/instructor on this project, I will be responsible for the performance of this research project.

 Faculty advisor/instructor on project (if applicable)

 Date

Appendix D
IRB Approval Letter



March 3, 2006

Cassandra Russell
PSYCH/SE
132 W. 13th Ave
Emporia, KS 66801

Dear Ms. Russell:

Your application for approval to use human subjects, entitled "The Effect of Goal Setting on Underachievement and Locus of Control in College Students," has been reviewed. I am pleased to inform you that your application was approved and you may begin your research as outlined in your application materials.

The identification number for this research protocol is 06081 and it has been approved for the period 3/1/06 - 5/12/06.

If it is necessary to conduct research with subjects past this expiration date, it will be necessary to submit a request for a time extension. If the time period is longer than one year, you must submit an annual update. If there are any modifications to the original approved protocol, such as changes in survey instruments, changes in procedures, or changes to possible risks to subjects, you must submit a request for approval for modifications. The above requests should be submitted on the form Request for Time Extension, Annual Update, or Modification to Research Protocol. This form is available at www.emporia.edu/research/docs/irbmod.doc.

Requests for extensions should be submitted at least 30 days before the expiration date. Annual updates should be submitted within 30 days after each 12-month period. Modifications should be submitted as soon as it becomes evident that changes have occurred or will need to be made.

On behalf of the Institutional Review Board, I wish you success with your research project. If I can help you in any way, do not hesitate to contact me.

Sincerely,

Dr. Robert Stow
Chair, Institutional Review Board

pf

cc: Connie Phelps

Appendix E

Timeline of Experimental Intervention

Pre-Study Weeks 1-8	Course tests (no data gathered)
Baseline Week 9, 10	Screening Participants Initial Questionnaire, Informed Consent #1 Baseline test (scores evaluated as baseline test data) Selection and Notification of Participants
Intervention Week 11	Session One: Goal Setting Intervention Phase #1 ALC #1, Goals #1, Informed Consent #2 Test data gathered (if given)
Weeks 12-13	Blackboard Self-Progress Reports #1 & 2 Test data gathered (if given)
Week 14	Session Two: Goal Setting Intervention Phase #2 ALC #2, Goals #2 Test data gathered (if given)
Weeks 15-16	Blackboard Self-Progress Reports #3 & 4 Test data gathered (if given)
Finals	Session Three: Conclusion ALC #3 Test data gathered (if given)

Appendix F

Informed Consent for Participant Selection

Study Name: The Effect of Goal Setting on Underachievement and Locus of Control in College Students

Researcher: Cassandra Russell

Telephone Number: (620)341-5803

e-mail: russell_cassandra@stumail.emporia.edu

IRB Contact: Dr. Jeff Tysinger, tysingej@emporia.edu

Thank you for agreeing to participate in the Participant Selection portion of this research study! In the present study, you will be asked to supply your high school GPA and your highest recorded cumulative ACT score, along with other information. The purpose of this information is to determine whether you qualify and can participate in the rest of the study. If selected for participation, you will receive four (4) research points, fulfilling the Introduction to Psychology course requirement and earning course credit.

The Department of Psychology and Special Education at Emporia State University supports the practice of protection for human subjects participating in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of reproach.

In the case that you do qualify, the rest of the study will focus on goal setting and its effect on academic achievement. In order to verify information reported in the initial questionnaire, ESU records will be accessed by the researcher for high school GPA and cumulative ACT score. During the course of the study, you may learn skills which will improve your academic achievement. There is a slight risk that the goal setting and subsequent reporting of your goals may cause anxiety; however, I believe the benefits of the research will outweigh this small risk. The information collected in the present study will be kept strictly confidential and referred to only through assigned participant numbers. In addition to information volunteered by you, the participant, information such as test grades will be obtained from the teacher of your Introduction to Psychology course. Upon completion of this project, all information connected to data collection will be destroyed. Information obtained from this study may be shared with educators in the hope that it will help students achieve to their academic potential.

"I have read the above statement and have been fully advised of the procedures to be used in this project. I have been given sufficient opportunity to ask any questions I had concerning the procedures and possible risks involved. I understand the potential risks involved and I assume them voluntarily. I likewise understand that I can withdraw from the study at any time without being subjected to reproach."

Subject

Date

Parent or Guardian (if subject is a minor)

Date

Appendix H

Weekly Blackboard Self-Progress Questionnaire

How much effort have you put into studying for your psychology class this week?

(No effort) 1 2 3 4 5 6 7(Maximum effort)

Approximately how many hours have you spent this week in studying for your Intro to Psychology class? _____

Approximately how many times did you refer back to the goals set for your class in the past week? _____

In regard to this past week, did setting and reviewing your course goals help you study and do better in this class? Why or why not?

I, Cassandra M. Russell, hereby submit this thesis to Emporia State University as partial fulfillment of the requirements for an advanced degree. I agree that the Library of the University may make it available for use in accordance with its regulations governing materials of this type. I further agree that quoting, photocopying, or other reproduction of this document is allowed for private study, scholarship (including teaching) and research purposes of a nonprofit nature. No copying which involves potential financial gain will be allowed without written permission of the author.

Cassandra M. Russell

Signature of Author

August 25, 2006

Date

The Effect of Goal Setting on Underachievement and Locus of Control in College Students

Title of Thesis

Don Cooper

Signature of Graduate Office Staff Member

8-28-06

Date Received

original