

USE OF AN ELECTRONIC INTERACTIVE STORYBOOK IN AN INTERVENTION TO
CHANGE ADOLESCENTS' ATTITUDES TOWARD ACADEMIC RESPONSIBILITY

By

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To the ones who stayed in
when the cards were down

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TABLE OF CONTENTS

	<u>page</u>
ACKNOWLEDGMENTS	4
LIST OF TABLES	7
LIST OF FIGURES	8
ABSTRACT	9
CHAPTER	
1 INTRODUCTION	10
Nature of School Counseling	11
Theoretical Framework	14
Need for the Study	15
Purpose of the Study	16
Rationale for the Methodology	17
Hypotheses	17
Definition of Terms	18
2 REVIEW OF THE RELATED LITERATURE	19
Cognitive Therapy	19
Cognitive-Behavioral Therapy	19
Rational-Emotive Therapy	20
Integration and Differentiation	21
Research and Applications of Cognitive Therapy	22
Locus of Control Issues	25
School Counseling Perspectives	30
Developments in Cognitive Assessment	34
Rational-Emotive Assessments	34
Other Cognitive Assessments	36
Assessing Locus of Control	37
Use of the Academic Locus of Control Scale with High School Students	38
Summary	38
3 METHODOLOGY	40
Relevant Variables	40
Population	41
Sampling Procedures	43
Resultant Sample	44
Research Design	46
Measurements	46

Intervention.....	47
Research Participants.....	48
Research Procedures.....	48
Data Analyses.....	51
Methodological Limitations	52
4 RESULTS	55
Resultant Sample	55
Data Analyses	55
<i>Post Hoc</i> Analyses.....	57
5 DISCUSSION.....	71
Generalizability Limitations	71
Evaluations of Hypotheses	71
Conclusion and Interpretations	75
Recommendations.....	77
APPENDIX	
A INFORMED CONSENT: ORIGINAL APPROVED (OPTICAL SCAN).....	81
B INFORMED CONSENT: VARIATION WITH INCENTIVE.....	82
C CHILD ASSENT SCRIPT	84
D ELECTRONIC INTERVENTION PROGRESS MANAGER	85
E ELECTRONIC ASSESSMENT INSTRUMENT	88
LIST OF REFERENCES.....	96
BIOGRAPHICAL SKETCH	106

LIST OF TABLES

<u>Table</u>	<u>page</u>
Table 3-1. Research Design	54
Table 4-1. Participant demographics by gender and ethnicity.....	58
Table 4-2. Ages of participants by class standing.....	59
Table 4-3. Post-test means by gender and ethnicity (Part 1)	60
Table 4-4. Post-test means by gender and ethnicity (Part 2)	61
Table 4-5. Correlation matrices for TGR, ALCS, GABS-NA.....	62
Table 4-6. Analyses of covariance.....	63
Table 4-7. Independent samples <i>t</i> -tests of TGR by gender and participation.....	64
Table 4-8. Paired <i>t</i> -test comparing all participants' pre- and post- TGR scores.....	65
Table 4-9. Independent <i>t</i> -test of ALCS change scores comparing control and experimental	66
Table 4-10. Independent <i>t</i> -test of GABS-R change scores comparing control and experimental.....	67
Table 4-11. Paired <i>t</i> -test of ALCS_Pre with ALCS_Post for experimental group.....	68
Table 4-12. Independent <i>t</i> -test of control and experimental on ALCS_Post.....	69
Table 5-1. Independent <i>t</i> -test of GABS-NA change scores comparing control and experimental.....	80

LIST OF FIGURES

<u>Figure</u>	<u>page</u>
Figure 4-1. Pre- and post- measure correlations	70

Abstract of Dissertation Presented to the Graduate School
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One charge to school counselors is to enhance the personal growth of high school students by helping them take personal responsibility for their academic success. Our study evaluated an experimental, computer-based multimedia procedure to assess its effects on students' (N= 177) academic responsibility, rational beliefs, and knowledge of graduation requirements. It was found that the computer-based procedure was successful at increasing students' knowledge of the graduation requirements. However, academic responsibility and rational beliefs were not affected. Recommendations for continued research are presented.

CHAPTER 1 INTRODUCTION

The school counseling profession, particularly at the secondary (high) school level, is being redefined primarily by governmental and public demand for accountability among educational personnel, especially as concerned with student academic performance. As members of the educational team in schools, school counselors must act in support of such efforts and use a variety of techniques and methods to achieve desired outcomes. In particular, the methods school counselors use to achieve enhancement of students' *academic* performance include some that are therapeutic in nature and some that are educational. However, school counselors cannot act solely as tutors or as therapists to every student. Rather, school counselors are education professionals who must provide support for the educational mission of schools by designing effective educational support programs for all students in schools (ASCA, 2005).

At the national level, student-to-school counselor ratios average approximately 490:1 (ASCA, 2003), which implies that school counselors' provision of individualized counseling services is not a viable approach to effect widespread, positive impact on student achievement. Instead, school counselors must do the most good for the most students, and as quickly as possible. To fulfill this goal effectively and successfully, they must use combinations of diverse professional skills and existing resources as appropriate to the needs of individual students and to the needs of groups of students with similar needs. Therefore, "serving all students" means that direct counseling interventions are reserved for those students whose needs are truly unique, while the greater thrust of school counselors' work is directed to implementation of school counseling programs that address the predictable, developmental needs of all students in the school (ASCA, 2005; Kurantz, 2003; Schwallie-Gillis, ter Maat, & Park, 2003). Presumably, by serving the largest possible number of students through a comprehensive program of services,

school counselors support the learning mission of the school to the greatest extent possible (ASCA, 2003).

Nature of School Counseling

The American School Counseling Association (ASCA) strongly endorses that a school counseling/guidance program should be designed to serve the academic, career, and personal-social development needs of all students in a school (ASCA, 2005). For example, academic needs are served, in part, when school counselors provide academic advisement and related information to students. Similarly, the social needs of students may be served when school counselors lead peer mediation programs or offer small group counseling designed to improve interpersonal relationships among youth. And finally, students' personal needs are served through counseling to address targeted areas of concern such as when school counselors conduct problem-solving groups to ameliorate students' disruptive classroom behaviors. The essence of the ASCA position is that students are able to achieve maximum academic performance only if they are "well-adjusted," which means both that they have minimal life disruptions and concerns *and* appropriate academic skills. To achieve this goal for as many students as possible, school counselors select and use various interventions for any given student or set of students (e.g., an entire classroom or a subset of specifically-selected students).

The vast majority of American schools are committed to the development of students as independent, responsible, and mature individuals. However, whether this noble outcome is being achieved to any widespread extent in American schools is largely unknown. One reason for this state of uncertainty is that the focus of most school-based research has been almost exclusively on students' academic behaviors and accomplishments. In particular, the school counseling profession has not made concerted effort to determine whether students, at graduation, are as independent, responsible, and mature as they could or should be.

The goal to maximize students' personal development is particularly important at the secondary school level because for most students, it is their last opportunity to benefit from the American educational system. Given the level of personal and communications skills required even of entry-level jobs today, it remains an open question whether high school graduates who have not gained sufficient personal maturity and autonomy will be able to demonstrate productivity and success in the workplace or take meaningful steps and planning their post-secondary education – especially when one considers that not every student will benefit from the tutelage and direction of a parent to assist in the many complex steps associated with college applications and entry procedures. Rather, it is hoped that students will become productive citizens in a democratic society in which all individuals are expected to assume responsibility for their own behavior and to act conscientiously to benefit society. Therefore, because of the immediate and long-term implications for both students and society, the question of how to impact high school students' personal developments positively is appropriate and important to address.

“Psychological education” is a general rubric under which school counselors' initiatives to enhance students' personal developments have often been classified, including efforts variously described as “large group guidance,” “character education,” “personal growth groups” (or lessons), and the like. Unfortunately, because that rubric also has been used to subsume a wide variety of other activities (e.g., by teachers or other educational personnel) intended to change students in personal ways, there is considerable controversy surrounding psychological education programs. Therefore, the matter of *how* school counselors should facilitate students' personal developments remains a valid topic of debate.

These psychological education efforts, as commonly practiced by school counselors in recent years, have not demonstrated a coherent theoretical basis or involved consistent use of outcome measurements. Practices have varied, and definitions remain highly subjective. Nonetheless, school counselors continue to engage in psychological education activities on a widespread basis. However, it is evident that if school counselors are to maintain professional and public credibility and facilitate students' personal development effectively, their psychological education (i.e., "student development") efforts should be grounded in an established, accepted theoretical basis and be evaluated through use of valid and accepted outcome measurements.

Professional school counselors typically help students by working with them to establish counseling goals, elicit narratives of their life experiences, and ultimately to help them "try out" new strategies for daily life and then to evaluate the results of their efforts. The effectiveness of this process in highly individualized counseling has been demonstrated. However, considerable human resources are needed to achieve such effectiveness. An approach more suitable for use in public schools would serve more students, especially if it was faster and reduced or eliminated the students having to self-disclose and/or take psychological risks.

The use of an interactive electronic storybook stands to fulfill both desired criteria. If students can relate to the drama of a fictionalized character depicted using multiple electronic media, they may be able to learn vicariously from that character's experiences. Further, when read on a computer, the storybook could be used iteratively such that the viewer could influence events in the fictional reality of the plot by choosing behaviors for the main character and creating new outcomes. Such a story has the potential to teach students potentially useful lessons.

The effectiveness of an interactive electronic storybook springs from the opportunity the reader is afforded to make decisions, evaluate the consequences of those decisions, and make inferences about the underlying rule systems which mediate the linkage between actions and consequences. However, its effectiveness in so doing necessitates linkage to a major counseling theory. Therefore, the intervention for this study is an interactive electronic storybook in which the primary character's "paths" are designed to reflect the basic principles of cognitive-behavioral theory.

Theoretical Framework

Cognitive-Behavioral Theory (CBT) holds that personal attitudes and behaviors can be influenced and altered, presumably to produce behavioral benefits (Ellis, 1961). Within CBT, *cognitive styles* are defined as relatively stable and highly personal ways of thinking about self and/or the world in general. Differences in cognitive styles have been related to differences in ways of coping with personal, academic, career, and other sources of stress (Beck, 2005; Street & Barlow, 1994; Waller, Meyer, & Ohanian, 2001). An important element of cognitive style is level of "rationality," which entails, among other considerations, whether it is best in the long term to avoid uncomfortable responsibilities when they are encountered or to face them directly. CBT also holds that individuals cause themselves inordinate suffering by incorrect perception of problems and/or circumstances. Therefore, a common CBT counseling goal is to help people to appraise elements of their environment accurately, determine both the personal responsibilities involved and how to address them appropriately, and act as quickly as is possible to resolve personal issues

The choice of cognitive style and its subsequent effects on a student's personal well-being and academic performance is complex. For example, some students believe that their academic success is controlled by teachers' whims as opposed to their own behaviors, a situation

that reflects an “external locus of control” (Trice, 1985). These students often judge their (stressful) situation as beyond their control and essentially hopeless, and consequently expend little effort to complete academic assignments. They then become even more stressed as their cumulative grade averages decline. Conversely, other students endure excessive, inappropriate responsibility, blaming themselves for academic failures, a situation that reflects an (excessive) “internal locus of control” (Trice, 1985). It also leads to increased stress, primarily attributable to blaming of self, as their grades decline. However, neither of these perspectives is fully correct. More importantly, each can be changed if a student engages in any of a variety of corrective measures. Such corrective measures often can be achieved through counseling.

CBT is well-suited for use as a basis for “psychological education” activities provided by school counselors. Further, psychological education activities are commonly used by school counselors with entire classroom groups because of the obvious efficiency of working with such large groups. This approach has the added benefit of minimizing disruption to instructional time, i.e., teachers’ classroom schedules are interrupted less frequently. Further, because psychological education interventions, particularly those based in CBT, are at least partly didactic in nature, they correspond well with traditional classroom instruction methods.

Need for the Study

Locus of control theory (LCT) (Rotter, 1966) has been presented and examined extensively in the professional literature. Largely unexplored, however, is its application to development of personal responsibility among high school students who participate in specific school counseling program activities. Therefore, this study will have implications for better understanding LCT in the context of application to secondary school students. For example, if the intervention brings about the desired outcomes, LCT will be supported to some extent for use

in this context. Conversely, the results may raise further questions about the suitability of LCT for such interventions if desired results are not achieved.

This study also will have implications for related future research, particularly in regard to use of CBT-based interventions with high school students. For example, examination of the specific results of this study will suggest future investigations of how these results were achieved (regardless of whether they were as desired), what elements of the intervention warrant further investigation, and what modifications might achieve different results. Further, there may be inferences for examination of the use of the intervention with other, relatively similar groups of students (e.g., middle school or freshman college students).

In the main, school counseling is an applied profession. Therefore, knowledge of which school counseling programmatic activities are successful with which students in which types of circumstances and what conditions is crucial to the effective and efficient delivery of school counseling services. The results of this study will add to that knowledge base by providing specific outcome information about a particular intervention. Concomitantly, as a profession, school counseling necessitates professional preparation for its practitioners. Such professional preparation is enhanced through conveyance of knowledge of both effective and ineffective school counseling practices. Thus, the results of this research will enhance school counselor preparation through provision of information about the effectiveness of a specific school counseling activity.

Purpose of the Study

The purpose of this study is to evaluate the effectiveness of a CBT-based (i.e., psychological education) intervention intended to enhance high school students' awareness of and assumption of responsibility for their academic advisement needs, defined in this context as students possessing concrete knowledge of grades earned and completion of specific graduation

requirements including necessary test scores, credits earned in subject areas, and minimum overall GPA.

Rationale for the Methodology

Loesch and Ritchie (2005), among others, have admonished school counselors (and the school counseling profession) to move beyond overly simplistic, highly subjective, and generally ineffective investigations of the effectiveness of school counselors' interventions to the use of more rigorous, established, and credible approaches to determination of outcome effectiveness. The ASCA (2003) *National Standards* also call for school counselors to provide credible evidence of the effectiveness of their activities. Thus, a successfully implemented intervention should produce measurable results to demonstrate that students have changed in desirable ways. Determination of the effectiveness of an intervention requires that an experimental manipulation paradigm be applied, including that the desired outcomes should be readily obtained and easily understood (Fraenkl & Wallen, 2006). These requirements are best addressed by applying an experimental design and use of credible, validated assessments.

Hypotheses

The following null hypotheses were evaluated in this study:

- **H₀1:** There is no difference in students' rationality based on participation in the intervention.
- **H₀2:** There is no difference in students' need for achievement based on participation in the intervention.
- **H₀3:** There is no difference in students' locus of control based on participation in the intervention.
- **H₀4:** There is no difference in students' academic self-awareness (knowledge of graduation requirements) based on participation in the intervention.
- **H₀5:** There is no relationship between students' rationality and locus of control.
- **H₀6:** There is no relationship between students' rationality and academic self-awareness.
- **H₀7:** There is no relationship between students' locus of control and academic self-awareness.
- **H₀8:** There is no gender by participation interaction for rational belief systems.
- **H₀9:** There is no gender by participation interaction for need for achievement.
- **H₀10:** There is no gender by participation interaction for locus of control.
- **H₀11:** There is no gender by participation interaction for academic self-awareness.

- **H₀12:** There is no race by participation interaction for rational belief systems.
- **H₀13:** There is no race by participation interaction for need for achievement.
- **H₀14:** There is no race by participation interaction for locus of control.
- **H₀15:** There is no race by participation interaction for academic self-awareness.

Definition of Terms

Definitions for the most important terms in this study are as follows:

- **Academic Self-Awareness:** High school students' knowledge of test score and academic coursework requirements for graduation from high school.
- **Cognitive-Behavioral Theory (CBT):** A perspective of psychotherapy that assumes an interaction between thinking and feeling with the result evident in behavior (Beck, 2005). CBT presumes that individuals have the ability to change specific feelings by identifying and challenging specific faulty patterns of perception or inference, with a concomitant change in behavior.
- **Locus of Control:** A construct to describe an individual's attribution of a specific causal source to either internal factors unique to the individual or to external factors beyond the individual's control (Rotter, 1966).
- **Rational-Emotive:** A perspective of psychotherapy that assumes a causal relationship between thinking and feeling (Ellis, 1961). Rational-emotive theory holds that individuals have the ability to change patterns of feelings over time by identifying and/or challenging specific irrational, underlying thoughts.
- **Social Learning Theory:** A human development theory that holds that behaviors and thinking can be and are learned by observing the behaviors of others (Bandura, 1977).

CHAPTER 2 REVIEW OF THE RELATED LITERATURE

Theories and applications of cognitive therapy and the context they provide for understanding locus of control serve as the foundation for this research. In that regard, it is assumed that Cognitive-Behavioral Therapy (CBT) and Rational Emotive Therapy (RET) have common origins and foundations that influenced the formulation of the Locus of Control (LOC) construct. However, CBT and RET emphasize somewhat different techniques and goals in counseling processes, and therefore may influence LOC in unique ways.

Cognitive Therapy

As in all theories of personality, psychotherapy, and counseling, within any of the cognitive therapies, cognitions, behaviors, and emotions (feelings) are intertwined, interrelated, and interdependent. What varies is the nature of the interactions and/or causal relationships among them. Specifically within cognitive therapy, the premise is that the manners in which people act (behaviors) and think (cognitions) affect how they feel (emotions). Further, this relationship is presumed to be reciprocal. Therefore, within cognitive therapy, when actions are changed, changes in thoughts and feelings follow.

Cognitive-Behavioral Therapy

Cognitive therapy is not a comprehensive theory of personality, but rather merely a “map” of how individuals *might* change (Ellis, 1989). For example, Beck and Weishar (2000) described CBT in particular as “a system of strategies” (p. 242) as opposed to a single, unified approach and set of techniques for counseling. Schemas, i.e., the conceptualizations used by individuals to see, organize, and understand the world, are important constructs in CBT. For example, people who are depressed typically see themselves negatively, and people who are anxious often see their environments as dangerous.

CBT focuses on the “cognitive triad” that includes personal perceptions of the self, world, and future. Individuals’ perceptions (within their respective, personal triads) influence their personal emotional states. For example, when the self is viewed as inadequate, the environment dangerous, and the future uncertain, the individual is likely to feel anxiety. Similarly, when the self is viewed as mistreated and the world unfair, the individual is likely to feel angry. Some CBT therapists also identify specific “cognitive distortions,” such as *filtering* (i.e., ignoring information that contradicts existing perceptions) or *fortune-telling* (i.e., making unrealistic assumptions of future failure) as important constructs to be addressed in CBT (Froggart, 2001).

Rational-Emotive Therapy

Like CBT, RET holds that thoughts impact emotional state. However, emphasized in RET is that the content of the thoughts, rather than the thinking process itself, is the primary influence on behavior. Whereas CBT has a concentration on inaccurate perceptions of information, RET has a concentration on the “irrationality” of thoughts and the attendant ways in which the information is processed (Beck, 2000). Ellis (Ellis, 1958; Ellis & Harper, 1961) originally posited behavioral causation in which external events triggered “irrational” thoughts and interpretations that lead to an inappropriate emotional response. Ellis identified this as the “A-B-C” model in which A was the activating event, B was the belief system, and C was the emotional consequence. More recently, Ellis allowed that thinking, acting, and feeling often occur simultaneously, and that the real value of the model rests in its usefulness to therapy. Ellis (1998) expanded the model to “A-B-C-D-E,” adding that D was disputation of ineffective beliefs and E was a new, more enjoyable “event” brought on by new patterns of behavior.

Ellis at first identified ineffective thoughts as “irrational beliefs” (IBs), but later recognized that their defining feature was their self-defeating nature (Ellis & Dryden, 1987). Beck (2005)

described such beliefs as “dysfunctional.” Known early on as REBT for “Rational-Emotive Behavior Therapy,” the behavioral qualifier was dropped in the 1970s as the influence of behaviorism in the social sciences lessened. Ellis originally postulated 11 key IBs (Ellis & Harper, 1961). However, the list of self-defeating beliefs has since been expanded to include (potentially) hundreds of self-defeating beliefs. Generally accepted characteristics of IBs include “demandingness,” “awfulization,” and low frustration tolerance.

Integration and Differentiation

While RET and CBT can be distinguished at a theoretical level, counseling practitioners regularly apply principles from both therapies synergistically (Froggart, 2001). One reason for this integrated application of principles is that neither theory is intended as a fully complete framework for understanding and/or changing human development. Presumably, what one lacks, the other adds. Another reason is that the respective theories do not often contradict each other. For example, researchers often regard some constructs from the two theories as functionally equivalent (Jones & Trower, 2004). While disagreements about the finer details of each theory have arisen (e.g., Ellis, 1989), the theories themselves are not held at odds for domination. For example, CBT-based measurement instruments frequently have been used in the validation of RET-based instruments (Bernard, 1998). For more than a decade, concerted efforts have been made to refine the respective theory-based assessments, yet instruments still tend to have high conceptual overlap. For example, the Beck Depression Inventory, one of the most widely used and studied cognitive assessments, has been criticized for including items related more to self-esteem than to depression (Chadwick, Trower, & Dagnam, 1999). Taken together, CBT and RET can be referred to safely as cognitive therapy, and assessments based on either of the two theories can be assumed to assess elements and/or components of cognitive style.

Outcome studies have demonstrated the efficacy of various cognitive therapies (e.g., Asarnow, Scott, & Mintz, 2002; Lyons & Woods, 1991; Smith, 1982). However, critics have charged that cognitive therapies do not produce measurable changes in behavior. For example, RET researchers have been criticized as being “partisan” and biased in their reviews, and therefore that any gains of RET are an “artifact” of the intervention and/or research (Gossette & O'Brien, 1992, p. 9). Such objections notwithstanding, cognitive therapy today is an accepted method of counseling and psychotherapy. For example, it is regarded highly (though not entirely without criticism) by health maintenance organizations (HMOs) as the treatment-of-choice for some types of anxiety disorders (White, 1999).

Research and Applications of Cognitive Therapy

While cognitive therapies have been applied to a wide range of presenting problems and disorders, Beck (1995) cited four main areas in which the success of CBT has been particularly well-documented: treatments of depression, generalized anxiety disorder, panic disorder, and eating disorders. Counseling service provision in these areas is a realm in which CBT practitioners feel confident (Craighead & Kirkley, 1994; Hollon & Carter, 1994; Street & Barlow, 1994). However, they are not counseling service areas in which school counselors are or can be expected to specialize. Therefore, the use and utilitarian value of CBT for school counselors remains at issue.

The cognitive therapy paradigm has relevance and can be applied to child, adolescent, and adult populations in specific domains. For example, in a four-year, longitudinal study, Cole, Jacquez, and Maschman (2001) found that children's perceptions of their own abilities were shaped over time by the evaluations of others, including parents, teachers, and same-age peers. Further, time-series observations at six-month intervals suggested a causal relationship, with children's perceptions of their own abilities following others' perceptions chronologically. The

effect was most evident during grades three to six, a period in which children's self-perceptions also became more stable. In particular, negative self-appraisals of ability were found to predict self-reported depressive symptoms, a result that can be interpreted easily within the cognitive triad construct. Negative self-appraisals of ability also were related to self-defeating statements (as within RET) which place demands on the self, e.g., "I must always do tasks well, and if I do not that would make me an awful and worthless person."

The increasing stability of negative self-perceptions from grades three through six provides confirmation for what many educators know intuitively: prophecies are indeed self-fulfilling. This understanding also sheds light on the presumed linkage between *attributional style*, defined as the making of "internal, stable, [or] global attributions for negative events" (Hankin, Abramson & Siler, 2001; p. 608) or as the "tendency to attribute negative events to global and stable causes" such as a person's lack of ability or self-worth (Abela & Payne, 2003; p. 520) and depression symptoms. Attribution styles are likely learned from others. For example, Alloy, Abramson, Tashman, Berrebbi, Hogan, Whitehouse, Crossfield, and Morocco (2001) concluded that children learn cognitive styles in general, and attributional beliefs regarding how external events reflect on the value of the self in particular, from their parents.

Hankin et al. (2001) examined the role of attribution styles in the "hopelessness" theory of depression, which regards hopelessness produced by negative attribution styles as a leading and immediate cause of hopelessness-type depression. Abela and Payne (2003) found significant correlations between attributional styles and hopelessness depression, but qualified that attributional styles seemed to have less impact on non-hopelessness depression. However, although cognitive perspectives are regarded as having overall usefulness and a high success rate

for interpreting specific presenting concerns and disorders, they are not useful in all counseling situations.

Some studies that investigated assessment and treatment of adolescents for anxiety disorders also have focused on attributional styles. Ginsburg, Lambert and Drake (2004), for example, found that attributions of internal or external control (in African-American females) were related to anxiety measures. Similarly, Calvete and Cardeñoso (2002) found significant relationships between attributional styles and internalizing/externalizing tendencies.

Attribution answers the question of “why” events occur, and in the case of depression, symptoms can be traced to negative self-statements (i.e., to the “self” component of the cognitive triad). However, faulty information-processing associated with anxiety also is characterized by flawed appraisals of and expectations for the future. For example, Rheingold, Herbert and Franklin (2003) studied adolescents diagnosed with Social Anxiety Disorder (SAD) and found that socially anxious adolescents, compared to a control group, were more likely to overestimate the likelihood of future negative social events occurring, as well as negative consequences for such events. Similarly, Hargreaves and Tiggermann (2002) concluded that cognitive schemas contributed to body image disturbance in adolescents and Hankin, Roberts, and Gotlib (1997) found socially-acceptable forms of perfectionism (as elevated self-standards) to be associated with emotional distress in adolescent students. Discrepancies between perceptions of the self and visions of an ideal self were associated with both anxious and depressive symptoms, with adolescent females reporting more depressive symptoms.

Finally, remediation of anger is increasingly coming to be seen as another area of high efficacy for application of cognitive theories. For example, Jones and Trower (2004) related the CBT notion of “hot” (i.e., anger-causing) cognitions to RET's statement of evaluative or

irrational beliefs. They found that individuals presenting with high levels of anger had negative evaluative beliefs about themselves and others. However, Kazdin and Crowley (1997) found that for children ages seven to thirteen treated for aggressive behavior using cognitive therapy, success in treatment was related to reading achievement and intellectual functioning, thus underscoring the difficulty in attempting to use cognitive therapy as a “cure-all” treatment for all clients.

Clinical effectiveness notwithstanding, the highly-verbal nature of CBT and RET allows both advantages and disadvantages for use in school settings. The primary advantage is that many school counselor functions exist for imparting verbal information directly, such as through use of individual or group counseling, classroom instruction, or use of readings, movies, or web pages. Thus, there are many means that might be used to impart concepts of cognitive therapy that are psychoeducational in nature. However, access to these benefits through these modalities is limited to students with sufficient reading, listening, and/or conceptual skills to assimilate the information transmitted through them. To date, a preponderance of research supports application of the theoretical constructs with any audience and outcome studies establish cognitive therapy's effectiveness as a treatment modality. However, it remains undetermined whether these concepts can be applied to benefit large numbers of students in secondary schools.

Locus of Control Issues

The LOC construct has been embraced in such fields as psychotherapy, distance education, student personnel, business management, and consulting (e.g., Bernstein, Klappholz, & Kelley, 2002; Fish, 1996; Kerr, Rynearson, & Kerr, 2003; White, 2001). The essential question in LOC is whether individuals believe that “outcomes” in their lives (i.e., results of behaviors) are due to internal or external causes? That is, is success in life caused by personal skill or persistence, or is it an artifact of “good luck?” LOC is well-defined in the professional literature and has been

found to be unrelated to other factors such as intelligence or social desirability (Lester & Bishop, 2000). In addition, the perceived success of practical applications of LOC is supported by the observation that individuals who quite apparently *believe* they are in control of their behavioral outcomes are more likely to set goals and take appropriate action, and thus to achieve success in life. But what of those whose belief systems are not so obvious?

Janssen and Carton (1999) found that external LOC is related to more frequent procrastination. Academic performance also has been related to LOC. For example, Trice (1985) found a positive correlation between internal (low) LOC and self-reported academic motivation as well as a positive correlation between internal LOC and number of extra credit point activities students attempted. Among a sample of undergraduate students in a psychology course, a significant, positive relationship was found between internal LOC and final course grade. However, a similar significant relationship was not found among students in an education course. Trice (1987) also found that undergraduates with high external LOC missed more classes when attendance was optional, and that high LOC was related to undergraduates' likelihood to miss classes for non-illness reasons (Trice & Hackburt, 1989). Conversely, Onwuegbuzie and Daley (1998) found that undergraduates with the best study skills tended to have a higher internal (academic) LOC. Mooney, Sherman, and LoPresto (1991) found LOC to be a predictor variable for adjustment during the first-year college.

LOC has been investigated among younger populations as well. For example, Rogers and Saklofske (1985) found that LOC was a predictor of learning-disabled children's school success (as rated by the teacher). This finding is particularly significant given the difficulty of exploring cognitive perspectives with children, and particularly children with limited verbal abilities. Shields (2004) found that students with more external LOC were more likely to feel “place-

bound” and unable to travel to pursue higher education. However, this condition in itself did not seem to impact their academic adjustment negatively.

Other studies call into doubt a linkage between external LOC and negative outcomes. For example, Ferrari and Parker (1992) did not find a significant relationship between academic LOC and grade point average among college freshmen. Onwuegbuzie, Bailey, and Daley (1999) investigated academic LOC in their search for predictors of “foreign language anxiety” and found a relationship that was not statistically significant. Clearly, LOC is not a causal factor underlying every academic event.

For the most part, the history of LOC assessment instruments can be viewed as a catalog of work performance measures that correlate with internalized LOC. Thus, LOC has been embraced in organizational settings, primarily because of the eagerness with which organizations strive to meet common goals by capitalizing on the inputs and skills of their employees. However, although LOC is sometimes discussed as a personality typology with which to categorize individuals as “external” or “internal,” Rotter (1963) believed that individuals’ behavior varied across situations. Personality, therefore, was not a fixed preference to respond to all situations in the same way, but rather a combination of distinct responses to changing contexts. It follows that a counseling intervention designed to increase academic performance should not be intended to change students’ global attitudes, but rather to encourage them to take more responsibility for a specific, relatively narrowly defined aspect of their life.

LOC instruments measure the ways in which individuals attribute event outcomes to internal or external causes, but these attributions are regarded as perceptions, not objective analyses of the events. For example, individuals who display greater internal LOC may generate more “counterfactual self-talk,” a type of irrational thinking that involves inner experiencing of

events that did not actually occur. These individuals may think along the lines of, “If only I’d acted differently, there would have been a different outcome” after an event in which their task performance was rated (Reichert & Slate, 1999). Such self-talk statements may become a mechanism for seeking control over a similar situation in the future, which might in turn improve task performance.

Conversely, counterfactual statements may contribute to excessive stress and anxiety by over-emphasizing futility. Therefore, most RET theorists view them as a form of perceptual distortion, and RET therapists may spend considerable time refuting counterfactual thinking when its effect on mental health is perceived to be negative, for example, when it promotes grief or guilt. It also follows that greater internal LOC may not in fact have positive, healthy effects on the individual's well-being, particularly if objective investigation reveals that individuals may actually *not* be in control of their outcomes. For example, individuals may be denied promotions in the workplace because of causes such as institutional racism rather than as a result of job performance (Sue & Sue, 1999). When individuals take *excessive* responsibility for causes beyond their control, they are likely to feel unduly frustrated or depressed with subsequent outcomes.

What, then, should be the limits of cognitive interventions that aim to increase students' academic performance by encouraging the development of internal LOC attributions for academic outcomes? For example, would students' overall academic performance increase if all students developed highly-internal LOC attributions that also caused considerable personal distress? The answer is probably yes – students' average grades and achievement test scores might very well be enhanced if most students accepted a high degree of personal academic responsibility, even in light of increased stress and anxiety in students' lives. However, while

such impact would benefit a school's academic performance record, it is not consistent with maintaining and enhancing the best interests of individual students, and it is certainly not within the boundaries of school counseling ethical standards.

An LOC-focused counseling intervention to increase academic performance must be well-defined and implemented within all applicable ethical standards. By emphasizing personal responsibility for academic outcomes, such an intervention could help motivate students to plan and study, and not to procrastinate in matters concerning school work. Such an outcome is both desirable and possible. For example, Daum and Wiebe (2003) found that academic LOC varies in the short term based on students' personal academic expectations. Similarly, Liu, Lavelle, and Andris (2002) believed that even the type of instructional media used has influences academic LOC to some extent. To vary LOC attitudes and self-perceptions experimentally, CBT/RET techniques could be employed to "persuade" students that, ultimately, they themselves have considerable control over their academic futures. However, students also must be able to identify the boundary at which they can no longer assume responsibilities for academic events and/or outcomes.

Achieving empowerment and awareness of self limits is difficult in classrooms in which students are overwhelmingly aware of the teacher's "unfair" attitudes toward them, especially in situations in which student race and/or gender are matters of teacher concern. The extent to which students internalize teacher attitudes and practice self-blame is debatable. However, it is likely that students aware of "unfairness" in life will reject a counseling intervention if it provides no room for conceptualizing and holding exceptions to internal control. For example, students may pose the rhetorical question, "If I'm really in control of my grades, then why are students of my race or gender singled out for punishment in class?" Thus, some students may

believe they are “doomed” already and without recourse because a teacher does not like them. Yet by making a distinction between “difficult” and “impossible,” and among conditions such as “always,” “sometimes,” and “never,” CBT can help students understand that they usually have some power to influence events in their environment.

School Counseling Perspectives

The school counseling profession promotes that school counselors should serve the greatest possible numbers of students (Kurantz, 2003; Schwallie-Gillis, ter Maat, & Park, 2003). For example, ASCA (2003) advocates that school counselors develop programs to serve *all* students across three broad categories of developmental needs: personal/social, career, and academic. ASCA and school counseling authorities have developed various curricular and/or programmatic materials to help school counselors address these needs. However, it is clear that school counselors do not have a monopoly on facilitating child (student) development. For example, school counselors “compete” with specialists from other educational, psychological, social, and related professional fields in pursuit of federal funding for research and program implementation funds (e.g., Myrick & Gonzalez, 1990) as well as for validation of their respective professional perspectives. This situation also is evident in the development and implementation of character education programs, which are viewed as serving students’ personal development needs (ASCA, 2003). Despite the fact that no theories of counseling have proposed or validated a definition of “character,” school counselors continue to search for ways to serve public and political mandates for character education. In so doing, school counselors largely draw upon theoretical perspectives that are developmental (i.e., describe how people develop normally) as opposed to those that are therapeutic (i.e., describe how people can change voluntarily). For example, Rayburn (2004) described the school counselor’s role in “morality education” (which is presumably highly similar to character education) in terms of seminal moral

and cognitive development research by Kohlberg and Piaget, iconic developmental theorists widely studied in the field of education.

As human development professionals, school counselors are entitled to glean wisdom from all sources, fields, and disciplines. However, if students are experiencing a level of stress or goal frustration which is pathological and which interferes with their normal development, are they better served by school counselors informed by a teaching theory or a cognitive theory? In order to fulfill the ASCA mission of “serving all students,” some school counselors are presenting classroom guidance units focused on curricula that were designed by teachers. Presumably, resources used for these activities were written for teachers, i.e., professionals who likely are competent at information dissemination and have essential active listening skills. However, they often lack awareness of mental health issues or the advanced communication skills requisite to being an effective school counselor and essential for effective implementation of a classroom guidance unit.

In using resources designed and intended for use by teachers, school counselors may be sending the message that their professional identity and skill sets are essentially no different than those of teachers. The profound implications of this identity confusion are perhaps illustrated in the tendency for some school counselors to choose (usually for financial incentives) certification by the National Board for Professional Teaching Standards rather than the National Board for Certified Counselors. If the identity and practice of professional school counseling moves away from theories of psychotherapy (including RET and CBT) entirely, are not school counselors just another (type of) teacher in schools? The point is not to reject the developmental guidance paradigm, but rather to anticipate unintended, long-term effects of rapid change currently taking place in the school counseling profession and the ultimate possible absorption of the profession

itself into some other field. Such unwanted changes might be avoided in part by demonstrating the effectiveness of interventions based on well-researched perspectives such as CBT, RET, and/or LOC theories which complement, rather than overlap, the skill sets possessed by classroom teachers.

A study by Campbell and Brigman (2005) illustrates some of the points just made. They demonstrated the possibility for school counselors to serve all students through use of group counseling to teach study skills to elementary school-age students. The Florida Comprehensive Achievement Test-Norm Reference Test (FCAT-NRT) was an outcome measure in their study, as was a behavior rating checklist. The intervention emphasized social problem-solving skills and study skills improvement. A statistically significant improvement in FCAT-NRT scores was found for the experimental group. Improvement also was shown in students' use of appropriate behaviors in classrooms. These researchers successfully captured the attention of school and school district officials by demonstrating that school counselors can indeed contribute to the important task of boosting school-wide achievement as reflected in students' test scores.

While valuable as an example of the positive academic impact school counselors can make in schools, this type of study would be difficult to replicate at the upper levels of high school primarily because of the outcome measurement used: the FCAT-NRT is not administered to students after the spring term of grade ten. Further, the FCAT-NRT is a "low-stakes" test sometimes used for placement purposes within the school, and therefore is given on fewer occasions than the FCAT-Criterion Referenced Test (FCAT-CRT), which is a "high-stakes" test with implications for retention and/or fulfillment of graduation requirements. The FCAT-NRT also is administered differently than the FCAT-CRT, with comparatively fewer safeguards in place to ensure the security of the FCAT-NRT and fewer parallel forms are used, leading to the

question of whether changes in scores reflect true learning gains or simply that retained students have taken the same test more than once. Also, no correlation between the FCAT-CRT and FCAT-NRT tests has yet been provided.

Unfortunately, in describing the focus of the experiment as study skills training, Campbell and Brigman risked portraying their work out of context. Specifically, if the study is presented as if the intervention (essentially tutoring) is something already known to be effective, why not simply employ more tutors instead of more school counselors? Although Campbell and Brigman explain in great depth why school counselors are uniquely qualified to conduct this type of intervention, the frame of the study itself creates an unwitting comparison that cannot benefit school counselors in general. The question should be, how do school counselors use their *unique* training and knowledge to provide interventions that cannot be replicated easily by “regular” classroom teachers?

Whatever the eventuality of this paradox, it is clear that school counseling thought is moving in the direction of focus on what goes on in schools rather than what goes on in of counseling theories. For example, a review of the most influential school counseling journal over the last few years revealed only a few article titles specifically referencing any specific theory of psychotherapy, and the ones that did were oriented to family, systems, or solution-focused therapy. The developmental school counseling perspective (e.g., Myers, Shoffner, & Briggs, 2002; Myrick, 1997) has been advanced as a method of understanding and serving children that draws in part on the views of Piaget, Erikson, and Kohlberg. Thus, theoretical eclecticism apparently is valued as the various interventions described mix developmental perspectives with theories such as RET (e.g., Webb & Myrick, 2003). Unfortunately, CBT techniques apparently have been welcomed only as intervention modalities for addressing the

problematic conduct or academic underperformance of individual students (e.g., Walker, Greenwood, & Terry, 1994).

Developments in Cognitive Assessment

Although school counselors may dream of being able to claim that a developmental counseling intervention will directly impact students' grade point averages, the reality is that GPA serves poorly as an outcome indicator for any type of intervention - even teaching interventions. As Kiselica, Baker, Thomas and Reedy (1994) noted, "ceiling" effects occur when high-achieving students score consistently near the top of the grading scale; there is simply little room for improvement. Test anxiety also may play a role in assessments and tutoring may be received which further confounds test scores. Psychometric assessments with good psychometric properties may offer greater diagnostic value by affording insight into cognitions, behaviors, and attitudes that are correlated with academic performance.

Rational-Emotive Assessments

The original articulations of irrational beliefs in RET inspired development of a slew of cognitive assessments to investigate them. The resultant measures were tested enthusiastically, but most were found to also measure some non-cognitive dimensions (Jones & Trower, 2004; Robb & Warren, 1990). Today, a new generation of cognitive assessments has been developed to measure a few general constructs, the measurement of which have been confirmed by factor analysis. Therefore, typically three or four beliefs (cognitions) are assessed instead of Ellis' original set of 11 IB's (Smith, 1989; Thorpe, Walter, Kingery, & Nay, 2001). The trend also is to exclude items which measure non-cognitive dimensions (e.g., emotional responses).

Bernard's revision of the *General Attitude and Beliefs Scale* (GABS; 1998) sought to measure thinking (i.e., cognition) specifically, not affective reaction or state. Originally developed by Burgess (1986), the GABS was based on the legacy list of 11 IB's. The original

96-item GABS was intended to assess components of anxiety and depression. Bernard (1998) refined the GABS through factor analysis and reformulated the constructs as a combination of *self-defeating processes* (e.g., “demandingness,” “awfulizing,” global self-rating, and low frustration tolerance) and *content domains* (e.g., achievement, approval, and comfort). Fifty-five items representing seven factors were retained: rationality, “self-downing” (i.e., judgmental, negative self-statements), need for achievement, need for approval, need for comfort, demands for fairness, and other-downing. The rationality factor correlated negatively with the irrationality subscales, and positively with other cognitive measures of similar constructs. The GABS also was validated against the Beck Depression Inventory (BDI) and positive, theoretically consistent results were found.

Bernard's work on the GABS raised two points regarding RET theory. First, although the self-downing factor was related in the theory to “should” statements about the self, such a relationship was not supported empirically. In RET, statements involving “should” are presumed to act as a method of imposing unrealistic conditions upon the world, thus producing disturbance. Bernard (1998) noted that the word “should,” while helpful in identifying some types of self-defeating self-talk, is not inherently pathological; it could operate in ways that are not actually demanding. Second, self-downing and other-downing emerged as separate factors, in contrast to Jones and Trower's (2004) finding that individuals with higher levels of anger had highly negative evaluations of both themselves and others. It is possible that the unitary versus fragmented nature of self- and other-downing may be related to specific populations and thus may not hold true for all individuals.

Lindner, Kirkby, Wertheim and Birch (1999) shortened the GABS further because they concluded that the instrument's length was cited by subjects as a principal cause for subject

attrition in a research study. After administering the GABS to a larger group of subjects, a decision was made to retain only those items with a correlation to respective total subscale score greater than .60. Twenty-six items were retrained when this criterion was applied. A subsequent administration of the Shortened GABS (SGABS) given to the same individuals within three days yielded stability correlations ranging from .66 to .77 for each subscale. Construct validity was demonstrated by the finding of significant correlations to the *Beck Depression Inventory* (BDI) and to the *Irrational Beliefs Scale*.

Other Cognitive Assessments

Cognitive assessments clearly based on theory have often been designed for specific clinical purposes. For example, the *Evaluative Beliefs Scale* (EBS) was presented by Chadwick, Trower, and Dagnam (1999) as having high face validity for depression because of it being constructed to reflect well-researched cognitive constructs. Unlike earlier cognitive assessments, the EBS inquires about thoughts rather than behaviors. Sinclair and Wallston (1999) also developed a brief cognitive instrument, the *Psychological Vulnerability Scale* (PVS), to identify “cognitions that promote harmful reactions to stress” within the particular context of medical patients recovering from illness (p. 119). Waller, Meyer and Ohanian (2001) applied a health perspective in their short-form refinement of the *Young Schema Questionnaire* (YSQ), which is designed to compare the core beliefs of bulimic and non-bulimic women.

These instruments represent a category of assessments having clinical value to identify specific cognitions that are found to predict pathological behaviors or emotions. However, locus of control is not inherently pathological; only its effects can be experienced as harmful. Therefore, a cognitive-behavioral instrument that can be compared to a locus of control measurement must assess all major aspects of the theory in order to serve as a basis for refining future understandings of the connection between cognition, locus of control perceptions, and

academic performance. Therefore, the GABS was chosen for use in this research because of its general nature and its suitability for basic research.

Assessing Locus of Control

Much effort has been directed toward assessing (overall) LOC since Rotter's formulation of the original *Locus of Control* scale (1966). For example, as late as 1984, Craig, Franklin, and Andrews sought to create a valid alternative assessment of global LOC. However, Rotter conceived of personality as the sum of all possible behaviors in all situations. Thus, in different situations, behavior would be different, and Rotter pointed to the need for more specific LOC scales. More recently, there have been developed specialized instruments such as the *Health Student Academic Locus of Control Scale* (Cassidy & Eachus, 2000) and even the *God Locus of Health Control Scale* (purported to measure the perception that divine forces play the primary role in determining health) (Wallston, Malcarne, Flores, Hansdottir, Smith, Stein, Weisman, & Clements, 1999). Again, a category of instruments comes to light as having been created to show clinical significance with specific and acute presenting symptoms. However, high school students are presumed to be a diverse population representing a mix of distressed and non-distressed individuals. Therefore, a more general scale is needed with relevance to the broad area of functioning commonly referred to as academic performance.

Trice's *Academic Locus of Control Scale* (ALCS) was validated for use with college students and found to have value in predicting common academic problems. One hundred eighty nine undergraduate students completed an 89-item questionnaire having true-false-response items twice in a three-week period. The items were written to have face validity for the locus of control concept. Subsequently, items were discarded if more than 90% of the respondents answered an item with the same response or if more than 5% of the respondents answered the item differently on the two occasions. Items also were discarded if the response to an item

pointing to either a respondent's internal or external locus of control was not consistent to the same subject's majority responses to the other items. Ultimately, 28 items were retained. The ALCS scores were then compared to the Rotter (1966) locus of control scale for construct validity, with $r = .50$ ($p < .05$). Scores also were compared to Crowne and Marlowe's (1960) Social Desirability Scale for discriminant validity, with $r = -.16$ ($p > .05$), indicating that respondents were not simply attempting to answer in a manner perceived as socially desirable or acceptable. Finally, its test-retest reliability coefficient was found to be .92 following a five-week interval.

Use of the Academic Locus of Control Scale with High School Students

It is highly likely that high school students can interpret and respond to the ALCS in an appropriate way, although this contention needs further support. For example, application of the SMOG and Gunning-Fog reading level computation methods yielded a grade nine reading level for the ALCS. The ALCS was compared to Rotter's (1966) I-E scale. The Rotter scale was initially validated with samples including 10th, 11th, and 12th graders (Lester & Bishop, 2000), and later used by Trice (1984) during his validation of the ALCS. Therefore, the significant correlations between the Rotter I-E scale and the ALCS when used with high school students suggests that it is appropriate to use with such students.

Summary

Much research supports the effectiveness of CBT. Counselors who adopt CBT for use in non-therapeutic settings also find support for cognitive constructs in basic research and through assessment tools based upon it. Cognitive theory thus is a specialized "mental tool" that helps to guide behavior change rather than to explain all aspects of personality development. It appears to be productive to adapt cognitive perspectives and techniques so that their benefits can be achieved through programmatic, school-wide delivery systems; such an approach would

associate well with the CBT literature. More importantly still, an intervention based on CBT designed to help high school students take control of their academic careers could prove beneficial. Specifically, the LOC construct holds great promise in giving shape to a cognitive-based intervention and in providing a theoretical basis for understanding behavior changes that result from the intervention. Also, assessments of LOC are sufficiently evolved that their use is likely to inform the relationship between a cognitive intervention and changes in personal locus of control.

CHAPTER 3 METHODOLOGY

School counseling interventions have been developed and implemented to assist students to develop in many different ways. Unfortunately, most of these interventions have not been examined and/or evaluated empirically. More importantly here, the vast majority of these interventions have not been developed and implemented within a recognized, professionally-accepted theoretical framework.

Certainly one important part of a student's personal development is assumption of responsibility for personal and/or academic behaviors. Therefore, the purpose of this study is to evaluate the effectiveness of a CBT-based intervention intended to enhance high school students' awareness and assumption of responsibility for their academic success. Specifically, the intervention includes components intended to (a) enhance high school students' awareness that attention to the details of past academic events, such as courses taken and grades earned, is relevant to their future success, (b) illustrate the mechanism through which rational self-talk leads to adaptive behaviors, and (c) demonstrate how an interpersonal communications strategy grounded in rational principles is likely to enlist the help and cooperation of external others (e.g., teachers) while also showing how communications based upon cognitive distortions are likely to *discourage* others from helping. An experimental methodology will be employed to determine the effectiveness of the intervention.

Relevant Variables

Data will be gathered for the following dependent variables in this study: (a) the extent/degree to which students hold rational beliefs, as measured by the Rationality (GABS-R) and Need for Achievement (GABS-NA) subscales of the *General Attitudes and Beliefs Scales* (GABS), (b) the extent/degree to which they believe they are in control of their academic

careers, as measured by the *Academic Locus of Control Scale* (ALCS), and (c) level of attention to academic detail, as measured by the *Test of Graduation Requirements* (TGR). The independent variable for this study will be group, with students in the experimental condition receiving the intervention during the study and students in the control/comparison condition receiving the intervention after the study.

Population

Although subject to debate, it certainly can be argued that the eleventh grade (i.e., junior year) of high school is an extremely important period in which students should be aware of and responsible for fulfillment of requirements for graduation from high school. During this academic year, students must be keenly aware of their academic standing (relative to graduation requirements) so that they can act to complete remaining unfulfilled requirements to graduate in a timely manner.

According to the National Center for Educational Statistics (2006), there were approximately 165,275 students in the eleventh grade in high schools in Florida in 2005. Approximately 49.6 percent of these students were males and 50.4 percent were females. In regard to race/ethnicity characteristics, approximately 22.5 percent were classified as African-American, 0.3 percent were classified as Native-American, 19.5 percent were classified as Hispanic-American, 2.5 percent were classified as Asian-American, and 55.2 percent were classified as Caucasian-American.

Students in the eleventh grade are usually 16 years of age, and commonly under age 18. While arguably all of high school is a “transitional” period, the age range and educational experiences associated with grade 11 students suggest it is a time of great variation. Thus, they make personal decisions and plan for the future in widely differing ways. Beginning at age 16, Florida students may obtain a driver’s license contingent upon continued regular school

attendance. With this increased mobility, many high school juniors are likely to find after-school employment, and therefore also are faced with more choices of non-school activities than their younger student peers.

Also noted is that high-achieving grade 11 students are engaged in activities different from those of their lower-achieving peers. In Florida, high achieving juniors have (already) passed the Grade 10 Florida Comprehensive Assessment Test (FCAT) (a graduation requirement) and most are registering and preparing for the American College Test (ACT) or Scholastic Assessment Test (SAT), national college admissions tests normally taken during the junior year. These students also begin to evaluate themselves critically for competitive and non-competitive scholarships, such as the Florida Bright Futures program. Comparatively, lower achieving juniors must continue to prepare for the FCAT and retake it until it is passed, a process likely to reinforce negative self-perceptions of academic ability and feelings of failure. These low achieving students also become aware that at age 16 they may “drop out” of school voluntarily (with parent permission), although they may retain their driver’s licenses if they enroll in a General Education Diploma (GED) program. Those minors who desire to drop out but who lack parent permission can do so at their own discretion after their eighteenth birthday, which may occur during grade 11 if the student has been retained in previous grade levels. Thus, by grade 11 most students know they have the power to make long-term decisions and implement those decisions in the near future.

The experiences of grade 11 are important because, more often than not, past behavior predicts future behavior. That is, students who had early successful experiences in academic endeavors (e.g., high test scores) or in the world-of-work (e.g., success in a school-sponsored work-study program) are likely to feel efficacious, competent, and interested in academic

activities. The converse also is likely true: students frustrated with previous academic endeavors or work may react with irrational, negative self-statements (e.g., “I’m no good” or “I’ve tried and failed”). Alternatively, they may rationalize their previous experiences by attributing them to a hostile environment (e.g., “I would do better on the FCAT if it wasn’t so stupid; they only make us take it because it’s a waste of time.”). Therefore, for either situation, measuring juniors’ systems of irrational beliefs and locus-of-control attitudes may provide clues as to their future behaviors.

Sampling Procedures

Gender, race, socioeconomic status, and other personal characteristics were not criteria applied directly for sampling in this study. The population from which the sample was selected included students all at the same (11th) grade level. Effort was made to sample all regular-program students at each participating school. Students having learning and/or cognitive functioning and/or severe emotional difficulties are not assigned to “regular” classrooms. Similarly, students with exceptionally high academic abilities are assigned to “honors classes” or other advanced cognitive ability classrooms. Thus, students’ academic performance and/or ability level was the only non-random factor influencing which students were invited to participate.

Wherever possible, participation was elicited from students enrolled in an American History class, a class required for all high school students in Florida and normally taken during the eleventh grade. An “eleventh grader” (i.e., junior), as used here, is a student who was attending high school for the third consecutive year. Such a student was likely to be enrolled in an American History class because the course sequence of the Florida social studies curriculum in Florida is likely to proceed at a predictable pace, unaffected by grade-level “retention” (defined as the failure of one or more high school classes). At one of the three schools sampled,

access to American History classroom was not possible. Instead, the school's principal identified an elective course comprised primarily of juniors.

Given that the various criteria for class assignment do not usually introduce systematic bias in student-to-classroom assignment, it was presumed that the students in the respective regular classroom groups were relatively heterogeneous *within* the universe of regular-section American History classrooms. This assumption was investigated subsequent to the study through examination of the demographic characteristics of the participating students in the respective classrooms after the sample (i.e., participating students) had been determined.

During the intervention phase of the study, students were randomly assigned to either the experimental or the control group condition. The intervention consisted of a short electronic storybook read on a computer, followed by a narrated academic advisement lesson presented in a slideshow format. The advisement lesson was designed to have value for all students in the 11th grade. At the time of the intervention, students in the class were taken to a computer lab. Those students participating in the study logged on to a computer program to receive the measurements, while students who did not participate in the study were assigned to another activity by the teacher. Random assignment of participating students occurred at the time they logged into the computer. Students in the experimental group viewed the electronic storybook intervention, and students in the control group viewed a non-interactive storybook reading a work of non-fiction related to the curriculum standards for the American History course.

Resultant Sample

It was anticipated that twelve classroom groups would participate, with approximately 25 students per classroom group, for a total 300 students. Random assignment to experimental or control condition would be on an individual basis. It also was assumed that at least 75% of the students in each classroom group would participate, to yield a total of approximately 226

participants. Finally, it was expected that approximately 113 students would be assigned to the experimental and control conditions, respectively. Also, based on available information about the characteristics of students in the participating schools, it was anticipated that approximately 50 percent of the students would be male and 50 percent would be female in both the experimental and control groups. Similarly, it was anticipated that approximate race/ethnicity percentages for the students in both the experimental and control groups would be African-American 25%, Hispanic-American 5%, Caucasian-American 65%, and Other 5%.

When research procedures began, the participation rate ranged from two students per classroom (under 10% of the class) to 25 students per class (over 90% of the students in the class). The total number of students recruited was estimated at approximately 400. However, the number who completed informed consent procedures and began the study was 204. Of these, 177 completed both the pre-test and post-test.

Students were informed that participation in the study was voluntary. In regard to the 27 students who did not complete the post-test, their respective classroom teachers who supervised the study procedure provided *unsolicited* context information about many of them. There did not appear to be any systematic non-participation causes presented among these descriptions. Also, because of the wide range of reasons presented for non-attendance on the second day of the study (e.g., absence, illness, skipping, disciplinary suspension, band practice, honor club field trip, athletic tournament, and/or off-campus dual enrollment course), it was concluded that there was not an underlying (i.e., systematic) reason why these students did not complete the post-test. In addition, it was not possible to hypothesize about the particular characteristics of students who completed the study compared those who did not. Therefore, it was assumed that attrition was due to random factors, and not to any systematic bias.

Research Design

An experimental, equivalent-control-group design was used in this study (Campbell & Stanley, 1963). There was one composite experimental group (including students from twelve classroom groups) and one composite control group (including students from twelve classroom groups) for the primary analyses. Students in both groups received pre-testing and post-testing. The research design implementation is shown in Figure 3-1.

Measurements

All students in both conditions were given the ALCS, GABS, and TGR at approximately the same times before and after the intervention. The majority of students completed all of the assessment instruments within a five to fifteen minute time-span. The order of presentation of the instruments to the students was the same on all occasions to avoid order effects across groups.

The ALCS consists of a single scale comprised of 28 True-False items. Average completion time for the ALCS is under 5 minutes. The individual items are declarative statements, including 26 stated positively and 2 stated negatively. For scoring purposes, 17 items are weighted one for a “positive” response and zero for a “negative” response. Eleven items are weighted as one for a negative response and zero for a positive response. The total score is computed by summing the item response weights. The ALCS has a score range of zero to 28. Higher scores indicate a more *externalized* locus of academic control.

The GABS Rationality and Need for Achievement subscales each have nine items with positive or negative wording (e.g., “I think *a*, but I also think *b*...” or “I do not *x*, but I do *y*.”). Positively stated items are weighted one point on the scale to which the item is assigned. The GABS-R scale is considered to reflect “rational” thinking (i.e., presumed evidence of effective thinking) in a general context centering upon the individual’s self-esteem and social worthiness, while the GABS-NA is considered to reflect “irrational” thinking in the form of

“demandingness” contingent upon one’s intended accomplishments. The GABS-R and GABS-NA subscales were used as outcome measures in this study.

The TGR consists of a single scale containing 18 true-false “checkbox” items, five multiple-choice items, and two write-in items. All items are positively stated. The true-false checkbox items direct the respondent to “check off all of the following” courses or tests that are required for graduation. Seven of the checkbox items are weighted as one point for correctly identifying courses or tests required for Florida high school graduation, and the other 11 are weighted as one point for (correctly) **not** identifying the course as a graduation requirement. The seven multiple-choice items are objectively scored and five of the items share a set of four response choices. The item stems are scenarios describing a hypothetical senior’s GPA and test scores. The respondent must determine which type of certificate or diploma the hypothetical student is eligible to receive. One point is given for the correct response and zero is given for any of the three incorrect responses. The remaining two multiple-choice items ask the respondent to choose the GPA required for high school graduation (one point for the correct answer) and the GPA under which a student is considered “in jeopardy” of not graduating (one point for the correct answer). The possible score range for the TGR is 0 to 25.

Intervention

The intervention consisted of an interactive, electronic storybook which required about twenty to thirty minutes to read, on a computer. The story was interactive because of its “branched” plot line which made possible multiple endings. Students reading the story had the ability to influence the events of the plot by using the mouse to select and assign lines of dialog (including self-talk and words spoken to others) to the story’s main character. The choices reflected appropriate and inappropriate communications strategies (e.g., speaking and acting rudely or politely to others) and appropriate or inappropriate information-processing strategies

(e.g., reading or ignoring signage and rules and procedures). The choices made caused the main character of the story to act in ways that were adaptive or maladaptive, with a corresponding influence on the final outcome of the story, which could be either positive or negative. Students were asked to read the story several times, making different choices each time. After each reading, the computer program administering the story invited students to “process” the dramatic events of the plot by posing multiple-choice questions which called for the student to interpret specific events from a locus-of-control perspective. These questions were in the form of statements that modeled either rational or irrational self-talk, and the student was asked to choose the statement that seemed to best reflect his or her own thinking. Students also were asked to type several short paragraphs to summarize what happened in the story, to recall a time when something similar happened to someone they knew, and to comment whether such things could happen in real life. The computer program also tracked the outcome of each iteration of the story, either “positive” or “negative,” in terms of the plot developments and the story’s ending.

Research Participants

Principals of the respective schools were contacted and provided information about the study and a full description of the intervention, including details of the school board’s approval and copies of the Child Assent Script and Informed Consent documents. The cognitive basis and practical benefits for academic locus of control, dubbed “responsibility education,” were explained to principals. Based on this information, principals gave approval and provided the names of teachers of eligible classes who would be contacted.

Research Procedures

Activities necessary to allow conduct of the study in the Levy County public schools took place initially during the Fall of 2007. Processes for approval of the study (and specifically the informed consent procedures) by the University of Florida Institutional Review Board and by the

School Board of Levy County were implemented concurrently. Both approvals were needed before the actual research procedures for the study could be initiated. Approval to conduct the study in local high schools was received from the School Board of Levy County, and subsequently, by the principals of Williston High School, Bronson Middle/High School, and Chiefland High School. Permission was denied by one high school located in Alachua county and the principal of another high school did not respond to a written request for permission. Subsequently, a sufficient number of students was obtained in Levy County and other recruitment efforts ceased.

The actual research activities for this study were implemented in a time span beginning in the third week of January, 2007 and ending in the second week of December, 2007. As described to parents in the informed consent letter, the participating teachers at each school site read from the Child Assent Script to announce the study and then distributed the Informed Consent letter to all students. Students' parents then signed the Informed Consent Forms to indicate either "yes" or "no" for a student's participation. The forms were then returned to the student's teacher, who kept track of which students had received permission to participate. Next, arrangements were made with the school's computer lab manager to reserve a time for the class to participate in the study. Students whose parents did not give consent for participation did not receive assessments. However, as part of an intact classroom group meeting in the computer lab, they read the story assigned to the control group, which related to the American History curriculum, or worked on other assignments as directed by the teacher.

Upon receiving the permission forms, the collaborating teachers provided the participating students (i.e., ones having informed consent) with a randomly-generated computer "password" written on a sheet of paper. As described in the Informed Consent letter, the teacher retained

each student's password so that it could be re-used by the same student for the second session of the intervention, and the password sheets then were destroyed. Each password, consisting of a unique, five-letter gibberish word, served to match students' pre-test scores to their post-test scores without recording students' actual identities. As students logged in using their respective passwords to complete the pre-assessments, they were randomly assigned to either the experimental or control group condition, and either the experimental or control group story was shown. Next, both the experimental and control group subjects were shown a slide show presentation that described Florida high school graduation requirements. Students then completed the post-assessments.

This process was expected to require two full class periods in which the pre-test and electronic storybook would be completed during the first class period and the academic advisement and post-test would be completed during the second class period. In order to use time most efficiently, an electronic web page was created to manage the presentation of each part of the study for the students (Appendix D). The web page evaluated each student's progress continuously and required that he or she respond to at least 90% of the pre-test before being allowed to begin the experimental intervention. It also required that participation be maintained for at least 20 minutes before going on to the academic advisement unit. Similarly, students were required to undertake the academic advisement component before receiving the post-test, which must have been at least 90% completed before proceeding. Later analysis showed that only 0.326% of test items had been skipped; on average the questionnaires included in the final analysis had been 99.7% completed. Therefore, any missing datum was treated as reflecting the "undesirable" direction for that question.

Because of the study's computer-based format, students were offered flexibility to complete any missing lessons or assessments at a later time. However, only one student chose this option. Informed consent procedures were conducted during regular class time, not during the study itself. At two of the schools, an incentive was offered in the form of a pizza party, at a later date, for students who participated. Consistent with IRB policy, the informed consent letter stated that students could become eligible to receive an incentive even if they did not complete both parts of the study.

As noted, following the story reading and before completing the post-assessments, students in both conditions viewed a brief slide show presentation of the Florida high school graduation requirements. Although likely valuable for all students regardless of type of participation in the experiment, the knowledge gained from the slide show should have had special impact for students who received the intervention. That is, if the intervention increased their internal academic locus of control, their attitudes should have had a greater relationship to academic self-awareness (as assessed by the ALCS and TGR, respectively). Because this construct was assessed from objective knowledge of graduation requirements (i.e., the TGR), students in the experimental and control conditions must have had at least some exposure to these requirements.

Data Analyses

Analysis of covariance (ANCOVA), with pretest scores as the covariates, was the primary data analytic method for this study. The ANCOVA procedure gains increased statistical power by using a covariate to account for variance in the dependent variable. Null hypotheses 1, 2, 3, and 4 were evaluated using ANCOVAs computed for rational belief systems (i.e., GABS-R and GABS-NA scores), locus of control (i.e., ALCS scores), and academic self-awareness (i.e., TGR scores), respectively. Null hypotheses 8, 9, 10 and 11 used ANCOVA to test for the four

outcome measures as well as a gender interaction effect, and null hypotheses 12, 13, 14 and 15 tested for a race interaction effect.

Null hypotheses 5, 6, and 7 were evaluated through creation of nine (Pearson product-moment) inter-correlation matrices of post-test GABS-NA, ALCS, and TGR scores, respectively. Three matrices were developed for each scale. The first matrix encompassed scores from all students, the second encompassed scores (only) from students in the experimental group, and the third encompassed scores (only) from students in the control group.

Methodological Limitations

The primary methodological limitations for this study were related to motivational factors, for both the cooperating school counselors and the student participants. The success of the intervention was in large part contingent upon the motivation of the participating teachers to coordinate classroom management procedures for the study, a factor that depended in part on the ease with which the intervention could be integrated with existing teacher duties and classroom expectations. While the participating teachers did receive modest gifts in appreciation for their assistance, these were not promised at the outset, and quite likely would not have proven a motivating factor in any case. However, it certainly was to teachers' advantage for the intervention to be successful, because it would improve the academic climate in their respective classrooms. In addition, the collaborating teachers were accomplished professionals, selected from among those who value research, professional collaboration, and enhancement of the school community in general. Therefore, inappropriate motivation among the collaborating teachers was likely minimized.

The motivation to participate in the intervention successfully likely varied widely among the student participants. Some likely participated readily because the potential benefits were readily apparent to them, or because they were eager to avoid other class work. Others

participated, at least initially, hesitatingly because they did not perceive immediate personal benefit. Others may have participated because of the pizza incentive at the two schools where this was offered. However, one objective of the intervention was to help students recognize the benefits of having certain types of information and acting in appropriate ways based on that information. Therefore, the intervention, in part, should have served as a participation motivation factor for the students. Therefore, it was likely that lack of appropriate motivation also was minimized for participating students.

Table 3-1. Research Design

		Pre-Test	Intervention	Post-Test
R	E ₁	O	X*	O
R	E ₂	O	X	O
R	E ₃	O	X	O
R	E ₄	O	X	O
R	E ₅	O	X	O
R	E ₆	O	X	O
R	E ₇	O	X	O
R	E ₈	O	X	O
R	E ₉	O	X	O
R	E ₁₀	O	X	O
R	E ₁₁	O	X	O
R	E ₁₂	O	X	O
R	C ₁	O	Y**	O
R	C ₂	O	Y	O
R	C ₃	O	Y	O
R	C ₄	O	Y	O
R	C ₅	O	Y	O
R	C ₆	O	Y	O
R	C ₇	O	Y	O
R	C ₈	O	Y	O
R	C ₉	O	Y	O
R	C ₁₀	O	Y	O
R	C ₁₁	O	Y	O
R	C ₁₂	O	Y	O

*X is the actual intervention using the electronic storybook. **Y is an electronic storybook of similar duration, but with unrelated content.

CHAPTER 4 RESULTS

The purpose of this study was to evaluate the effectiveness of the electronic storybook intervention intended to enhance a student's academic locus of control, rationality, and need for achievement. A secondary purpose of the study was to measure the extent to which participation in the intervention mediated academic self-awareness, as defined by knowledge of local and Florida graduation requirements.

Resultant Sample

Of the 177 students who completed both parts of the research procedures, 35 described themselves as sophomores, 119 as juniors, and 23 as seniors. One-hundred five (105) were recruited from American History classes at Williston and Bronson High Schools, while 72 were recruited from a junior-level, elective class in business technology at Chiefland High School. All of these schools are located in Levy County, Florida. Twenty-one students were African-American, two were Native American, 14 were Hispanic-American, four were Asian-American, 129 were Caucasian-American, and six self-identified as mixed ethnicity. One participant did not respond to this question. One hundred twenty-two indicated that they knew their exact number of high school credits earned, while 54 reported that they did not. As students logged for the intervention, they were randomly assigned by the computer to one of the study conditions; ultimately, 82 were assigned to the control condition and 95 to the experimental condition from among those who participated fully.

Data Analyses

Analyses of co-variance (ANCOVA) were used to investigate null hypotheses H_{01} through H_{04} . First, Pearson coefficients were calculated to establish the relationship between pre- and post-measures of each measure used in the study (i.e., GABS-R, GABS-NA, ALCS, and

TGR). Correlations for all pre-post measures for all students were statistically significant at the $p = .001$ level as shown in Figure 4-1. Therefore, use of the pre-test score as a covariate for the post-test analyses was appropriate.

Next, ANCOVAs were computed for each of the measures to obtain main-effect values of GABS-R, GABS-NA, ALCS, and TGR by condition. No statistically significant differences were found between participants in the experimental and control conditions (Table 4-6).

Therefore, null hypotheses H_{01} , H_{02} , H_{03} and H_{04} were not rejected.

To investigate null hypotheses H_{05} , H_{06} and H_{07} , Pearson product-moment correlation coefficients were calculated for the post-measures of GABS-NA, ALCS and TGR, in both conditions separately and combined. The correlation between irrational need for achievement and academic self-awareness was statistically significant, so null hypothesis H_{06} was rejected. The correlation between academic locus of control and academic self-awareness also was significant, and therefore hypothesis H_{07} also was rejected. Hypothesis H_{05} was not rejected because there was not a statistically significant correlation between locus of control and irrational need for achievement.

Next, to investigate null hypotheses H_{08} through H_{011} , gender-by-participation interactions were investigated in the model, again using pre-test scores as covariates. The results presented in Table 4-6 show that there were no statistically significant interactions for either level of the gender variable. Therefore, null hypotheses H_{08} , H_{09} , H_{010} , and H_{011} were not rejected. Race by participation interactions were modeled in the same way for null hypotheses H_{012} through H_{015} . Note that the reduction in total degrees of freedom reflects one participant who did not answer the ethnicity question. No significant interactions were found. Therefore, null hypotheses H_{012} , H_{013} , H_{014} and H_{015} were not rejected.

Post Hoc Analyses

As part of the study, all participants received an academic advisement lesson considered appropriate for all students. It had been predicted that an increase in academic responsibility, presumably gained through the intervention, would enhance students' learning gains on the academic advisement measure. However, ANCOVA failed to show statistically significant differences between post-test scores on the TGR. Consequently, H_04 was not rejected. Thereafter, a *post hoc* analysis was undertaken to determine whether the academic advisement itself had been effective, i.e., to inform as to whether academic responsibility was a mediator of academic awareness in both groups. A dependent measures *t*-test was used to compare the means of participants' TGR pre- and post-scores as shown in Table 4-8. The differences were statistically significant for both groups.

ANCOVA similarly failed to show gender-by-condition interaction on the TGR and therefore null hypothesis H_011 was not rejected. However, again, in order to better understand the role of the academic advisement on TGR scores, differences in group means on the basis of gender alone were examined for each group. In the experimental group, an independent *t*-test showed no significant statistically difference between males and females, but in the control group, male and female scores differed significantly (Table 4-7).

Table 4-1. Participant demographics by gender and ethnicity

Ethnicity	Control		Experimental	
	Male	Female	Male	Female
African-American	4	2	9	6
Native-American	0	0	0	2
Hispanic-American	3	2	4	5
Asian-American	1	0	2	1
Caucasian-American	33	35	35	26
Mixed ethnicity	2	0	2	2

Table 4-2. Ages of participants by class standing

Grade level	Number of Participants		Mean Age (Years)	
	Control	Experimental	Male	Female
Sophomore	19	16	15.5	15.8
Junior	49	70	16.4	16.6
Senior	14	9	17	17.4

Table 4-3. Post-test means by gender and ethnicity (Part 1)

Ethnicity	Control				Experimental			
	Male		Female		Male		Female	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)
African-American								
TGR	14.25	(2.99)	17.50	(4.95)	16.00	(3.50)	12.17	(1.94)
ALCS	12.75	(3.77)	9.00	(1.41)	12.00	(3.12)	11.50	(1.76)
GABS-R	6.00	(2.58)	6.50	(2.12)	6.89	(1.27)	7.33	(1.97)
GABS-NA	4.50	(1.29)	6.00		3.56	(2.07)	4.00	(1.26)
Native-American								
TGR							14.00	(1.41)
ALCS							12.50	(2.12)
GABS-R							6.50	(.71)
GABS-NA							5.00	(1.41)
Hispanic-American								
TGR	16.00	(2.65)	19.50	(.71)	15.25	(2.22)	17.40	(1.52)
ALCS	13.67	(3.21)	16.00	(2.83)	10.50	(3.87)	14.00	(4.06)
GABS-R	7.33	(1.15)	6.50	(.71)	7.75	(1.50)	7.80	(1.10)
GABS-NA	2.67	(3.06)	3.50	(2.12)	3.75	(.96)	4.00	(.71)

Table 4-4. Post-test means by gender and ethnicity (Part 2)

Ethnicity	Control				Experimental			
	Male		Female		Male		Female	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Asian-American								
TGR					15.00	(5.66)		
ALCS					12.00	(8.49)		
GABS-R					6.00	(1.41)		
GABS-NA					3.50	(.71)		
Caucasian-American								
TGR	13.76	(3.85)	16.57	(3.70)	16.03	(3.17)	16.38	(3.71)
ALCS	12.36	(4.37)	10.66	(3.70)	11.94	(4.18)	9.92	(4.05)
GABS-R	7.24	(1.35)	6.97	(1.64)	6.80	(1.92)	7.38	(1.63)
GABS-NA	3.79	(1.54)	3.26	(1.77)	3.40	(1.79)	3.62	(2.00)
Mixed Ethnicity								
TGR	20.50	(3.54)					17.50	(3.54)
ALCS	7.50	(.71)					9.50	(4.95)
GABS-R	7.50	(.71)					9.00	(.00)
GABS-NA	4.50	(.71)					5.00	(1.41)

Table 4-5. Correlation matrices for TGR, ALCS, GABS-NA

Group		TGR_Post	ALCS_Post	GABS_NA_Post
Both Groups				
	TGR_Post	1		
	<i>N</i>	-		
	<i>P</i>	-		
	ALCS_Post	-.165	1	
	<i>N</i>	177	-	
	<i>P</i>	.03	-	
	GABS_NA_Post	-.070	-.075	1
	<i>N</i>	177	177	-
	<i>P</i>	.36	.32	-
Experimental Group				
	TGR_Post	1		
	<i>N</i>	-		
	<i>P</i>	-		
	ALCS_Post	-.111	1	
	<i>N</i>	95	-	
	<i>P</i>	.28	-	
	GABS_NA_Post	-.202	-.139	1
	<i>N</i>	95	95	-
	<i>P</i>	.049	.18	-
Control Group				
	TGR_Post	1		
	<i>N</i>	-		
	<i>P</i>	-		
	ALCS_Post	-.216	1	
	<i>N</i>	82	-	
	<i>P</i>	.051	-	
	GABS_NA_Post	.057	.002	1
	<i>N</i>	82	82	-
	<i>P</i>	.61	.99	-

Table 4-6. Analyses of covariance

Ethnicity		Main Effects			Interaction		
		<i>df</i>	F	<i>p</i>	<i>df</i>	F	<i>p</i>
GABS-R	By Condition	(1, 177)	.79	.35			
	Condition x Gender				(1, 177)	3.71	.056
	Condition x Race				(4, 176)	.58	.68
GABS-NA	By condition	(1, 177)	1.64	.20			
	Condition x Gender				(1, 177)	2.13	.15
	Condition x Race				(4, 176)	1.06	.38
ALCS	By Condition	(1, 177)	1.11	.29			
	Condition x Gender				(1, 177)	1.36	.25
	Condition x Race				(4, 176)	.24	.91
TGR	By Condition	(1, 177)	.03	.87			
	Condition x Gender				(1, 177)	3.51	.063
	Condition x Race				(4, 176)	.85	.49

Table 4-7. Independent samples *t*-tests of TGR by gender and participation

	Control		Experiment	
	Male	Female	Male	Female
Mean	14.349	16.769	15.906	15.881
Std. Dev.	3.872	3.660	3.084	3.507
N:	43	39	53	42
Difference		2.420	Difference	.025
<i>t</i>		2.901	<i>T</i>	.036
Eta Squared		.093	Eta Squared	.000
<i>p</i>		.005	<i>P</i>	.971

Table 4-8. Paired *t*-test comparing all participants' pre- and post- TGR scores

	TGR_Pre	TGR_Post
Mean:	14.718	15.712
Std. Dev.:	3.071	3.587
N Pairs:	177	
Mean Difference:	-.994	
SE of Diff.:	.239	
Eta Squared:	.089	
<i>t</i> :	4.156	
<i>p</i> :	.000	

Table 4-9. Independent *t*-test of ALCS change scores comparing control and experimental

Condition	Control	Experimental
Mean:	.012	-.400
Std. Dev:	2.497	2.615
N:	82	95
Mean Difference:	.412	
T-Score:	1.068	
Eta Squared:	.006	
<i>p</i> :	.287	

Table 4-10. Independent t-test of GABS-R change scores comparing control and experimental

Condition	Control	Experimental
Mean:	-.146	.305
Std. Dev:	1.701	1.930
N:	82	95
Mean Difference:	.452	
T-Score:	1.639	
Eta Squared:	.015	
<i>p</i> :	.103	

Table 4-11. Paired *t*-test of ALCS_Pre with ALCS_Post for experimental group

Condition	ALCS_Pre	ALCS_Post
Mean:	11.758	11.297
Std. Dev.:	4.393	4.007
N Pairs:	91	
Mean Difference:	.462	
SE of Diff.:	.274	
Eta Squared:	.030	
T-Score:	1.685	
<i>p</i> :	.095	

Table 4-12. Independent *t*-test of control and experimental on ALCS_Post

Condition	Control	Experimental
Mean:	11.512	11.253
Std. Dev:	4.062	4.040
N:	82	95
Mean Difference:	.260	
<i>t</i> -Score:	.425	
Eta Squared:	.001	
<i>P</i> :	.671	

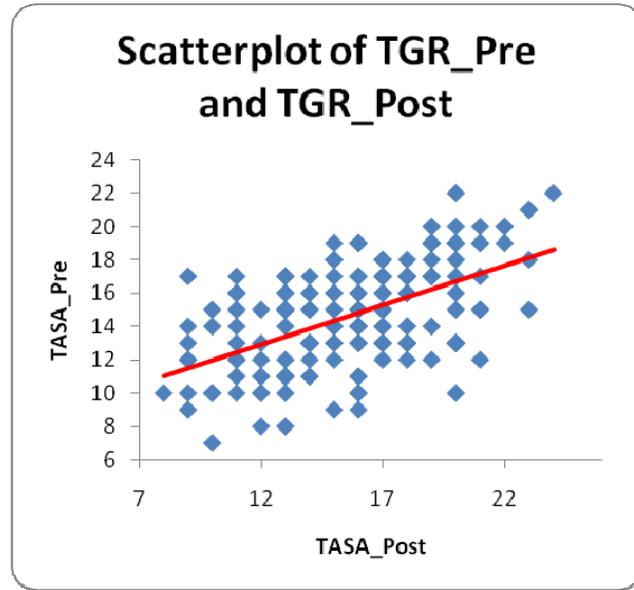
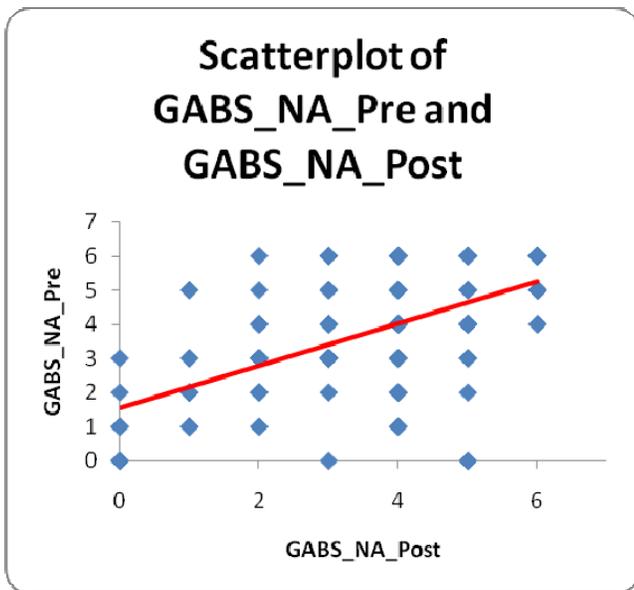
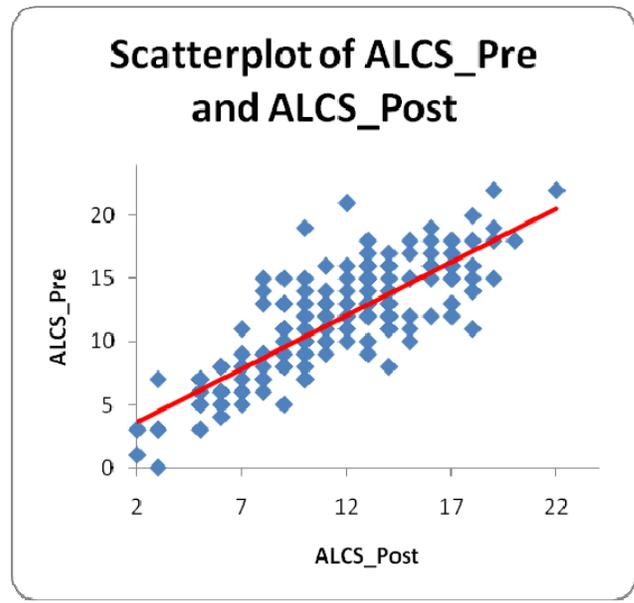
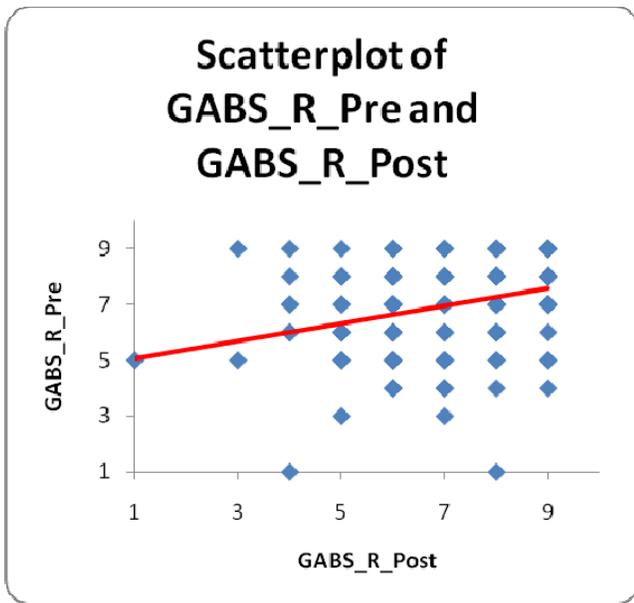


Figure 4-1. Pre- and post- measure correlations

CHAPTER 5 DISCUSSION

This research study investigated the impact of an electronic storybook intervention upon student thinking, attitudes and knowledge. Conclusions, implications, and recommendations from the results of the study are presented in this chapter.

Generalizability Limitations

The only groups for which males and females were represented in both the experimental and control conditions were Hispanic/Latino, African-American, and White. The proportions of students in each of these groups were not as originally sought, but were sufficient for ethnicity-based influences to be represented in the data. The proportions of male and female students likewise were not exactly as originally sought. However, again there was a sufficient number of each gender group in the study such that gender-based influences were represented in the sample. No effort was made to investigate other factors (e.g., socio-economic status) affecting the relevance of this study to the general population. Thus, although the sample did not fully represent all groups of students in schools, it was sufficiently diverse and substantive to represent high school juniors adequately.

Evaluations of Hypotheses

The rejection of H_{06} and H_{07} offers partial support for the theoretical linkage connecting locus of control, rational thinking, and academic awareness. Students with a more internalized locus of control (lower ALCS scores) tended to have higher TGR scores, indicating more knowledge of the Florida graduation requirements. This enhances the view that changes to student academic locus of control could be reflected in more productive academic advisement. On the other hand, students in the experimental group who had a higher irrational need for achievement (GABS-NA) tended to have lower post-test scores. Need for achievement had been

theorized to produce higher levels of personal stress as well as more academic achievement. Given that this negative correlation was observed only in the experimental group, it seems likely that the connection is related to factors present in the intervention rather than reflecting on the theoretical construction.

Although H_{06} and H_{07} were rejected, the 13 other null hypotheses were not rejected. In general, the analyses consistently failed to show significant differences between the control and experimental groups. Statistically significant interactions between the treatment and race or gender also were not found. However, ancillary analyses comparing change scores for the experimental and control groups revealed a tendency for scores to shift in the desirable direction. Table 4-9 shows academic locus of control scores lowering (i.e., more internal as intended) for the experimental group. Similarly Table 4-10 shows an increase in rationality scores. Although not statistically significant, these change scores tended to support the theoretical premises for the study.

The computer-based intervention for this study aided delivery of the intervention, but also impeded recruitment of participants. Burdens imposed upon teachers were greater than desired because of the redundancy of conducting computer-mediated intervention and assessment which necessarily required a paper-based, signed consent procedure. The study was streamlined to the greatest extent possible by automating assessment and intervention, eliminating the need for teachers or the interventionist to supervise students' work individually, but arranging to match student's pre-test and post-test scores while still maintaining anonymity, as described in the informed consent document. The rigorous experimental methodology and informed consent process thus created a burden for teachers far greater than the relatively more simple accountability steps that would accompany the implementation of a classroom guidance

program. Given that a goal of this intervention was to discover ways that developmental guidance programs can work with less direct oversight, in order that more students may be served, it should be noted that the experimental process did not fully resemble an anticipated implementation of an electronic counseling intervention.

The logistics of available technology also presented obstacles. While the study was designed with an alternate activity for non-participating students (so that intact classroom groups could be brought to the lab, thus consolidating supervision functions), in fact it was necessary in most cases to split the class because of an insufficient number of computer workstations. Thus, at two of the three schools, the researcher's presence was required to monitor the study. The inability to assemble whole groups of students in a computer lab, absent of technical problems, reflects to some extent on the challenges of implementing electronic instructional methodologies. Those challenges partly reflect the financial challenges of Florida's public schools, as they struggle to keep class sizes low and also to provide high-speed Internet services while stringently monitoring network traffic and filtering Internet content to ensure the safety of all children. The resulting scenario often involves students "doubling up," two per computer. Further, often students must wait for restoration of the network when service is temporarily suspended. While this factor impedes the evaluation of a scientific study, in practice network outages of several minutes at a time are commonly faced and accepted by students, limiting their disruptive impact on classroom interventions.

Two of the non-significant interaction values discovered are of particular interest. Examination of the group means shows that experimental-condition females of the three fully-represented ethnic groups (Hispanic, African-American, and White) had higher means than control-condition females of the same respective group on the Rationality measure. Additionally,

African-American and White males, the two largest ethnic groups, showed lower means in the control group compared to the experimental group. Thus, females may differ from males in ways that were not investigated in the study, for example, they may have had higher reading literacy that impacted their successful interaction with the intervention. Anticipating this threat, the intervention was designed so that each story, in its entirety, would be read aloud line by line to participants, thus moving toward accommodating different levels of reading proficiency. However, during the study it was found that the computer lab's Internet connection speed was sometimes too slow to load the audio tracks in real time despite careful preparations to compress the bit rate of the audio stream. This may have led some students to turn off their headphones. To the extent the intervention did not work as intended because of lack of Internet bandwidth, variance was introduced into the delivery of the intervention; in turn, such variance reduces the possibility of statistical significance. Finally, those parts of the intervention designed as processing activities (e.g., reflection questions) required students to read and select among the question stems, and those parts of the study were not narrated.

It also was observed that students participating in the study became aware of their status in either the experimental or control group. Although the control group treatment used the same format as the experimental treatment, its visual appearance was different. The experimental treatment was illustrated with bright, colorful clip art, while the story read to the control group consisted of selections from Mark Twain's *Roughing It*, a historical novel in the public domain illustrated with digitized black-and-white sketches from the work's initial 1872 edition. Thus, students became aware quickly of the difference between the two treatments. Upon questioning, it was explained to the students that their assignment to read a particular story was random and made by the computer, that they were making contributions to research (and earning eligibility

for an incentive, if applicable) no matter which story they read, and that the best course of action was simply to read along and participate. However, it is possible that males in the control group may have developed feelings of resentful demoralization or futility which lead them to inattentiveness during the academic advisement lesson. Indeed, the statistically insignificant yet decreased change scores on the need for achievement subscale (see Table 5-1), an area not targeted by the study, seem consistent with the de-motivating effect of a control intervention viewed as pointless or irrelevant.

Conclusion and Interpretations

The intervention to enhance academic locus of control, as presently formulated, was not effective. Considering the linkage between academic locus of control and academic self-awareness that was demonstrated by the study, it is likely that the lack of significant outcomes can be attributed to factors inherent to the intervention, rather than the absence of a tenable theoretical foundation. The fully-randomized experimental design of this study introduced a level of complexity not commonly experienced by the students who participated. An alternative intervention was implemented for the control group, to help control for the possibility that the score differences were due to the format of the experimental treatment rather than its content. However, its development, as well as the development of an administrative structure to manage informed consent and assessment procedures, consumed considerable resources that would not be allocated toward enhancing the experimental treatment – a testament to the difficulty of conducting rigorous research in applied settings.

Some evidence of effectiveness in the intervention's academic advisement subcomponent was found through the *t*-tests that revealed higher TGR scores in both groups. Although the intervention overall was not effective, considering that the academic advisement subcomponent was made in part using technologies available to many school counselors (i.e., Microsoft

Powerpoint), the results, however tentative, may be taken as evidence for the benefits of technology competency training in counselor education programs. Furthermore, the use of an electronic assessment manager was demonstrated effective, as evidenced by the fact that the majority of participants logged in and completed all assessments and the intervention using only the password supplied by the classroom teacher, by following the prompts on the web site. The researcher did not distribute passwords, and the only instruction given to students was the directive to scroll down while viewing the lengthy informed consent document. Therefore, the electronic assessment manager was accessible to 11th-grade regular program students.

The experimental treatment, as implemented in this study, is not sufficiently developed for use by school counselors. While it is not presented here for the purpose of training future counselors, it does serve as a reminder of the need for professional school counselors to determine the research basis of commercially-available curricula that are purported to enhance the interpersonal and/or moral reasoning skills of young people. Counselor preparation programs accredited by the Council for Accreditation for Counseling and Related Educational Programs (CACREP) include training in research methods and statistical procedures; this background will continue to guide school counselors in the evaluation of research claims. Professional school counselors should know how to interpret, for example, *t*-scores and F-statistics that attain statistical significance at the $\alpha = .10$ level, of which several were found in this study.

While this intervention did not have the desired results, other brief school-counseling interventions have proven effective to implement on a wide scale and have demonstrated effectiveness helping students adapt to high school academics (e.g., Brigman et al., 2007; Webb et al., 2005; Brigman & Campbell, 2003). Thus, school counselors should continue to seek brief, effective interventions that can be replicated across classroom settings. This study demonstrated

some effectiveness for a brief academic advisement unit that can be conducted in minimal time and, due to the electronically pre-packaged nature of its presentation, even could be conducted without the actual presence of a school counselor. Therefore, school counselors should consider brief interventions in general as a desirable for further research, especially when the number of students to be served prohibits direct interaction between a school counselor and each student. Direct collaboration with teachers, as modeled in this study, can be a path leading to student learning gains in the areas of personal development and academic achievement.

Recommendations

Future studies of the academic advisement subcomponent should attempt to identify any reactive effects of the pre-test, possibly by making comparisons with a control group, or perhaps the more practical alternative of measuring with the pre-test only half of the participants and then comparing post-test scores between those who pre-tested and those who did not. Future studies also should examine gender-based differences, in particular to determine whether females experience greater learning gains than males from a computer-administrated counseling intervention. In particular, it remains to be investigated whether differences in scores by gender reflect factors inherent in the intervention (such as appeal or entertainment value) or other factors such as reading literacy.

The computer-based learning format remains popular with teachers because of low preparation time, curriculum implementation flexibility (e.g., students can "double up" on a computer if space is limited), and spontaneity. In contrast, scientific research involving computer-based learning activities has none of these advantages. Further, because time to distribute informed consent paperwork was an obstacle for collaborating teachers, development of a signature-less system of informed consent may open the door for future studies to survey a larger or remote population with whom the researcher has no face-to-face contact. Such a system

might work by e-mailing a password to the parent or guardian in advance of students working on the intervention.

Future research also should select an experimental design that will facilitate the recruitment of students, reduce the potential for resentful demoralization, and lighten the burden upon teachers. In this study, random assignment to the control group was simplified because of the electronic delivery mechanism, but it may have underlain undesirable results overall. A different method of reporting control results, or elimination of the control group, may prove more productive. A repeated-measures design, while less able to account for validity threats, can achieve statistical significance with fewer participants, as evidenced in this study by the comparison between academic locus of control pre- and post-scores for the experimental group; while not significant the probability of Type I error was lower than the same comparison comparing both groups using the ANCOVA method. This can be understood conceptually by considering that a paired samples *t*-test, as utilized in the repeated-measures design, only establishes the probability that any changes are significant, while the ANCOVA additionally calculates the probability that the difference is attributable to experimental condition. Again, considering the relative absence of environmental factors likely to have significantly impacted student's academic locus of control in the brief time between pre-test and post-test, a control group may not be necessary at the same school site . Instead, the control group could be eliminated, or alternatively, control group participants could be recruited at another school in another district. Those students would complete only the assessment instruments without participating in any (kind of) intervention, which would remove the possibility of distractions or demoralization potentially experienced by those in the control condition. Matching pre-test and post-test scores would be greatly simplified for control group participants who complete paper-

and-pencil assessments (as opposed to computer-administered assessment and intervention) and permit use of the ANCOVA procedure for this modified design.

One of the major burdens upon teachers in this study was the responsibility to maintain custody of students' passwords. Accordingly, recruitment may be enhanced by abandoning the repeated-measures design altogether and making group comparisons. This would simplify data collection procedures and eliminate some of the logistical burdens experienced by teachers. Comparison of group means has relatively less statistical power. However, statistical significance might be achieved with a much larger number of participants. Such a simplified procedure might also find appeal with distant schools and districts, particularly if the intervention is designed as a freestanding curriculum and presented in terms of its effectiveness as a resource for all students. The intervention could be designed such that the researcher would not be present at any school site, thus eliminating the burden of matching pre-test and post-test scores. Teachers would be invited to try out the intervention at appropriate times rather than only those times convenient for the purposes of timing pre- and post-assessment. The resources formerly spent maintaining the fully-experimental design instead could be applied to refining the intervention itself and allocating more resources to enhance the level of technical quality and content. This in turn could be expected to lead to better results. This step would effectively move the electronic storybook intervention through transition from being a locally-implemented study to becoming a high-quality, regional or statewide resource providing Florida's students with a unique avenue for personal and academic development. Ultimately, this model perhaps best matches the ASCA vision of serving the greatest number of students.

Table 5-1. Independent *t*-test of GABS-NA change scores comparing control and experimental

Condition	Control	Experimental
Mean:	-.366	.021
Std. Dev:	1.427	1.523
N:	82	95
Mean Difference:	.387	
T-Score:	1.735	
Eta Squared:	.017	
<i>p</i> :	.084	

APPENDIX A
INFORMED CONSENT: ORIGINAL APPROVED (OPTICAL SCAN)

January 1, 2007

Dear Parent(s) or Guardian(s):

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2007-U-001
Use Through 01/11/2008 (Revised 8/27/07)

I am a doctoral student in a program in the Department of Counselor Education at the University of Florida. My doctoral program and research supervisor is Dr. Larry Loesch. I have worked for two years as a high school guidance counselor in Levy County public schools. For my research in my doctoral program, I am trying out and evaluating a new method of teaching students how to be more successful in school. I am asking for your child's help in this research.

The purpose of my study is to find out what students can learn about being successful in school by reading a few short stories on a computer. All students who participate in the study would have their parents' permission. Students who are in the study would work on the lesson in the computer lab, which consists of filling out an online survey then reading a selection of fictional short stories. The survey is anonymous; no one will know who has written what. After finishing the survey and the reading assignment, your child would answer some questions about the reading on the computer. Next, your child would receive a lesson about the Florida high school graduation requirements. This lesson is appropriate for all high school juniors. Finally, your child would take another survey to find out if his or her thinking about school success, stress, and work habits has changed, as well as a test to measure how much was learned from the lesson about the Florida graduation requirements.

This series of lessons requires about three class periods. Your child's American History teacher has set aside this time so that all students will have the chance to participate. This lesson also has been planned into the curriculum so that students do not fall behind in American History. To make sure that all students have a chance to participate, students will be given a password so they can access the online survey and lesson outside of class time.

Students are not required to participate in this study, and even students who start can choose to leave the study later without any penalty. Students who do participate in the study can receive extra credit points from the teacher; the teacher will tell the class how many points are offered.

Students who participate in the study may also learn some helpful information about Florida's graduation requirements. They also may develop more positive attitudes toward school. Of course, by participating in the study they are also helping to advance scientific knowledge about learning, which may help other students later. You should be aware that one of the short stories used in this lesson is about a teenager who is hospitalized after an auto accident. If you believe this kind of material is inappropriate for your child, your child should be advised not to participate in the study. No other risks or negative consequences are anticipated to result from participation in this study.

This study will be kept confidential to the extent permitted by law. If you give

APPENDIX B
INFORMED CONSENT: VARIATION WITH INCENTIVE

January 1, 2007

Dear Parent(s) or Guardian(s):

I am a doctoral student in a program in the Department of Counselor Education at the University of Florida. My doctoral program and research supervisor is Dr. Larry Loesch. I have worked for two years as a high school guidance counselor in Levy County public schools. For my research in my doctoral program, I am trying out and evaluating a new method of teaching students how to be more successful in school. I am asking for your child's help in this research

The purpose of my study is to find out what students can learn about being successful in school by reading a few short stories on a computer. All students who participate in the study would have their parents' permission. Students who are in the study would work on the lesson in the computer lab, which consists of filling out an online survey then reading a selection of fictional short stories. The survey is anonymous; no one will know who has written what. After finishing the survey and the reading assignment, your child would answer some questions about the reading on the computer. Next, your child would receive a lesson about the Florida high school graduation requirements. This lesson is appropriate for all high school juniors. Finally, your child would take another survey to find out if his or her thinking about school success, stress, and work habits has changed, as well as a test to measure how much was learned from the lesson about the Florida graduation requirements.

This series of lessons requires about three class periods. Your child's teacher has set aside this time so that all students will have the chance to participate. This lesson also has been planned into the curriculum so that students do not fall behind in class. Students who do not wish to participate are welcome to view an alternative lesson that has been prepared, related to the subject of American History. To make sure that all students have an opportunity to participate in the study, students will be given a password so they can access the online survey and lesson outside of class time.

Students are not required to participate in this study, and even students who start can choose to leave the study later without any penalty. Students who participate in the study will be eligible to share in refreshments consisting of pizza and Coke, at a time designated by the teacher. (Students do not need to participate on both days to be eligible.)

Students who participate in the study may also learn some helpful information about Florida's graduation requirements. They also may develop more positive attitudes toward school. Of course, by participating in the study they are also helping to advance scientific knowledge about learning, which may help other students later. You should be aware that one of the short stories used in this lesson is about a teenager who is hospitalized after an auto accident. If you believe this kind of material is inappropriate for your child, your child should be advised not to participate in the study. No other risks or negative consequences are anticipated to result from participation in this study.

This study will be kept confidential to the extent permitted by law. If you give permission for your child to participate in the study, he or she will be given a randomly-assigned password to take the survey and use the computer. The teacher will write down a list of students' names and their passwords (in case they forget them), and that list will be destroyed as soon as each student finishes the survey. Your child's responses to the survey will be anonymous and confidential. Results of the study will be reported for groups of students and not for individual students. No information will be collected that could be used to identify any student in the study.

If you have any questions about the study, please call me at (352) 486-5388, or my supervisor, Dr. Larry Loesch at (352) 392-0731, ext 225. Also, you can learn more about your child's rights as a research participant by contacting the UF IRB office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Sincerely,

Timothy Baker

If you agree for your child to participate in the study, please check the box below next to the "Yes," sign with today's date, and return this form to your child's teacher. (Keep the extra copy on the next page for your records.)

Yes, I would like for my child to participate. I have read this explanation of what the study is about, and I received a photocopy as well.

No, I do not want my child to participate.

Signed: _____ Date: _____
Parent / Guardian

2nd Parent / Witness Date: _____

APPENDIX C
CHILD ASSENT SCRIPT

Teacher-Presented
Child Assent Script

Students:

Someone from the University of Florida has asked if our class would participate in a study he is doing. The purpose of the study is to determine how a computer can be used better to teach students how to have successful attitudes about school.

On _____ and _____, I have arranged for our class to go to the computer lab. If you participate in the study, you would fill out a survey on the computer, then view a web page that contains some short stories for you to read. After you had read each story, you would answer some questions on the computer. The study is anonymous, which means that you will not have to provide your name, and the UF researcher will not know who filled out the surveys. Anyone who does not want to be part of the study will simply do a different lesson while we are in lab.

This study is not part of any class, so you won't lose points if you don't do it. No one "has to" be in this study, and even if you agree to be in the study, you can stop at any time. It's up to you. If you choose to participate, you can share in pizza and Coke which will be brought in on _____. Also, you may learn some important information that will help you do better in school. In a way, you may also help other students, because the results of this study will be used to help develop new teaching methods. Before you decide, please be aware that one of the stories that you may be asked to read for the study is about a teenager who suffers an accident and is badly hurt. I want you to know this now, so that you can decide not to participate if you do not want to read that kind of story.

For those of you who would like to participate, I am giving out an *Informed Consent* form. Take this form home and have your parent read it, sign it, and check "Yes" in the box. Return **ONE** copy to me for tomorrow's class. Your parent will keep the other copy. If you have any questions, the researcher's phone number is on the *Informed Consent* letter, and you or your parents can call during business hours to ask anything you would like to know about this study.

APPENDIX D ELECTRONIC INTERVENTION PROGRESS MANAGER

Tim Baker's Research Study - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grove.ufl.edu/~tdbaker/study/

Are you participating in the study?

Please check all that apply to you:

- The teacher explained to me what the study is about, and I want to participate.
 - I have returned the signed parent permission form, and received a password.
- I will not participate, either because I do not want to or because I did not return the signed consent form.

This research has been approved by the University of Florida, Institutional Review Board (IRB2). The Informed Consent document presented here is an electronic version of the original. [[Click here to view an optical scan of the approved document.](#)] [[As presented to students by the teacher.](#)]

Tim Baker's Research Study - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grove.ufl.edu/~tdbaker/study/

Are you participating in the study?

Please check all that apply to you:

- The teacher explained to me what the study is about, and I want to participate.
 - I have returned the signed parent permission form, and received a password.
- I will not participate, either because I do not want to or because I did not return the signed consent form.

Scroll to the very bottom of this page and type your password:

Informed Consent

January 1, 2007

Dear Parent(s) or Guardian(s):

I am a doctoral student in a program in the Department of Counselor Education at the University of Florida. My doctoral program and research supervisor is Dr. Larry Loesch. I have worked for two years as a high school guidance counselor in Levy County public schools. For my research in my doctoral program, I am trying out and evaluating a new method of teaching students how to be more successful in school. I am asking for your child's help in this research.

The purpose of my study is to find out what students can learn about being successful in school by reading a few short stories on a computer. All students who participate in the study would have their parents' permission. Students who are in the study would work on the lesson in the computer lab, which consists of filling out an online survey then reading a selection of fictional short stories. The survey is anonymous; no one will know who has written what. After finishing the survey and the reading assignment, your child would answer some questions about the reading on the computer. Next, your child would receive a lesson about the Florida high school graduation requirements. This lesson is appropriate for all high school juniors. Finally, your child would take another survey to find out if his or her thinking about school success, stress, and work habits has changed, as well as a test to measure how much was learned from the lesson about the Florida graduation requirements.

Done

Tim Baker's Research Study - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grove.ufl.edu/~tdbaker/study/

Google

This study will be kept confidential to the extent permitted by law. If you give permission for your child to participate in the study, he or she will be given a randomly-assigned password to take the survey and use the computer. The teacher will write down a list of students' names and their passwords (in case they forget them), and that list will be destroyed as soon as each student finishes the survey. Your child's responses to the survey will be anonymous and confidential. Results of the study will be reported for groups of students and not for individual students. No information will be collected that could be used to identify any student in the study.

If you have any questions about the study, please call me at (352) 486-5388, or my supervisor, Dr. Larry Loesch at (352) 392-0731, ext 225. Also, you can learn more about your child's rights as a research participant by contacting the UF IRB office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Sincerely,

Timothy Baker

If you are a student whose parent has given permission for you to participate in the survey, you may begin now by typing the password, below, then clicking 'I agree.'

Enter Password: **I have read the instructions, and agree to participate.**

Privacy Policy and Security Notice: This web site does not collect any electronic information in a manner that could be used to identify visitors. This site does not use encryption technologies, therefore any information you provide could be observed by a third party while in transit.

This research has been approved by the University of Florida, Institutional Review Board (IRB2). The Informed Consent document presented here is an electronic version of the original. [[Click here to view an optical scan of the approved document.](#)] [[As presented to students by the teacher.](#)]

Done

Tim Baker's Research Study - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grove.ufl.edu/~tdbaker/study/

Google

You are logged in as TEST1.

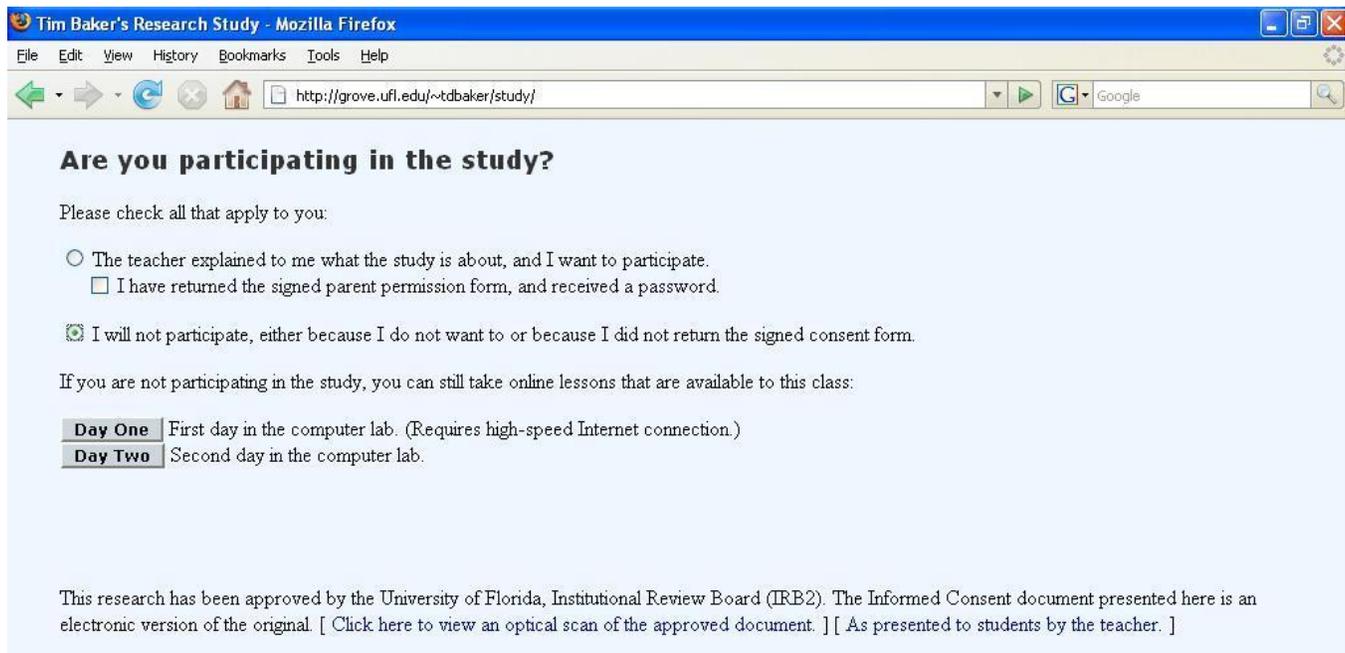
Here is your status: (Checked boxes are steps that you've already completed)

- Pre-survey
- Experimental lesson (requires high-speed Internet connection)
- Academic advisement unit - FL graduation requirements
- Post-survey

Your next step is to take the post-survey. [Click here to begin.](#)

You can print your pizza coupon now, but you will only receive one serving. If you print your coupon after you finish the rest of the study, you will receive a larger serving. To print the coupon now, [click here](#). All students will claim their pizza at the same time.

Any students who did not participate in the study were offered an alternate activity:



The screenshot shows a Mozilla Firefox browser window titled "Tim Baker's Research Study - Mozilla Firefox". The address bar contains the URL "http://grove.ufl.edu/~tdbaker/study/". The page content is as follows:

Are you participating in the study?

Please check all that apply to you:

- The teacher explained to me what the study is about, and I want to participate.
 - I have returned the signed parent permission form, and received a password.
- I will not participate, either because I do not want to or because I did not return the signed consent form.

If you are not participating in the study, you can still take online lessons that are available to this class:

- Day One** First day in the computer lab. (Requires high-speed Internet connection.)
- Day Two** Second day in the computer lab.

This research has been approved by the University of Florida, Institutional Review Board (IRB2). The Informed Consent document presented here is an electronic version of the original. [[Click here to view an optical scan of the approved document.](#)] [As presented to students by the teacher.]

APPENDIX E

ELECTRONIC ASSESSMENT INSTRUMENT

Pre-Survey - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grove.ufl.edu/~tdbaker/study/

Pre-Survey

Please answer the survey questions below. When you are done, click on the button at the bottom of this page to submit your survey. (Sorry, but after submitting your survey, it will not be possible to change your answers.)

Question 1.

1. Answer the following questions by clicking on the best answer.

Questions 1-5 ask about your personal characteristics. Remember that the information you provide will be kept anonymous to the extent permitted by law; you will not be identified from this survey.

Question 1. I am...

Female

Male

Question 2.

2. I am...

African-American

Native American

Hispanic-American

Asian-American

Caucasian-American

Mixed ethnicity

Question 3.

3. I am age...

14

15

Done

3. I am age...

14

15

16

17

18 or older

Question 4.

4. On my report card, it says that I am a...

Sophomore

Junior

Senior

Question 5.

5. I know exactly how many credits I have earned as of August 20, 2007...

Yes

No

Question 6.

6. For questions 6 through 31, choose the best answer:

Question 6. In order to graduate from high school, your cumulative GPA must be higher than

2.0

2.5

1.7

3.2

Question 7.

Question 7.

7. If your GPA is lower than _____, your report card will state you are "in danger of not graduating."

- 2.0
- 2.5
- 1.7
- 3.2

Question 8.

8. For questions 8 through 13, identify which of the following tests a student must pass in order to graduate. Answer "true" if the test is a graduation requirement, "false" if it is not.

(Assume that we are talking about a student scheduled to graduate no later than 2008, and who has not taken the ACT or SAT tests, and who is not trying to use an ACT or SAT score to substitute for a graduation requirement.)

Question 8. Grade 9 FCAT Reading

- True
- False

Question 9.

9. Grade 9 FCAT Math

- True
- False

Question 10.

10. Grade 10 FCAT Reading

- True
- False

Question 11.

11. Grade 10 FCAT Math

- True
- False

Question 12.

12. Grade 10 FCAT Writing+

- True
- False

Question 13.

13. Grade 11 FCAT Science

- True
- False

Question 14.

14. Choose the best answer:

Question 14. If a student finishes grade 12 with 25 credits (including all required courses), a 2.3 GPA and a best score of 290 on the Grade 10 Reading FCAT, what will he or she receive at graduation?

- They will receive a standard high school diploma.
- They will receive a Certificate of Completion.
- Nothing, because he or she will not be eligible to walk at graduation.
- There is not enough information to answer this question.

Question 15.

15. If a student finishes grade 12 with 24 credits (including all required courses), a 3.1 GPA, a best score of 301 on the Grade 10 Reading FCAT and

Question 15.

15. If a student finishes grade 12 with 24 credits (including all required courses), a 3.1 GPA, a best score of 301 on the Grade 10 Reading FCAT and a best score of 324 on the Grade 10 Math FCAT, what will he or she receive at graduation?

- They will receive a standard high school diploma.
- They will receive a Certificate of Completion.
- Nothing, because he or she will not be eligible to walk at graduation
- There is not enough information to answer this question.

Question 16.

16. If a student finishes grade 12 with 26 credits (including all required courses), a 3.8 GPA, a best score of 367 on the Grade 10 Reading FCAT and a best score of 400 on the Grade 10 Florida FCAT Writing+, what will he or she receive at graduation?

- They will receive a standard high school diploma.
- They will receive a Certificate of Completion.
- Nothing, because he or she will not be eligible to walk at graduation
- There is not enough information to answer this question.

Question 17.

17. If a student finishes grade 12 with 24 credits (including all required courses), a 1.95 GPA, a best score of 328 on the Grade 10 Reading FCAT and a best score of 317 on the Grade 10 Math FCAT, what will he or she receive at graduation?

- They will receive a standard high school diploma.
- They will receive a Certificate of Completion.
- Nothing, because he or she will not be eligible to walk at graduation
- There is not enough information to answer this question.

Question 18.

18. If a student finishes grade 12 with 24.5 credits, a 3.2 GPA, a best score of 301 on the Grade 10 Math FCAT and a best score of 320 on the Grade 11 Science FCAT, and has passed all required courses except for American Government, what will he or she receive at graduation?

- They will receive a standard high school diploma.
- They will receive a Certificate of Completion.

Question 19.

19. For questions 19-30, identify which of the following courses a student must pass in order to graduate.

Assume that we are talking about an 'average' student who has **not** played varsity sports, who has **not** played in a marching band, who has **not** taken college dual enrollment classes, and who is scheduled to graduate **no later** than 2008. Also, the question asks which courses are needed to graduate – not to get scholarships, or to play basketball in college... *just to graduate!*

Answer 'true' if the course is **required** for graduation *and there is no substitute for it*. Answer 'false' if the course is not required or if it can be substituted by another course which is **not** listed here.

Question 19. Algebra I (or Alg. I-A and Alg. I-B)

- True
- False

Question 20.

20. Algebra II

- True
- False

Question 21.

21. American History (or Am. Hist. Honors)

- True
- False

Question 22.

22. Art 2/D (or Drawing and Painting)

- True
- False

False

Question 23.

23. Biology I

True
 False

Question 24.

24. Business Systems Technology (BST)

True
 False

Question 25.

25. Economics

True
 False

Question 26.

26. Liberal Arts Math

True
 False

Question 27.

27. Life Management Skills (LMS)

True

Question 28.

28. Personal Fitness

True
 False

Question 29.

29. Spanish I and II (or other foreign language)

True
 False

Question 30.

30. Team Sports I

True
 False

Question 31.

31. Answer questions 31 through 75 by bubbling in the attached response sheet. Mark only one response per question.

There are no 'correct' answers to these questions; just answer according to your first impression.

Question 31. High school grades most often reflect the effort you put into classes.

True
 False

Question 32.

32. I am in high school because it is expected of me.

Question 33.

33. I decide my own career goals.

- True
- False

Question 34.

34. Some people have a knack for writing term papers, while others will never write well no matter how hard they try.

- True
- False

Question 35.

35. I have taken at least one course just because it was an easy good grade.

- True
- False

Question 36.

36. Teachers sometimes make up their minds about you, and then no matter what you do, you cannot change their opinion of you.

- True
- False

Question 37.

37. Some students, such as student leaders and athletes, get 'free rides' in some classes.

- True
- False

raise

Question 38.

38. I sometimes feel that there is nothing I can do to improve my situation.

- True
- False

Question 39.

39. I never feel really hopeless – there is always something I can do to improve my situation.

- True
- False

Question 40.

40. I would never allow social activities to affect my studies.

- True
- False

Question 41.

41. There are many more important things for me than getting good grades.

- True
- False

Question 42.

42. Studying every day is important.

- True

Question 43.

43. For some courses, it is not important to attend class every day.

- True
- False

Question 44.

44. I consider myself highly motivated to achieve success in life.

- True
- False

Question 45.

45. I am a good writer.

- True
- False

Question 46.

46. Doing work on time is always important to me.

- True
- False

Question 47.

47. What I learn is more determined by the school than by what I want to learn.

- True
- False

Question 48.

48. I have been known to spend a lot of time making decisions which others do not take seriously.

- True
- False

Question 49.

49. I am easily distracted.

- True
- False

Question 50.

50. I can be easily talked out of studying.

- True
- False

Question 51.

51. I get depressed sometimes and then there is no way I can accomplish what I know I should be doing.

- True
- False

Question 52.

52. Things will probably go wrong for me some time in the near future.

- True
- False

Question 53.

53. I keep changing my mind about my career goals.

- True
- False

Question 54.

54. I feel I will someday make a real contribution to the world if I work hard at it.

- True
- False

Question 55.

55. There has been at least one instance in school where social activity impaired my academic performance.

- True
- False

Question 56.

56. I would like to graduate from high school, but there are more important things in my life.

- True
- False

Question 57.

57. I plan well and I stick to my plans.

- True

Question 58.

58. When life is hard and I feel uncomfortable I realize it is not awful to feel uncomfortable or tense, only unfortunate and I can keep going.

- True
- False

Question 59.

59. I have worth as a person even if I do not perform well at tasks that are important to me.

- True
- False

Question 60.

60. I want to do well at important tasks, but I realize that I don't have to do well at these important tasks just because I want to.

- True
- False

Question 61.

61. If I am rejected by someone I like, I can accept myself and still recognize my worth as a human being.

- True
- False

Question 62.

62. I do not like it when people act disrespectfully, but I can tolerate not having their respect.

- True
- False

Question 63.

63. It is a disappointment if I'm disliked by some people I like, and I realize it's only unfortunate and not awful if they don't like me.

- True
 False

Question 64.

64. It is frustrating to be hassled but I can stand the frustration of being hassled.

- True
 False

Question 65.

65. It is important that people treat me fairly most of the time, however, I realize I do not have to be treated fairly just because I want to be.

- True
 False

Question 66.

66. I want to be liked and accepted by people whom I like, but I realize they don't have to like me just because I want them to.

- True
 False

Question 67.

67. It's unbearable to fail at important things, and I can't stand not succeeding at them.

- True
 False

Question 68.

68. If I do not perform well at things that are important, that will be a major crisis.

- True
 False

Question 69.

69. I must do well at important things, and I will not accept it if I do not do well.

- True
 False

Question 70.

70. It's awful to do poorly at some important things, and I think it is a catastrophe if I do poorly.

- True
 False

Question 71.

71. I can't stand not doing well at tasks that are important to me.

- True
 False

Question 72.

72. It's essential to do well at important jobs, so I must do well at these things.

- True
 False

I'm finished. Store my answers.

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