Evaluating a Program for Enhancing the Study Skills and Academic Performance of Urban High School Students

Bruce W. Tuckman
The Ohio State University

Abstract

An educational psychology-based “study skills” program: Strategies-for-Achievement, originally developed to teach learning and motivation strategies to college students, was modified for use by high school students. It involved teaching students four achievement strategies: take reasonable risk, take responsibility, search the environment, and use feedback. Each was divided into two sub-strategies, and used to teach students to overcome procrastination, build self-confidence and responsibility, manage their lives, learn from lecture and text, and prepare for exams. The training was provided as a course taught using a “blended” technology-based instructional model called Active Discovery And Participation thru Technology (ADAPT). Students who took the training course earned significantly higher grade point averages in comparison to a matched group, during the term they took the course.

Purpose of Study

One of the greatest challenges facing high schools nationally is the enrollment, retention and graduation of at-risk urban students. Despite national, state, and local efforts to remedy the situation through curriculum and instruction reform measures, the educational achievement gap among students of differing income level and ethnicity still exists. This results in significant negative costs to individuals, education institutions, and society at large.

Many students in urban settings are not able to take full advantage of educational opportunities, as reflected in enrollment, retention, and graduation data, and their overwhelming need for remediation. On a national basis the percentage of low income high school graduates who immediately continue on to college or other comparable training is only 47%, compared to 82% for their high income counterparts (Phillippe, 2000). This is despite a major movement on the secondary level to include specialized programs that prepare urban students for college. On a local basis, from a cohort group of approximately 20,000 ninth-graders in the Columbus, Ohio Public Schools (the 15th largest urban school district in the country), only about 5,000 (25%) will be prepared to enroll in college, and less than half will graduate. A way must be found to increase the numbers of low-income, minority, and non-traditional urban students who graduate from high school and are eligible for enrollment in postsecondary education.

Getting into college and then dropping out is also a problem at postsecondary education institutions, even among students who enter with high school records that would appear to predict college success. On a national basis the university drop-out rate is about 25% and community college drop-out rate 50%, with the majority in both places occurring in the first year. Among urban minority students who enroll in college, 55% choose community colleges, often because of their easy accessibility, low cost, broad based admission policies, and diversity of program offerings, yet only 50% remain in school (American Association of Community Colleges, 2002). The magnitude of the retention problem in community colleges is exacerbated by their current growth rate.

A lack of preparedness for college among graduating high school seniors is further attributed to the need for remediation that they bring with them upon college entry. McCabe (2000) reports that more than one million students nationwide (42% of first-time college goers) enroll in remedial courses annually. About two-thirds of this total is at public community colleges, and one-third from a minority group, yet even remediation does not significantly reduce the retention problem.

Innovative reforms must be implemented that remove barriers to academic success, most notably students’ lack of motivation and relevant learning skills. Therefore, the purpose of this study was to adapt and test a multifaceted program for providing urban high school students training in learning and motivation strategies that are designed to increase their achievement levels as evidenced by academic performance and their readiness for postsecondary education. The unique intervention presented in this research is one that combines psychology, curriculum, and the cost-effectiveness and ubiquity of technology to provide urban high school students with specific instruction that, by virtue of its content and method of delivery, enhances desire and ability to succeed academically and make educational progress. Explicit instruction in what has been historically referred to as “study skills,” but is more accurately represented as learning and motivation strategies, represents a potentially promising approach for increasing academic success as manifested by subsequent high school graduation and college enrollment.

Theoretical Framework

The Strategies-for-Achievement program evolved from the achievement motivation model for entrepreneurship originally espoused by David McClelland (1979), but has been translated into strategies for success in education (Tuckman, 2002, 2003; Tuckman, Abry, & Smith, 2002) by including more current social-cognitive and schema theories based upon considerable research and testing. The strategies and sub-strategies are summarized in Table 1.

<table>
<thead>
<tr>
<th>Take reasonable risk</th>
<th>(a) Set goals</th>
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<td></td>
<td>(b) Break tasks down into “bite sized pieces”</td>
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<tr>
<td>Take responsibility for your outcomes</td>
<td>(a) Focus your thoughts on “self” and effort as causal explanations</td>
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<td></td>
<td>(b) Plan</td>
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<td>Search the environment for information</td>
<td>(a) Ask questions</td>
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<td>(b) Use visualization</td>
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<td>Use feedback</td>
<td>(a) Self monitor</td>
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<td></td>
<td>(b) Self instruct</td>
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Supporting this approach is a conceptual framework for self-regulation directly addressing the issue of increasing student achievement in school that includes both a motivational and cognitive component, and two sources of influence: (a) knowledge and beliefs, and (b) strategies (Garcia and Pintrich, 1994). Within this framework, the above strategies and sub-strategies are used as the basis for a program aimed at teaching students to meet the affective goals of overcoming procrastination, building self-confidence, becoming more responsible, and managing their lives, and the cognitive goals of learning from lecture and text, preparing for tests, and writing papers.

— The Motivational Component: For the motivational component, particular emphasis in the new Strategies-For-Achievement approach is placed on the basic premise of social cognitive theory that there exists a mutually interactive relationship between thoughts, behaviors, and environmental consequences, necessitating a change in thoughts as a prerequisite to changing behavior.

For example, in the module on procrastination, students are taught to: (a) distinguish between rationalizations for procrastination (e.g., “I work better under pressure”) and real reasons (e.g., self-doubt); (b) recognize the thoughts (e.g., “math confuses me”), feelings (e.g., fear) and behaviors (e.g., skipping class) that are provoked by potentially difficult situations (e.g., an impending math midterm); (c) overcome the tendency to procrastinate by using the four major strategies for achievement previously described; and (d) effectively manage their time by creating a specially designed “to-do checklist,” a self-regulatory procedure that facilitates planning, and incorporates many of the sub-strategies.
In the module on building self-confidence, the four techniques taught to students: (a) regulating your emotional level, (b) seeking affirmation, (c) picking the right models, and (d) "just doing it" are intended to create the thoughts required for successful achievement (Bandura, 1997). In teaching students to take responsibility, causal explanations and their properties, such as those described in attribution theory, are used to show students the importance of focusing on effort and intentionality as the explanation for their outcomes (Weiner, 1986, 1995).

— The Cognitive Component: Many have advocated techniques for teaching students to use cognitive strategies of self regulation (e.g., Mayer, 1989, 2002) that include conceptual models for visualizing ways of solving problems, and question-asking for extracting meaning from text (Robinson, 1961). These form the basis for the "search the environment" and "use feedback" strategies to teach students how to learn from lecture and text, prepare for exams, and write papers.

For example, students are taught to view information that is either heard in lectures or read in text as "answers" to implicit questions. By making those questions explicit through the construction of a "Q & A Outline" (Tuckman et al., 2002), students learn both to schematize the information and organize it into visual forms such as diagrams and charts. The outlines and diagrams then help students organize and store their thoughts in long-term memory in preparing for and taking tests, and in writing papers.

The Strategies-for-Achievement instructional design is also unique and innovative. Instead of instruction in a traditional class setting, the program is taught using a blended, web-based instructional model called Active Discovery And Participation thru Technology (ADAPT; Tuckman, 2002). This model for teaching a web-based course in a campus-based computer classroom combines the critical features of traditional classroom instruction: (1) required attendance, (2) presence of an instructor, (3) a printed textbook (Learning and Motivation Strategies: Your Guide to Success by Tuckman, Abry, and Smith – Prentice Hall, 2002,) with those of computer-based instruction: (1) class time spent doing computer-mediated activities rather than listening to lectures; (2) a large number of performance activities rather than just two or three exams; (3) self-pacing with milestones rather than a lockstep pattern. The program includes over 200 "learning/performance activities," ranging from assignments and self-surveys to papers to portfolios, papers, and postings on an online, asynchronous discussion board all of which are submitted electronically and graded by teachers, who also provide feedback.

In addition, students read A Hope in the Unseen, a biography of a young African American, that describes his last year in an inner city high school and first year in an Ivy League college, and write and submit four two-page papers that analyze the young man's actions and experiences relative to the four Strategies-for-Achievement and eight sub-strategies.

The course was originally designed for use at the university level, and students completing it were shown to make significantly greater GPA gains than matched controls (Tuckman, 2003). Based on a grant from the U.S. Department of Education’s Fund for the Improvement of Postsecondary Education (FIPSE), the course software was revised and the course was introduced into urban high schools.

Methods

The Strategies-for-Achievement program was taught as a one term (18 week) course, meeting four hours a week, called Strategies for School Success, at three large, urban high schools, two in one city and one in another. There were two sections of the course in each high school with 10th, 11th, and 12th grade students being selected by high school counselors to be representative of the student body in terms of gender, ethnicity, and prior academic performance. For each student selected for the course, a comparison student was identified who was a match on gender, ethnicity, year in school, and prior grade point average (GPA). In one of the high schools there were 69 students who took the course and 69 matches, in the second 41 course takers and 41 matches, and in the third 40 of each. The percentage of African American students in the three samples ranged from 55%-90%; 55% of the students in the three samples were females and 45% males.

Regular high school teachers were assigned to teach the course in each school. The teachers were trained by the researcher and his staff on both the conceptual aspects of the course and the use of the required technology. The course software, that included 216 learning/performance activities, was run on Blackboard at all three schools and teachers were taught in its use. The performance activities were completed and submitted online by the students and graded online by the teachers. Students could then view their grades and teacher feedback online. The researcher and his staff monitored the teachers insofar as possible to determine the degree to which the course was being taught in the prescribed manner (with particular emphasis on the teacher keeping the students on task for the entire class period, and grading and providing feedback in a timely manner).

After completion of the course, students’ GPAs were computed for the school term in which the course was taken, and were compared to the GPAs of the comparison non-takers for that same term, using pre-term GPAs as a covariate. The data from the three schools were analyzed separately.

Results

Analyses of covariance of each data set separately revealed significant differences in final GPA between course-takers and non-takers that favored course-takers. In the first high school, course-takers earned a GPA of 2.30 at the end of the term, compared to a GPA of 2.12 for matched non-takers, yielding an F-ratio of 4.58 (p=.04). In the second high school, course-takers earned a GPA of 2.84 at the end of the term, compared to a GPA of 2.40 for non-takers, yielding an F-ratio of 35.4 (p<.001). In the third high school, course takers earned a GPA of 2.80 at the end of the term, compared to 2.39 for non-takers, yielding a F-ratio of 29.04 (p<.001). These results are shown in Figure 1.

![Figure 1. GPA results for course takers versus matched non-takers.](http://dennislearningcenter.osu.edu/references/Tuckman final paper-AE.png)

Conclusions, Discussion, and Educational Importance

On the basis of the results, it was concluded that teaching students the Strategies-for-Achievement and their application to practicing time management, building self-confidence, taking responsibility, managing their lives, learning from lecture and text, and preparing for exams enabled them to achieve a higher level of academic performance than comparable students not taught the strategies.

However, it must be pointed out that the process of running the course in the three schools did not follow the plan precisely as intended, a phenomenon not uncommon in conducting experiments in large, inner city high schools. In the first high school, the principal insisted on adding to the class a component on career education that was not part of the Strategies course, thereby reducing the number of hours available to teach the strategies. In the other two high schools, problems frequently arose with the technology, meaning a slow network response and an intermittent network connection, as well as with classroom management, meaning keeping students working on the course online instructional activities during the full class period. Nevertheless, even when taught imperfectly, the course had a significantly positive effect on student achievement at all three test sites.

It would appear, from the results of this study, that explicitly teaching learning and motivation strategies to high school 10th, 11th, and 12th graders enables them to perform better in school, particularly when these strategies are taught in a way that allows them to actively practice and apply the strategies as part of the learning process. Such increases in academic performance may increase the likelihood of students graduating from high schools.
and continuing on to postsecondary education. Further research is needed to determine whether taking the Strategies course indeed has a positive influence on high school graduation rate and college admission and retention.

It is recommended that high schools choosing to run the course advise and counsel students into the course who have the ambition to pursue a college education, but may lack the prerequisite strategies (as is often the case in first-generation college-goers) and not fill it with students merely to assure the necessary enrollment. In the latter case, many of those students tend to drop the course.

References

Bandura, A. Self-efficacy: The exercise of control. NY: Freeman.


