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Teaching Thinking to Culturally Diverse, High Ability, High School Students: A Triarchic Approach

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Teaching Thinking to Culturally Diverse, High Ability, High School Students: A Triarchic Approach[1]

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ABSTRACT

This final research monograph describes intervention research to improve thinking skills in high ability, high school students attending an urban magnet school for primarily low-income ethnic minority students who come from families that have historically experienced social inequality and various forms of discrimination in the United States. The intervention approach used is based on the Sternberg triarchic theory of intelligence. The triarchic approach to giftedness or high ability suggests that intelligence has three components: (a) an analytical ability, (b) creative ability, and (c) practical ability. Following the description of the Teaching Thinking intervention to improve these triarchic abilities, three related studies are also described. These studies focus on language background, language use and writing abilities of these students; students' perceptions of giftedness; parental perceptions of giftedness and how to offer support for their high ability students; and the thinking styles of college and high school students.

Chapter 1 introduces the study and its main focus on a teaching thinking intervention. It provides a rationale for the approach and the methods used in the primary intervention research. This chapter demonstrates the feasibility of offering a thinking skills intervention to high school students that is based on a college campus. We discuss some of the details of offering such an intervention and provide some evidence that it is possible to identify and involve highly capable under-represented ethnic minority high school students in such an effort, based on Sternberg's model of giftedness and a triarchic view of intelligence. Chapter 1 also presents evidence that the overall intervention had

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[1] The authors appreciate the contributions of each member of the Teaching Thinking Project intervention and research staff from 1995-2001 to data collection and data processing and the cooperation of the high school students, parents, and administrators who participated in or assisted with this research project. Without these efforts, this project would not have been possible. We also appreciate the support given to the Project by City College of New York of the City University of New York and by the CUNY Research Foundation.

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some differential effects on the participants and that peer tutoring and mentoring components of the intervention, also had differential effects on thinking ability at posttest and on academic performance as measured by writing skill, during the intervention.

Chapter 1 also describes the assessment of triarchic ability skills for 57 participants in the intervention and 69 non-participants all of whom were pretested using the *Sternberg Triarchic Abilities Test* and the impact of the Teaching Thinking intervention on triarchic components. Chapter 2 describes an embedded study of intervention participants that examined the relationship between language background and language use in this special population of English-speaking youth. In Chapter 3, we describe a survey of parents focused on their aspirations for their children and how they support achievement in these high ability adolescents.

Chapter 4 describes the assessment of thinking styles in thinking skills intervention participants and in diverse sample of ethnic minority college students. In Chapter 5, we present a qualitative and survey approach to understanding how high school and college students understand the nature of giftedness and what it takes to be academic successful, respectively.

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EXECUTIVE SUMMARY

Five projects are presented in this research monograph based on an intervention designed to improve the triarchic thinking abilities of high ability, ethnic minority, high school students. The intervention was based on Robert J. Sternberg's theory of triarchic intelligence and on a construct validation and educational application of the theory in a sample of primarily European American high school students conducted by Sternberg and reported in 1995. The triarchic approach to "giftedness" or high ability suggests that intelligence has three components: (a) an analytical ability; (b) creative ability; and (c) practical ability. Each project described in this monograph represents some aspect of the cognitive and social experiences of high ability minority adolescents.

Chapter 1 of this monograph describes the main intervention study conducted during a 5-year grant period. The intervention approach is described in this chapter and it was a modified replication of the original Sternberg aptitude by treatment interaction approach to instructing students based on a profile analysis of their triarchic abilities. Students were assigned to one of three groups based on their lowest *Sternberg Triarchic Abilities Test (STAT)* score: (a) analytical, (b) practical, and (c) creative and participated in a one-semester intensive thinking skill intervention and a one-semester intensive intervention and follow-up semester designed to strengthen their thinking skills. *STAT* scores and additional data were collected on the participants at the onset of the intervention. Students attended lectures offered by a university professor with 25 years of teaching experience assisted by a graduate research assistant for some lectures. Each student was assigned to a college student mentor and, half of each cohort in two of the intervention semesters was assigned to a peer coach. Students received additional workshops and tutoring and attended activities in a lab designed to support their development of thinking skills.

Using this basic design, we wanted to explore the following research questions:

1. What is the pattern of (pre-intervention) triarchic thinking skills in ethnic minority, high ability, high school students?
2. Is there a different pattern of triarchic thinking skills in these students when compared to students in the Yale Summer intervention?

3. Are there differences in triarchic thinking skills between students from primarily African descent and those from Latina/o descent?
4. What is the impact of an intensive intervention designed to enhance triarchic thinking skills in ethnic minority, high ability, high school students? Does peer coaching make a difference?

There were 57 intervention participants, selected from a total sample of 134 participants, in part, because they had higher scores on the *STAT*. At the conclusion of the intervention, posttest scores on the *STAT* improved for the creative and analytical skills, but not for practical skills. Quality of the mentoring they received from a high ability, college student had some impact on triarchic abilities, but peer coaching from another high school student who had previously participated in the intervention did not. However, peer coaching did significantly improve students writing performance as assessed by assigned papers and essay exam questions.

Chapter 2 describes two studies designed to explore the language background and language use of the intervention participants and the relationship between language characteristics and preferences and writing ability. Phone diary interviews and face-to-face interviews were used to capture the language behavior of these ethnic minority students. This behavior and preferences are described and these experiences were correlated with performance on the *STAT* multiple choice and essay items and with writing performance in an academic course.

Chapter 3 of this monograph describes survey research conducted with parents of the intervention participants to explore parents' support of their high ability adolescent's achievements and abilities. Parents were interviewed in person or completed a mailed survey that explored attitudes toward academic and professional achievement and how it should be supported and aspirations for the achievement of sons and daughters. Parents demonstrated a diverse array of attitudes toward achievement from providing traditional and proximal support to having a "hands-off" attitude toward a child's achievement.

Chapter 4 explores the construct validity of Sternberg's theory of mental self-government in two samples of ethnic minority students. In the first study, the thinking styles of high school students participating in the Teaching Thinking Project are explored and in a second study the thinking styles of college students are explored. Although thinking styles are an important part of how an individual's abilities are interpreted, few multidimensional measures are available to assess the nature of thinking styles and no research has been found that specifically examines thinking styles of students across the African Diaspora. The two studies reported in this monograph serve three purposes: (a) to investigate the psychometric properties of the short form of Robert Sternberg's and Richard Wagner's (1991) *Thinking Styles Inventory-Short Form* (*TSI-SF*), (b) to identify underlying factors that explain the pattern of correlations within a set of thinking styles, and (c) to examine differences in thinking styles within various demographic groups (e.g., gender, ethnicity, marital status, education level, level of religious activity, and grade point average) of students in an ethnic minority sample. The *TSI-SF* is a self-report questionnaire designed to assess one's preference for 13 practically derived thinking

styles. The 13 subscales reflect the functions (legislative, executive, and judicial), forms (monarchic, hierarchic, oligarchic, and anarchic), levels (global and local), scope (internal and external), and leanings (conservative and progressive) of government and are postulated to be directly related to how governments function.

In the first study, the thinking style profiles of high school and college students are compared and found to be virtually identical. In the second study, with the larger sample of 222 college students the *TSI* factor structure is explored and three factors emerge that are described and discussed. There is some evidence of predictive validity, but the results are mixed. For example, there are significant differences across the three factors between men and women and among different age groups, marital statuses, religion, and level of religious practice.

Chapter 5 of this monograph presents some preliminary insights about the naive and implicit theories that high school and college students, respectively, hold about the nature of giftedness and what it takes to be academically successful. Using a survey approach with high school students and analysis of narrative data from high ability college students, the themes that emerge from these insights are described. This provides a partial and qualitative validation of Sternberg's (1995) implicit pentagonal theory of giftedness.

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Chapter 1: The Teaching Thinking Project—An Intervention to Support Analytic, Creative, and Practical Thinking in High Ability, High School Students Experiencing Social Inequality

Introduction

A major academic and social problem facing gifted under represented ethnic minority students is how to acquire and develop the skills necessary for academic success. Often these students have not had the background experiences, parental influence, and other opportunities available to students with successful academic careers. Despite this lack of opportunity some highly structured college support programs have demonstrated that it is possible to support these students' academic development so that they can take advantage of high abilities despite lacking contextual opportunities. Brigham, Moseley, Sneed, and Fisher (1994) and Harney, Brigham, and Sanders, (1986) describe successful efforts to support the success of academically at-risk minority freshman. Several variables have been identified in these studies that appear to affect minority student success, particularly at large universities. Three important factors are: (a) the development of important academic skills, (b) involvement in the cultural and social life of the academic institution and, (c) and self-confidence to compete with their majority peers (Brigham et al., 1994). In addition, these programs find that motivation and persistence are important characteristics of success for these students.

Sternberg and Clinkenbeard (1995) describe a model for identifying teaching and assessing gifted students. They suggest that the triarchic model of intelligence helps to focus on the skills necessary for academic and social success. This focus broadens the opportunities to help students by analyzing aspects of intelligence that are important in life activities. The triarchic model suggests that three abilities are important to academic and social success. These are: memory-analytic, creative-synthetic, and practical-contextual thinking skills. Sternberg, and his colleagues, have described these skills and interventions designed to enhance them in high school students (Sternberg, 1985, 1986, 1988a; Sternberg & Clinkenbeard, 1995).

Memory-analytic abilities are used in learning, comparing, analyzing, evaluating, and judging material. Most traditional standardized intelligence, aptitude, and achievement tests assess these skills. Creative-synthetic abilities are used when one produces something new from a synthesis of material or develops a novel interpretation of an ordinary situation. This could also involve coping in a novel way with various life situations. Practical-contextual abilities are those used to confront everyday problems encountered in day-to-day experience. This experience could occur at school, work, or home. Understanding how the world works and how to get along in it, whether based on formal or informal knowledge, represents this kind of thinking. For a further discussion of these three distinct skills, see Sternberg (1986).

The Sternberg triarchic abilities model provides a basis for individualizing instruction or intervention activities so that ability and performance can be maximized by matching instruction to performance and by teaching thinking skills in specific areas based on performance profiles. Academic performance can also be enhanced by activities that enhance positive self-regard and social support. Extending a skill-based college success intervention downward to include high school students would seem to give these students an opportunity to have a head start on excelling in academic performance in college. Furthermore, using a specific skill-based thinking model to develop the instructional intervention might improve academic performance outcomes.

Using this rationale, a thinking skills and social support intervention was designed to enhance the college preparation of ethnic minority high school students who are often under represented in college admissions, graduation statistics, and academic and professional careers. The objectives of this research intervention project are to:

1. Use the Sternberg triarchic method of assessment and teaching to identify undiscovered gifted students among ethnic minority group students that are underrepresented in gifted programs;
2. Develop innovative strategies to teach primarily Dominican, Puerto Rican, and African descent American high school students to use a wider range of high-end thinking skills; and
3. Use supportive mechanisms and strategies to sustain these thinking skills and to enhance intrinsic motivation toward achieving higher educational goals.

Methods

Recruitment and Selection of Participants

Arrangements were made with an academic magnet high school in a large urban city to recruit juniors and seniors to participate in the Teaching Thinking Project (TTP) intervention. The high school was located in very close proximity to a college campus site where the intervention was to take place. The magnet school, at the time of this study, had a population of 1,541 students and 58% of the students were female. Most of the male students were interested in engineering and computer sciences while the female

students had more broad interests such as, medicine, psychology, biological science, business, and law. Sixty-one percent of these students are identified by the school as "African American;" 38% as "Hispanic;" and 1% as "other" (including "American Indian," "Asian," "Pacific Islander," and "European American"). Many of the students at this magnet school are low-income and from families where they or other siblings will be among or are the first in the families to attend college. These students could also be characterized as youth who often experience social inequality and forms of racism, and they are often defined in the academic literature and in political reporting as "minorities" or "ethnic minority."

Students were originally recruited by the school guidance department and the assistant to the school principal. For semesters three, four, and five the research team members visited each English section of the rising sophomore class and directly recruited students to the program. Only students who had a minimum 80 average, on 100-point scale, as a grade for the sophomore English honors course were encouraged to apply for participation. We set this criterion because of the writing requirements necessary for participation. Among these high achieving students, those who were interested in participating in the Project were given *Sternberg Triarchic Abilities Test* (*STAT*) as a pretest. This was administered at a convenient time for students at the end of the semester prior to participating and was done on the college campus. A trained graduate student administered and scored the tests. Students were selected based on their total test scores, school recommendations, the need to create a balanced representation of triarchic abilities, and availability for the 6-hour a week, 14-week course, and the intervention activities. In a small number of cases, students were not able to participate due to the need to work and/or provide childcare for their families.

Once the students were informed of their eligibility to participate, the high school staff verified that they met all requirements for enrollment in a college course (i.e., SCAT—New York state writing admission test scores, immunization records). Those students meeting all the eligibility requirements were officially registered at the college by the high school guidance counselor in an enhanced college level course, taught by Dr. Deborah L. Coates, a Professor of Psychology at the college, through a special arrangement between the high school and the college.

Participant Characteristics. Participants in this research intervention are similar to those students described above attending the academic magnet school with one exception—87%, slightly more than the school's 58%, were female. Female students were overwhelmingly more interested in taking a college level psychology course than male students. Most male students chose to enroll in engineering courses when given the opportunity to take college credit courses and, therefore, only a small number of male students were available for participation in this intervention.

We asked students to self-identify their ethnicity. They reported about 20 different categories of ethnicity, which we collapsed into fewer categories for purposes of the analyses reported here. Fifty-five percent of the sample are Latina (primarily of Dominican and Puerto Rican descent), 22.8% identify as being of native born African descent or called themselves Black, 7% reported that they were Caribbean and of African

descent, and 3.5% could be classified as Asian. The remaining 14.2% of these students used more than one category to describe themselves or identified themselves as "other" or did not provide an ethnicity label. Most of these students were of "mixed" heritage having some Hispanic and African descent background. There were no students who identified themselves as having any European American background.

The magnet high school provided a unique opportunity to recruit high ability minority students from low income backgrounds attending a school for high ability students. Most of the students describe their families as single-parent/mother households—61%. Thirty-four percent are from two-parent homes and 5% from single-father homes. Most working parents had occupational prestige ratings from .20 to .65. Most parents were in mid-level to low-wage positions, a very small percentage could be labeled as "professional."

Measures

Students were selected to participate in the intervention on the basis of scores on the *STAT* (Sternberg, 1991a, 1991b; 1993). Each high school student who was interested in participating in the intervention was administered a *STAT* pretest. Fifty-seven high school students were selected from the 124 who were pretested. Each semester the intervention was offered to students with at least a "B" average in English and who scored at least one standard deviation above the mean on one of the *STAT* subtests. College students interested in becoming paid mentors for the intervention were administered the *STAT* (Sternberg, 1991a, 1991b). Fifteen college students were tested and seven selected to act as mentors. In addition, high school students who participated in the intervention completed several other self-report measures.

Measuring Thinking Skills. The *STAT* (Sternberg, 1991a) was used to measure three aspects of thinking skills or abilities, practical, analytical, and creative, referred to as three types of intelligence by Sternberg. The *STAT* consists of a set of multiple choice and some essay questions. Both sections of the test measure the three thinking abilities proposed by Sternberg's model of intelligence. These abilities, (memory-analytical, synthetic-creative, and practical-contextual) are measured in three subcategories: verbal, quantitative, and figural. The multiple choice items are organized into nine sections of four test items each. The essay section consists of three questions, each assessing one of the three thinking abilities. The *STAT* takes about one hour and 45 minutes to complete, one hour for the multiple choice section, and 45 minutes for the essay section (15 minutes per question). Table 1.1 presents brief definitions of the nine multiple choice subtests, representing three kinds of thinking domains specified in the triarchic theory.

Table 1.1

Descriptions of the Nine Multiple Choice Subtests for the *Sternberg Triarchic Abilities Test (*STAT*)**

Subtest or Item	Description
ANALYTICAL	
Verbal	Student is required to infer the meaning of a novel word embedded in a paragraph. They are determining the meaning of neologism [artificial words].
Quantitative	Students view a number series and show what number should come next in the series.
Figural	Students are shown a figural matrix with the lower right entry missing and they have to identify which of the options presented fits into the missing space.
PRACTICAL	
Verbal	Student has to solve a set of everyday problems in the life of an adolescent (e.g., a friend who may have a substance-abuse problem). Sternberg describes this as "everyday reasoning."
Quantitative	Student is required to solve math problems based on scenarios requiring the use of everyday math, such as buying tickets or making cookies.
Figural	Student is presented with a map of an area, for example, an amusement park, and has to answer questions about navigating effectively through the area depicted by the map.
CREATIVE	
Verbal	Student is presented with verbal analogies preceded by counterfactual premises, like "money falls off trees," and then must solve the analogies as though the counterfactual information is true.
Quantitative	Student is presented with rules for novel number operation, for example *flix*, a system in which numerical manipulations differ depending upon whether the first of two operands is greater than, equal to, or less than the second. The novel number operations must be used to solve the math problems presented.
Figural	Student is presented first with a figural series that involves one or more transformations; he or she must then apply the rule of the original series to a new figure with a different appearance, to complete a new series.

* There are three essay items on the *STAT*. These are described in the text of this monograph.

There are three essay items each focusing on one of the three thinking styles. The version of the *STAT* used here included an analytical problem that required a student to analyze the advantages and disadvantages of having police or security guards in a school building. The creative problem requires students to describe how they would reform their school system to produce an ideal one. And, the practical question requires students to specify a problem in their life and to state three applied solutions to solve it. Sternberg (1995a) reports modest coefficient alpha for the multiple choice subtests of the *STAT* based on a sample of 326 high ability, high school students participating in a summer program to test the educational applicability of the triarchic theory. Sternberg reports an alpha coefficient of .63 for the analytical subtest, .62 for the creative, and .48 for the practical subtest.

Coding the STAT Essay Items. A coding system was developed to code the essay responses for the *STAT* essay items because we were not able to obtain a scoring system for these items (Coates, Laurence, & Reyes Cruz, 2000). A review of the literature on analytical, practical, and creative thinking was conducted to identify the key elements of each type of thinking and these elements were incorporated into a scoring criteria. We also consulted an expert on writing in English, a professor of English, who helped us identify the key elements used to score effective writing on college proficiency writing examinations. Using these two sources of expertise on writing and thinking, we constructed a scoring system for evaluating the quality of student writing on the essay items.

The *STAT* essay rating scale included five subscales. The name of each subscale and their inter-rater reliability coefficients were: (a) Understanding and development of an idea—incorporates focus on analytical, practical, or creative thinking respectively for each essay (r = .74); (b) Organization and coherence (r = 92); (c) Evidence (r = .88); (d) Complexity (r = .76); (e) Fluidity (r =.85); (f) Correctness (r = .95). The *STAT* Essay Rating Form developed for this study and "Instructions to Essay Coders" are in Appendix A. Each handwritten student essay was transcribed and reviewed for transcription accuracy by two independent transcribers. They were then rated independently by two experienced readers of college writing who scored them, using the rating scale for each subscale on the rating system, blind to any information about the student who wrote the essay.

We also administered the *Thinking Styles Questionnaire* (Grigorenko & Sternberg, 1997), the *Student Profile* (Coates, 1981a); and the *Social Network Record* (Coates, 1981b). The *Thinking Styles Questionnaire* consists of 65 questions that assess how people use different strategies to: solve problems, carry out tasks or projects, and make decisions. Participants are asked to describe how well each statement describes their thinking style, based on a 7-point scale. This measure is discussed and results presented in Chapter 5.

The *Student Profile* (Coates, 1981a) collects demographic information about the student and her/his parents. Students answer questions about their parents' educational and cultural background, their occupation, the students' educational goals, their extra-

curricular interests, and students' opinions about their neighborhood and United States society in general.

The *Social Network Record* (Coates, 1981b, 1985) was designed to assess the structural and functional characteristics of the social networks of African American youth. Data on the social networks of these adolescents are not reported here.

The Teaching Thinking Intervention Activities

All students attended a one-semester, college level, introductory course in psychology. The course was titled, *Introductory Psychology: Applications of Psychology in the Modern World*, and was held three days a week for three lectures of 40 minutes each, and one lab session (also of 40 minutes). All meetings took place at the college. Dr. Deborah L. Coates, a professor of psychology with 20 years of teaching experience and the Project's Research Associate, a graduate student in psychology, were co-instructors. The lectures were designed to encourage students to develop their thinking skills by applying their thinking abilities to specific situations presented in class. The textbook used was *In Search of the Human Mind* (Sternberg, 1995b). The textbook format and structure is based on Sternberg's triarchic ability model of intelligence.

The text was designed to encourage the development of the three thinking abilities. The book is organized and formatted to target these abilities and to give students an opportunity to focus on each type of thinking in the context of the content covered by the textbook. The topics covered in the textbook included are: What is Psychology?, Roots and Branches of Psychology, Biological Bases of Behavior, Sensation, Perception, Consciousness, Learning, Memory, Language, Thinking, Intelligence, Cognitive and Social Development, Social Psychology, Abnormal Psychology, and Health Psychology. Thus, the standard topics in most college-level introductory psychology classes were taught. Supporting materials included hand-outs with exercises related to the chapters discussed and transparencies. In addition, students had access to the Study Guide, and the CD-ROM version of the textbook, which includes quizzes and exercises. These materials were designed by the textbook's publisher to complement the textbook. Students received instructive sessions and assignments matched to their highest triarchic abilities score.

During lab sessions, participants were divided into three small groups according to their lowest score on the *STAT*. Students in each group—practical, creative, or analytical—were given assignments designed to strengthen their skills in each respective area. In some cases, students did not have a score that was meaningfully lower than the others and so these students were distributed among the groups based on group size and other balance issues. Mentors facilitated the discussion of class material in the small groups. Students discussed questions assigned to their group from the chapter. Questions were selected from the textbook and/or the Instructor's Manual. One student recorded the group's answers to the questions. Mentors collected the group's report and a copy of it was filed in the students' folder. Students were often asked to present the

results of their discussion to the larger groups and these discussion questions were sometimes used for writing exercises and quizzes.

Course Assignments. Students' final grade was based on their scores on three exams, three papers, and one pop-quiz. Participants could earn extra credit for using additional references on their last two paper assignments, and for handing in the anonymous *Substance Abuse Questionnaire* (one answered by the students and two additional questionnaires answered by their peers—a male and a female). These data were used for an in class assignment teaching research methods.

Exams consisted of 30 multiple choice questions and two essay questions. The questions were based on the chapters assigned for the lectures. Students were provided with a study guide for each exam. In addition, students were allowed to use the textbook to answer the essay questions. The 30 multiple choice questions had a value of one point each, and the two essay questions were 10 points each (for a total score of 50 points). On the first exam, students were given the option of choosing two essay questions out of three presented. For the second and third exam, two essay questions were chosen for them corresponding to the two thinking abilities on which the student had high and low scores, respectively.

Paper assignments were designed to help students develop the thinking abilities on which they score the lowest on the *STAT*. Participants were asked to write a 5-page essay on an analytical, creative, or practical question. Again, students were allowed to choose the question for their first paper. Questions for paper two and three were assigned to them. Each paper was evaluated on content, style, and form. Several elements were assessed in evaluating and scoring the content of the paper, including: (a) how the student covered each of the different schools/ideas/or parts of the question, (b) the accuracy of the information presented, (c) if and how the student presented new ideas, and (d) how the synthesis related to the analysis presented. Style and form were evaluated by: (a) number of pages, (b) organization, (c) spelling and grammar, (d) clarity of expression, and (e) creativity of presentation. The total score possible for the paper was 45 points. Students earned five extra points if they used sources other than the text. All papers were typed before they were handed in and scored by two raters who were "blind" to the student's identity and assigned group.

Additional Resources at the College Used in the Intervention. The students had access to the Teaching Thinking Project laboratory, throughout the semester, for class related tasks and other activities. At the laboratory, computers, desktops and laptops were available for the students' use. Students used the computer for typing their papers (for the psychology class and other courses), accessing the Internet, and sending email. They also used the computer to prepare for exams using the textbook on CD-ROM. Students also used the lab, to meet with their peer coaches and mentors for their weekly sessions. In addition, students often used the lab as a study place to work on paper assignments and study for exams, and for leisure reading. The lab was also a place where to look for support on academic and non-academic issues, to relax between classes, to

meet with other students, and different celebrations (e.g., birthday and end-of-semester parties).

Students were encouraged to drop-by the lab as often as need. The Research Associate for the project and the mentors acted as facilitators for all different activities that took place in the lab. Furthermore, students who participated in the project on previous semesters were also encouraged to use the lab. Many past participants used this space for course work and other non-academic activities, as described. Other college facilities available to the students included the computer center and various computer laboratories, writing center, and library.

College Student Mentors Assigned to Participants. Each participant was assigned to a trained college student mentor selected by the Project Director based on college transcripts, writing samples, and scores on the *STAT*. Each student was assigned to one mentor. The matching of mentors and mentees was based on the thinking ability scores obtained by the students and the mentor. Students were matched according to their lowest triarchic ability score with a mentor who had a very high score in that area. Other factors taken into account in the matching process were cultural background and areas of interests of mentors and students, as suggested and considered important to the mentoring process by investigators of cross-cultural mentoring and mentoring outcomes (Grant-Thompson & Atkinson, 1997). Over the course of the intervention there were 11 mentors who participated in the project.

Mentors were paid to work with their mentees on a part-time basis. Mentors were expected to become a role model of a successful college student for the intervention participants. They were expected to commit their time, talent, and resources to help students succeed in the class and to pursue their academic goals. Specifically, mentors were responsible for showing their mentees how to prepare for tests, how to use the computers to study for exams, what was expected of them in class, and, specifically, how to be successful in writing class papers, and how to search the psychological literature. Another mentor responsibility included helping the mentee to negotiate campus resources and facilities, including teaching mentees how to use the library and its resources. Mentors often had to help a mentee to solve problems that presented obstacles to competent academic work.

Mentors often played the role of tutors, advisors, and counselors by providing friendly academic support and guidance. During the mentoring sessions, mentors talked with their mentees about the students' family, their schoolwork and their social and neighborhood environment, interpersonal relationships, and the students' general emotional state. Mentors explored the students' state of mind by talking about academic and extracurricular upcoming events, the student's overall academic performance, and personal issues. Mentees' unresolved problems were identified and discussed with the Project Director or Research Associate. Mentors met with their mentees twice a week for an hour and kept detailed notes of their mentoring sessions with each mentored student. Mentor quality was rated by the Project Director using a 7-point scale during training and once during the intervention semester.

Peer Coaches. Five peer coaches participated in the intervention during the spring 1997 semester. We wanted to explore the impact of peer coaching on the success of the intervention in subsequent semesters after the first two semesters that we offered the intervention. Coaches were high school students who had successfully completed the Teaching Thinking intervention and the psychology course during the fall 1996 semester having earned a final grade of "B" or better. These peer coaches were selected because they had excellent interpersonal skills and personal responsibility. A peer coach was assigned to 5 of the 10 students who participated. The students (also referred as the "peers") were paired with their coaches by matching them on the triarchic ability test scores and on interpersonal compatibility. Peer coaches with a high *STAT* score in an area where a mentee was weakest were likely to be paired with that mentee. We encouraged mentors, peer coaches, and mentees to meet together as a triad on occasion and on other occasions the peer coach and the mentee or the mentor and the mentee met.

Peer coaches were expected to commit their time and share what they had learned about studying, using university resources, writing papers, and any other approaches they had learned to be successful in the psychology course with the mentee. They were responsible for helping the mentee with class work, specifically preparing for class, studying for exams, and writing papers. Peer coaches help their mentee to practice skills demonstrated by their mentors, particularly conducting literature searches and using different literature databases. In addition, peer coaches discussed with their peer any problems related to the course work, and shared with them their own experience with the course, focusing on what helped them to succeed. They met with their peer once a week for at least half an hour. Often the peer coaches met more frequently with the mentee and there was often phone contact and contact at school. There were 15 peer coaches, 13 coached one student each, and two coached two students each in different semesters.

All peer coaches met, as a group, with an undergraduate mentor on a regular basis. During the meetings, the peer coach reported progress with their peer and any challenges they were facing. Peer coaches were also expected to maintain records of the meetings with their peer and to write a final report about their experience as peer coach.

Workshops Used to Supplement the Course Intervention. Three writing skill workshops and three computer workshops were incorporated to the intervention. The writing skills workshops were designed to familiarize students with college writing standards and help them develop their writing abilities, specifically for writing papers and essay questions. The Research Associate and Project Director conducted these workshops. Topics discussed in the workshops were: different kinds of writing, developing critical thinking, organizing ideas and writing an outline, and understanding basic guidelines for writing psychological papers. Participants also practiced how to write each of the three parts of an essay (i.e., introduction, body, and conclusion), using a paper assignment as an example.

The computer workshop was design to familiarize students with basic word processing, using email, and accessing the Internet. The workshops were held at the college library's computer lab. The content of these workshops was tailored to the

students' knowledge and familiarity with computers and their current needs. An undergraduate research staff facilitated the workshops.

Intervention Procedures

Summer and Fall 1996. Eight students were selected to participate in the pilot for the Project, during the summer of 1996. These students were a group of recently graduated seniors and the intervention was designed to take place in the summer. Of those initial eight, three students dropped out of the course. Three mentors also participated. In the fall of 1996, 16 students and 4 mentors participated in the intervention.

Spring 1997, Fall 1997, and Fall 1998. The intervention implemented was similar to the previous semester. In the spring semester peer coaches were added to the intervention. During each semester following the semester in which students participate in the course the intervention, staff maintained informal contact with students. Students come to the lab for self-initiated assistance with school projects and college applications. They use the lab for preparing papers and studying and for informal social gatherings with project staff and students who may be participating in another intervention semester.

Research Questions and Design

Students were selected for this study based on their *STAT* scores and English grades in high school. Students who were high ability and who scored better on the *STAT* were invited to participate. Only four students, across the four intervention groups, who were asked to participate declined or had to drop out early in the course due to time conflicts or the pressure of other non-curricular activities. Students were assigned to one of three groups based on their lowest *STAT* score: (a) analytical, (b) practical, and (c) creative and participated in a one semester intensive thinking skill intervention and a one-semester intensive intervention and follow-up semester designed to strengthen their thinking skills. *STAT* scores were collected and additional data collected on the participants at the onset of the intervention. Students attended lectures offered by a university professor assisted by a graduate research assistant for some lectures. Each student was assigned to a college student mentor and, half of each cohort in two of the intervention semesters were assigned to a peer coach, during the intervention semester. Students received additional workshops and tutoring and attended activities in a lab designed to support their development of thinking skills.

Using this basic design we wanted to explore the following research questions:

1. What is the pattern of (pre-intervention) triarchic thinking skills in ethnic minority, high ability, high school students?
2. Is there a different pattern of triarchic thinking skills in these students when compared to students in the Yale Summer intervention?
3. Are there differences in triarchic thinking skills between students from primarily African descent and those from Latina/o descent?

4. What is the impact of an intensive intervention designed to enhance triarchic thinking skills in ethnic minority, high ability, high school students? Does peer coaching make a difference?

Results and Discussion

This results section is organized according to the four research questions we wanted to answer with study outcomes.

1. What is the pattern of (pre-intervention) triarchic thinking skills in ethnic minority, high ability, high school students?

Demographic Characteristics of the Sample. Tables 1.2 and 1.3 show the gender and ethnicity distributions for the Teaching Thinking Project (TTP) sample and compare this distribution with a sample of students from a similar intervention developed and implemented at Yale University by Robert Sternberg (Sternberg, 1995a). The Teaching Thinking intervention, described here, was intended to be a modified replication of the original Sternberg triarchic model intervention. It was designed to accommodate the needs of a group of ethnic minority adolescents who could be characterized as having been placed at risk because of social inequality in schooling and neighborhood contexts. The tables show that the two samples are somewhat similar in gender composition, but quite different in ethnic composition. Both the TTP and the Yale Summer samples include mostly female students; 81% and 73%, respectively.

Table 1.2

Percentage of Students by Gender for the City College Teaching Thinking Project and the Yale Summer Psychology Program

	PERCENTAGES	
	City College Teaching Thinking Project	Yale Summer Psychology Program
	(N = 57)	(N = 199)
Females	81	73
Males	19	27

Table 1.3

Percentage of Students Participating in the Yale Summer Psychology Program and the City College Teaching Thinking Project for Ethnic Background Categories

	PERCENTAGES	
	City College Teaching Thinking Project	Yale Summer Psychology Program
	(*N* = 57)	(*N* = 199)
ETHNIC LABEL		
European American	0	60
African American	22.8	11
Hispanic/Latina(o)	54.4	6
Asian	3.5	0
Caribbean (African descent)	7.0	0
American (other ethnic minority)	10.5	17
African (immigrant)	0	4

It has increasingly been noted that the field of psychology is becoming "feminized" in that more women than men students in college and graduate programs are attracted to the field. This seemed to be the case with college students and perhaps even more so with ethnic minority students. Ethnic minority students at the high ability magnet school from which these students were recruited were overwhelmingly interested in medicine, law, business, and engineering. There are increasingly lower numbers of females attending the magnet school and those males who do attend primarily express an interest in medicine and engineering and very few are interested in behavioral sciences.

Table 1.3 shows the differences in the ethnic composition of the two samples. It is not clear how the ethnicity of the Yale Summer sample was determined. Students in the TTP were asked to self-identify ethnicity without using pre-existing categories and were then assigned to ethnicity categories using a coding system. Sixty percent of the Yale Summer sample are classified as European and none of the TTP students identified themselves as of European descent. Although many of the TTP students could claim this identification, they do not see themselves as White or European in cultural orientation. Six percent of the Yale sample and 54% of the TTP sample are classified as Hispanic and 11% (plus 4% classified as African immigrants) and 23% are classified as African American respectively. These distributions show that the two samples are indeed ethnically different and the TTP sample consists of ethnic minority youngsters whereas the Yale sample, while including some ethnic minority students, is not primarily a sample of ethnic minority students. Both samples are similar in the distribution of students who

are identified as of African descent but they are very different in the distribution of Hispanic and European descent students. Beyond these classifications it is difficult to compare the two sub-samples. Both include students classified as "other minorities" and in the TTP sample, as Asian, and Caribbean. Essentially the TTP sample is 100% ethnic minority, most of whom could be identified as low-income and having experienced social inequality, while the Yale Summer sample is about 34% ethnic minority.

STAT Performance. Table 1.4 shows the *STAT* means for the TTP participants and non-participants and the Yale Summer Program Participants. Since the study design called for selecting the most talented students for the intervention program, the pretest scores for those not participating were lower than those selected to participate. However, for the non-participants, the analytical score was lowest of the three types, followed by the practical score, with the score for creative intelligence the highest of the three (see Table 1.4). Of these differences, we found that only the analytical and practical are not statistically significant ($p < .001$). For the whole group of students in the TTP sample, there was also no difference between analytical and practical skills but both differed from the creative skills score ($p < .001$). Participants showed slightly higher practical than analytical scores on the pretest, but both of these differed significantly from the creative score ($p < .001$).

2. *Is there a different pattern of triarchic thinking skills in these students when compared to students in the Yale Summer intervention?*

Table 1.4 presents the means for each of the TTP major sub-samples and the Yale Summer program sample for each of the *STAT* sub test means. On the *STAT* pretests, the TTP non-participants scored lowest on all subtests, as expected based on the study design, with TTP participants scoring next highest and Yale Summer program students having the highest *STAT* means. While it is not possible to do a statistical comparison, it is interesting to note that the level of the posttest scores for the three types of skills in the participants is comparable to the level of these scores among the Yale Summer sample at the beginning of this intervention, as shown in Table 1.4. This suggests that the TTP intervention was an effective strategy for improving the thinking skills, aptitudes or abilities of these high ability, ethnic minority students so that they were comparable with a sample of students identified as "gifted and talented" who were not from a group considered as experiencing social inequality.

The pattern of correlations among the subtests of the *STAT* is shown in Table 1.5. For the combined TTP students, the subtests are significantly correlated with one another. However, some of the correlations are not very high. We would expect moderate but not high correlations if the subtests are measuring different but related skills. However, these correlations are lower than those found for the Yale Summer sub-sample. The correlation between the practical and creative subtests is only .26. The correlations among the subtests in the Yale Summer sample are somewhat higher but probably not significantly higher as shown in Table 1.5. For the students who participated in the intervention, the pattern of correlations shows no correlation between analytical and creative thinking skills while for those who did not participate there is no correlation between practical and creative thinking skills.

Table 1.4

Means and Standard Deviations for the *Sternberg Triarchic Abilities Test* Multiple Choice Subtests for Teaching Thinking Project Non-participants, Participants, and Total Sample (Pre and Post) Compared to the Yale Summer Psychology Program Participants' Pretest Scores

GROUP	***Sternberg Triarchic Abilities Test* Multiple Choice Subtest**							
	Analytical		Practical		Creative		TOTAL *STAT* MC	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Non-Participants (*N* = 77)	4.84	2.21	5.16	2.08	6.25	1.84	16.25	4.38
Total Group (*N* = 134)	5.67	2.36	5.71	2.36	6.87	1.88	18.24	4.78
Pretest Participants (*N* = 57)	6.79	2.09	6.46	1.80	7.70	1.60	20.93	3.94
Posttest Participants (*N* = 47)	7.72	2.00	6.45	1.94	8.30	1.77	22.30	4.34
Yale Program Pretest (*N* = 326)	7.90	2.53	8.09	2.11	8.75	2.09	24.97	Unavailable

Table 1.5

Sternberg Triarchic Abilities Test Multiple Choice Pretest Correlations for All Teaching Thinking Project Students Assessed (Upper Quadrant, *N* = 134) and the Yale Summer Psychology Program Participants (*N* = 326)

	***STAT* Total**	**Analytical**	**Creative**	**Practical**
***STAT* Total**	1.00	.83*	.70*	.74*
Analytical	N/A	1.00	.39**	.43**
Creative	N/A	.52*	1.00	.26**
Practical	N/A	.51*	.47*	1.00

Note: Correlations for the TTP are in the upper half of the table and those for the Yale Summer Psychology Program are in the lower half of the table.
*Correlation is significant at the 0.01 level (2-tailed).
**Correlation is significant at the 0.05 level (2-tailed).

These results are difficult to explain. There may be differences in these inter-correlations because the two samples come from very different populations. There could also be differences due to the instability of the *STAT* subtests. Sternberg (1995a) reports moderately low, and from psychometric perspective, not quite satisfactory reliability indices for two of the *STAT* subtests, creativity and analytical (coefficient alphas are .62 and .63, respectively). The coefficient alpha of .48 that is reported for the practical subtest is in the range typically viewed as unacceptable for reliability indices. Further work on establishing the reliability of the *STAT* subtests for different populations of high school students, such as adding or deleting items and/or modifying its format to improve reliability is necessary before we fully understand the relationship among these important dimensions of thinking in diverse populations.

3. Are there differences in triarchic thinking skills between students from primarily African descent and those from Latina/o descent?

In the interest of understanding how possible cultural differences in our sample might affect the thinking skills among students from different backgrounds, we compared the students from African descent and those of Hispanic backgrounds, the two largest ethnic sub-groups. As can be seen in Table 1.6, there were no differences between these two groups of students in *STAT* pretest scores. The similarity in performance on the *STAT* thinking skill measures suggest that any differences found in writing and academic performance may be due to factors other than basic thinking ability such as motivation, attitude, and academic and life orientation, among others.

Table 1.6

Means and Standard Deviations for the *Sternberg Triarchic Abilities Test* Multiple Choice by Ethnicity: Hispanic and African Descent

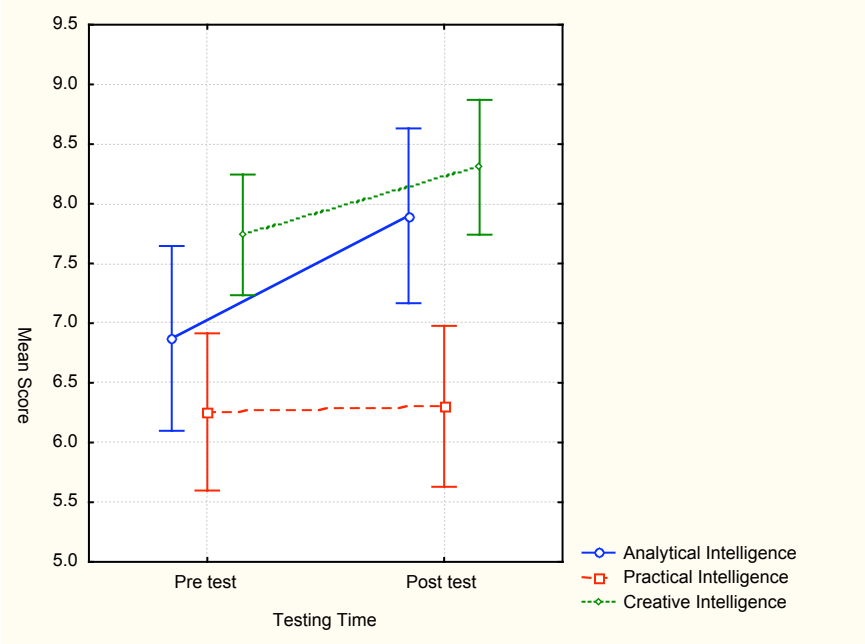
	***Sternberg Triarchic Abilities Test* Multiple Choice Subtest**							
GROUP	Analytical		Practical		Creative		TOTAL *STAT* MC	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Hispanic (*N* = 55)	5.53	2.16	5.60	1.95	6.96	1.76	18.09	4.34
African Descent (*N* = 69)	5.83	2.50	5.83	2.26	6.77	1.90	18.41	5.20
Total (*N* = 124)	5.69	2.35	5.73	2.12	6.85	1.84	18.27	4.82

4. *What is the impact of an intensive intervention designed to enhance triarchic thinking skills in ethnic minority, high ability, high school students? Does peer coaching make a difference?*

There were a number of dependent variables analyzed to measure the impact of the intervention program on the high school student participants in the intervention. These included the triarchic thinking skills as measured by the multiple choice and essay measures of the *STAT*, paper assignments given throughout the intervention program, three exams administered during the intervention program, and the total number of points earned in the course, as well as the final grade. Each of these measures was examined separately in relation to several independent variables including "having a peer coach," quality ratings mentoring; and mentoring attendance record. In addition, we explored whether there was an effect due to the session in which the intervention was or due to age, grade, or ethnicity of the student.

4a. Sternberg Triarchic Abilities Test *Multiple Choice (*STAT *MC) Test*

To evaluate the effect of the intervention on the multiple choice portions of the *STAT*, a two-way MANOVA was carried out with "having a peer coach" as the between group factor and the "pretest and posttest" as a repeated factor. The repeated factor was significant indicating that the posttest scores were significantly higher than the pretest scores (Wilks lambda = .78756, $F(3, 49) = 4.95$, $p < .01$). Examination of the scores indicates that the analytical and creative subtests increased significantly from pre- to post-intervention while the practical subtest did not increase (see Figure 1.1).



(Vertical bars denote 0.95 confidence intervals.)

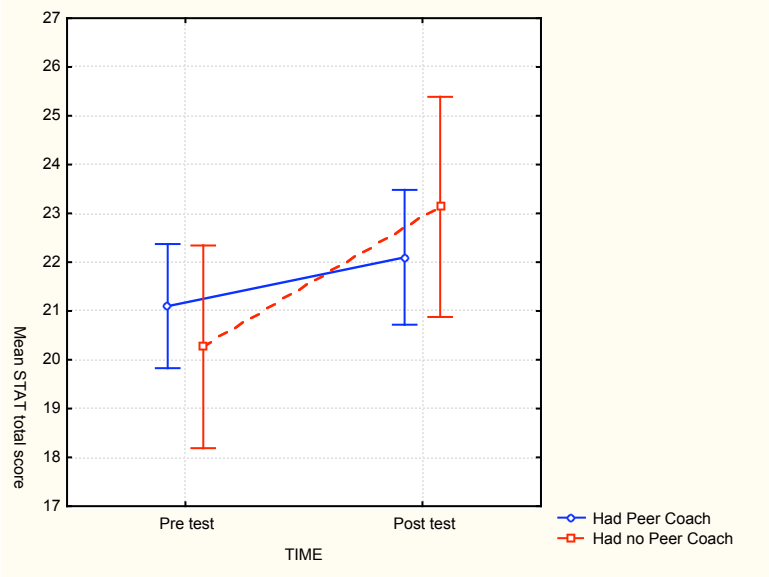
Figure 1.1. Effect of teaching thinking intervention on triarchic abilities scores (Wilks lambda = .76857, $F(3, 49) = 4.95$, $p < .01$).

We hypothesized that the intensive intervention focusing on helping students to improve their thinking skills in the area in which they were weakest, as evidenced by their lowest *STAT* MC test score in this area, would significantly improve *STAT* subtest scores at posttests. The improvement in two of the three areas partially supports this hypothesis. As shown in Figure 1.1, analytical skills were moderately high compared to the practical and creative scores at pretest and improved the most. Creative skills were highest at pretest and also improved although the increase in score from pretest to posttest was not as great as it was for the analytic scores. Practical scores did not change significantly from pre to posttest. It would seem logical that this academically based intervention would improve the thinking skills most adaptable in school-based situations. Thus, it is not surprising that analytical skills improved. The increase in creative skills is somewhat surprising, given that these scores were fairly high already and further improvement may have been depressed by ceiling effects.

The results seem to suggest that this type of intervention may be quite effective for changing ethnic minority students' analytical and creative skills, but that it is not effective for changing practical skills. The impact of the intervention on analytic and creative skills may be greater if students, designated as high ability or having high academic potential, are not selected for the intervention based on high pretest performance on a measure of analytic or creative abilities. Regarding the lack of improvement in practical thinking, it should be noted that much of the material used in the Sternberg (1995b) textbook, while focusing on practical problems, requires creative and analytic thinking to solve. Therefore, these students may not have gotten exposure to intervention materials that would have helped them develop practical skills. It also may be that practical thinking requires hands-on problems and experiences to change and may require more intensive, long-term intervention, which was not possible in this research.

We used a counter-balanced random assignment design to test the effect of being tutored or coached by another high school student who had previously participated in the TTP intervention. We called these students "peer coaches." We found that "having a peer coach" had no effect on performance on any of the three triarchic abilities multiple choice subtests ($p > .05$).

When the total triarchic scores were analyzed, the main effect for "having a peer coach" was not significant. However, the interaction between the "test time," variable and "having a peer coach" was significant, ($p < .066$, Figure 1.2). Using a one-tailed test was justified by the prediction that the intervention was expected to lead to increase in triarchic abilities. This interaction indicates that the group that had no peer coach increased the most from pre to posttest. While this seems to be a clear indication that peer coaching did not have a positive influence on changes in triarchic abilities this result may also be an artifact of the intervention because students who were selected as peer coaches were those who scored highest on the *STAT* pretest and who performed very well in the intervention course. Thus the students who were not peer coaches and who had peer coaches may have had the greatest gains in *STAT* performance.



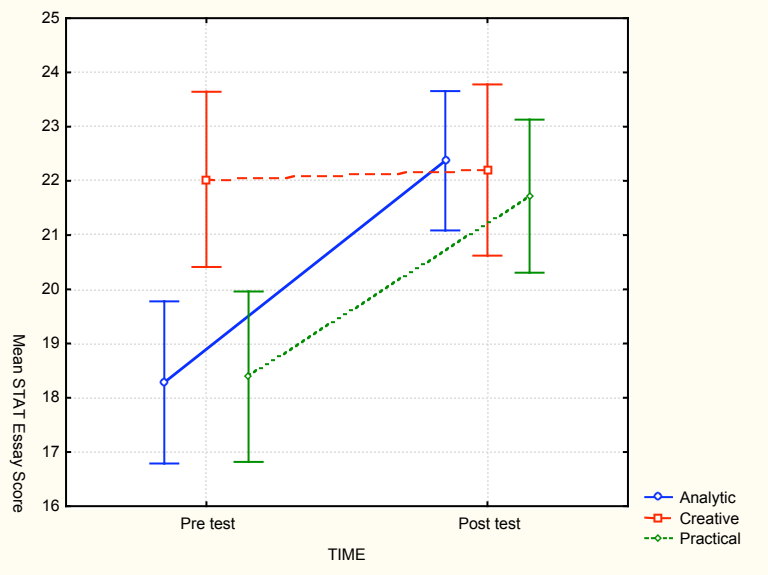
(Vertical bars denote 0.95 confidence intervals).

Figure 1.2. Effect of peer coach and time of testing on total *Sternberg Triarchic Abilities Test* score ($F(1, 53) = 3.5115$, $p = .0664$).

4b. Sternberg Triarchic Abilities Test *Essay Test*

A two-way MANOVA was carried out with "having a peer coach" as the between group factor and the "pretest and posttest" as a repeated factor to evaluate the effect of the intervention on the essay test of triarchic abilities. The repeated factor was significant indicating that the posttest scores were significantly higher than the pretest scores (Wilks lambda = .53073, $F(3, 53) = 15.621$, $p < .01$). Examination of the scores indicates that the analytical and creative subtests increased significantly from pre- to post-intervention while the practical subtest did not increase (see Figure 1.3). Having a peer coach also had no effect on any of the three triarchic abilities essay test scores ($p > .05$).

When the total triarchic essay scores were analyzed, neither the main effect for "having a peer coach" nor the interaction between the test time, and "having a peer coach" were significant ($p > .05$). However, there was a main effect for test time, indicating that the group as a whole increased their triarchic total scores between the pretest and the posttest ($F(1, 55) = 44.417$, $p < .01$). The group went from a mean score of 58.7 at the pretest to 66.3 at the posttest. These results almost mirror those of the *STAT* multiple choice subtests with essay scores for essays assessing practical skills showing no improvement; however creative and practical skills increase almost at the same rate and there was little difference in pretest scores on these two essay items. The intervention seems to have improved writing ability for the creative and analytic content areas, but not for the practical content area.



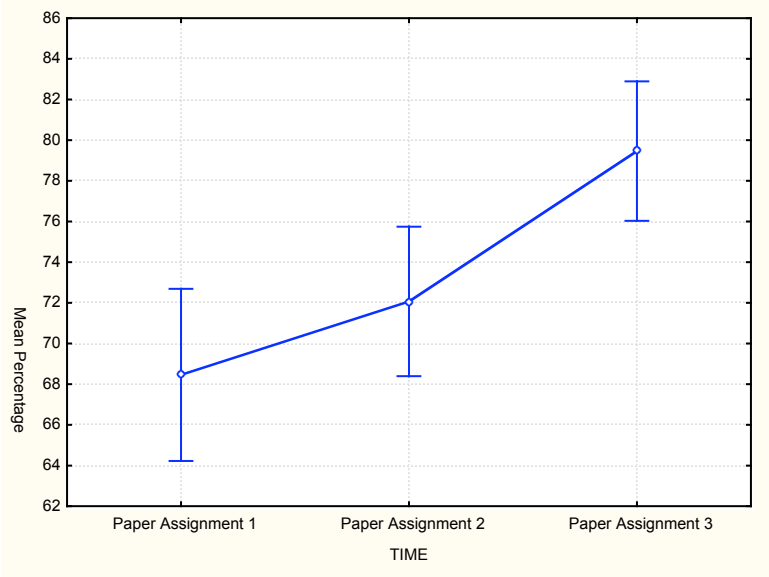
(Vertical bars denote 0.95 confidence intervals).

Figure 1.3. Effect of peer coaching on *Sternberg Triarchic Abilities Test* essay (Wilks lambda = .53073, $F(3, 53) = 15.621$, $p < .01$).

4c. Class Paper Assignments

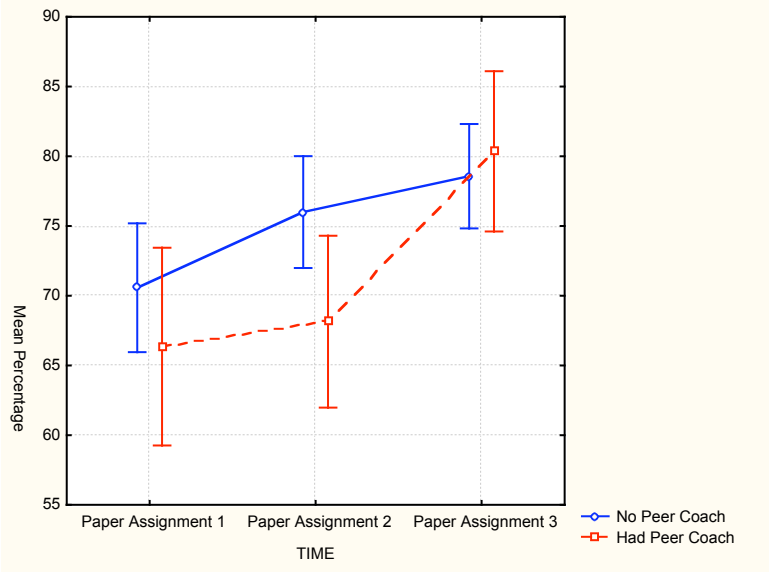
During the course of the intervention, which included attending classes in a college level course, the students were given paper assignments to complete. These paper assignments were also considered dependent variables used to evaluate the effectiveness of the Teaching Thinking intervention. The paper assignments were given at three points during the intervention and scored as indicated above in the Methods section. These three paper assignments were analyzed using a 3 (paper assignment) by 2 (presence of peer coach) ANOVA. Results indicated a significant main effect for paper assignment and an interaction for paper assignment and peer coach presence. Figure 1.4 shows the results for the paper assignment factor. There were significant increases between the first and second, and second and third assignments $F(2, 90) = 16.804$, $p < .01$. The differences between the three points were all significant at $p < .01$.

The significant interaction between "having a peer coach" and "paper assignment" is illustrated in Figure 1.5, $F(2, 90) = 3.1625$, $p < .05$. It shows that those students that had no peer coach significantly increased their paper assignment scores between the first and second assignments ($p < .01$) and did not make any significant gains after that. The students who had peer coaches showed non-significant increases between the first two assignments and then increased dramatically at the third paper. The two groups were not significantly different at the first assignment or the last assignment.



(Vertical bars denote 0.95 confidence intervals).

Figure 1.4. Effect of teaching thinking intervention on three paper assignments ($F(2, 90) = 16.804$, $p < .01$).



(Vertical bars denote 0.95 confidence intervals).

Figure 1.5. Effect of peer coaching on three paper assignments ($F(2, 90) = 3.1625$, $p < .05$).

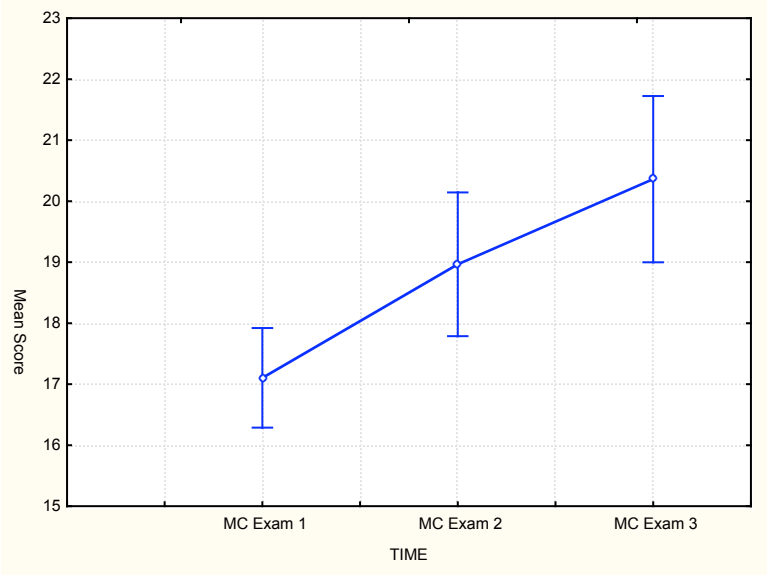
The last paper assignment was the most complex and difficult, involving using college-level scientific review research skills. The first papers the students wrote were quite modest efforts and did not reflect college level or even senior high school level work. The second paper assignment was relatively easy so that all students would have an opportunity to improve. Thus performance on the third paper may represent real chances in this area of competence. Completing a paper assignment represents a very concrete skill and students were given instruction and assistance with significant focus on writing skills and how to complete college writing assignments. Peers were selected who were quite good at writing papers and taught how to assist others in writing papers. One skilled mentor who guided their efforts in this regard also monitored them closely. This seems to have had some payoff as shown by the consistent improvement in writing shown in the paper assignments and especially the improvement for the peer coached group from the second to the third paper.

Poor writing performance was somewhat unexpected for these students because they were attending a high ability magnet high school. However, at the end of the intervention most of the students were submitting written work that reached the college-level standard. The clear improvement in paper assignment writing quality is probably substantially related to the influence of peer coaching and the intense focus on writing in the TTP intervention.

4d. Class Exams

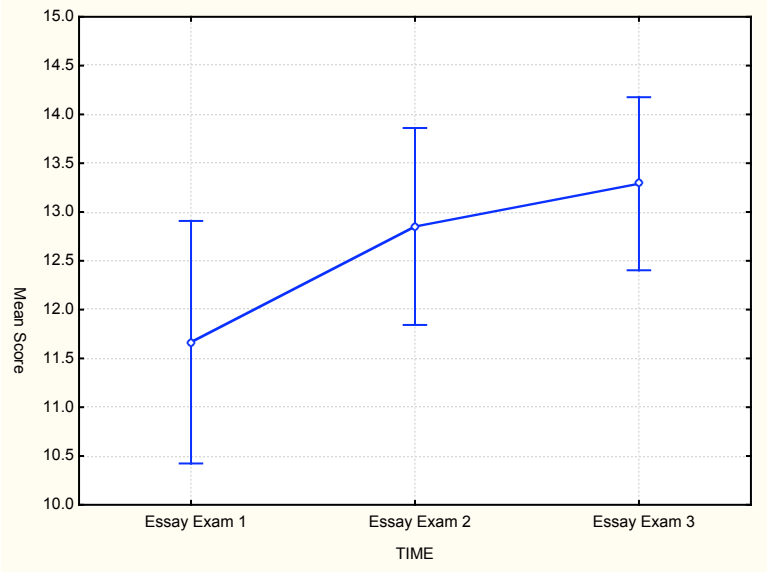
Three exams were given during the course of the intervention. Each exam had two parts: (a) multiple choice questions and (b) essay questions. The scores for these two parts of the tests were examined separately. Results for the multiple choice exams indicated a main effect only for time of the test $F(2, 96) = 11.027$, $p = .001$. Simple effects tests indicate that each of the three exams is significantly different from each of the others ($p < .01$). Figure 1.6 illustrates this effect.

Analyses for the essay part of the exams indicated that there were significant main effects for "having a peer coach" and essay exam. The interaction was not significant. The simple effects tests for essay exam revealed that there was a significant increase from essay exam 1 to essay exam 3 but that essay exam 2 did not differ from either essay exam 1 or essay exam 3 (see figure 1.7). The significant main effect for "having a peer coach" showed that those without a peer coach did worse than those with a peer coach across all three essay exams. This was probably due to the fact that the two groups differed significantly on essay exam 1 and that seemed to influence performance on the other exams. This could be due to a difference in writing ability between the two groups and also to factors discussed above in connection with the results focused on paper assignments.



(Vertical bars denote 0.95 confidence intervals).

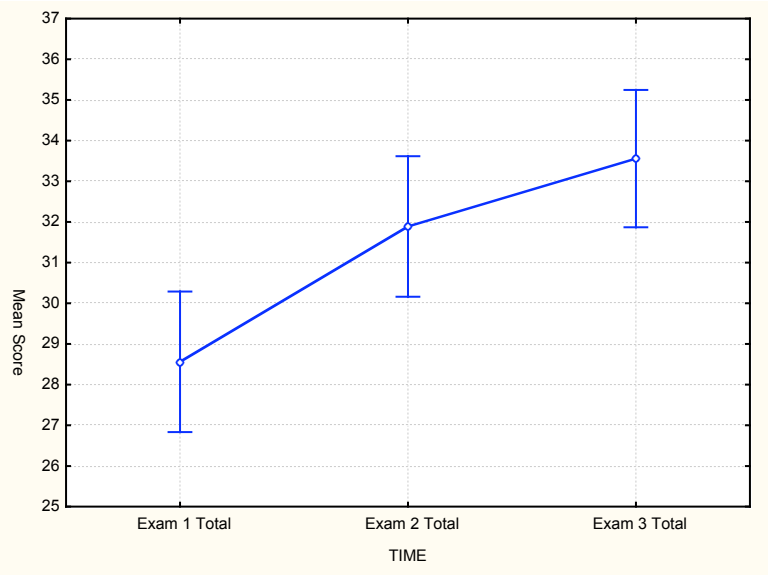
Figure 1.6. Effect of teaching thinking intervention on multiple choice exams ($F(2, 96) = 11.027$, $p < .001$).



(Vertical bars denote 0.95 confidence intervals).

Figure 1.7. Effect of teaching thinking intervention on essay exams ($F(2, 96) = 4.2993$, $p < .05$).

By combining the two parts of the exam to produce a total score, it was possible to have a more comprehensive view of each student's capabilities. These total exam scores were also analyzed. Results revealed about similar information as the two parts alone as shown. Figure 1.8 shows the results for the three total exam scores.



(Vertical bars denote 0.95 confidence intervals).

Figure 1.8. Effect of teaching thinking intervention on total exam scores ($F(2, 96) = 15.0296$, $p < .0001$).

4e. Final Course Grades

The students received points for the various course requirements they completed, as well as a final course grade. These measures were also subjected to analyses in order to evaluate the effect of specific aspects of the intervention. Analyses of these measures revealed no effect of peer coaching on either measure.

4f. Regression Analyses

Several regression analyses were done to examine the combined predictive effects of predictors on intervention outcomes. We used both the *STAT* posttests multiple choice subtests and the essay subtests, final course grade, final course points, and a composite score that included all three *STAT* subtests as outcomes. Predictors were included in the regression analysis if they had correlations above .20 with a particular outcome and were entered step-wise into the regression analysis. Predictors included (a) age, (b) grade, (c) ethnicity, (d) which session was attended, (e) "having a peer coach," (f) number of mentoring sessions attended, and (g) mentor quality rating. Only two regression analyses yielded significant adjusted multiple regression coefficients (R^2) and these are discussed here.

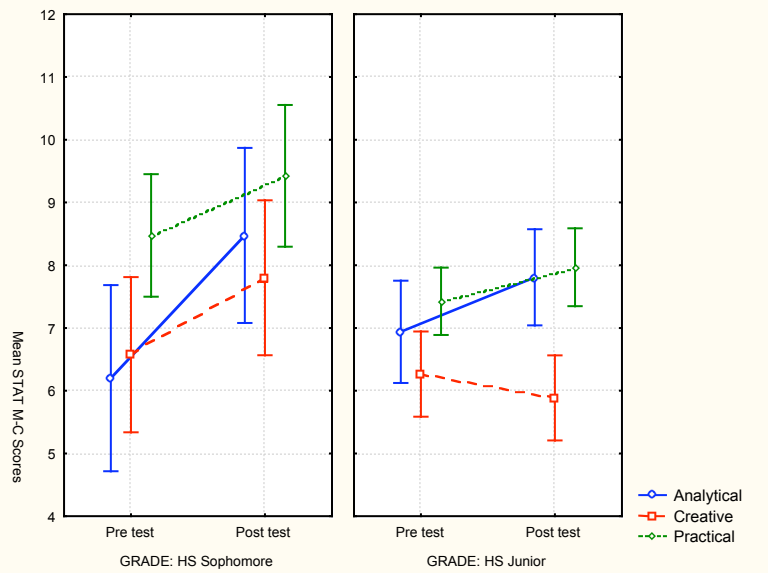
In the first analysis, we regressed age, grade, session attended, ethnicity, and "having a peer coach" on final points earned in the intervention course. In this analysis, only age, grade, and session attended yielded a significant R^2 ($R^2 = .28$, $p < .001$; unadjusted $R^2 = .60$). Age accounted for the most variance, followed by grade and session attended. Younger participants and those who were sophomores or first semester juniors and those attending sessions 3, 4, or 5 had a higher number of final course points. Younger students were probably able to gain a greater advantage in the intervention because they performed less well to begin with and were not affected by ceiling effects in the measures of thinking skills and writing proficiency. Students attending the later sessions in the series of sessions probably had the advantage of better developed procedures and the fact that the intervention ran more smoothly, as would be expected in an intervention trial.

In a second set of regression analyses, we examined the impact of the independent variables identified above on each of the *STAT* posttest scores. Only one regression was significant. In the regression predicting *STAT* analytical scores, we found that the number of mentoring sessions attended, quality of the mentor, and age significantly contributed to a significant adjusted R^2 ($R^2 = .34$, $p < .001$; unadjusted $R^2 = .76$). Quality of mentoring entered the regression first, followed by age, and number of mentoring sessions attended. Students who were younger, who attended more sessions and who had a mentor that had received a "high quality" rating during mentor training and at mid-term had higher scores on the analytical subtest of the *STAT*.

These regression analyses must be interpreted with caution as they are primarily exploratory in nature because of the small sample size on which they are based ($N = 57$). The TTP intervention was intentionally designed to be a feasibility study and could only include a small number of participants. Therefore, these analyses merely suggest possible pathways that explain how the intervention effects were achieved. Further studies are needed, both replication studies and studies that measure these exploratory causal effects, to interpret these findings clearly.

4g. Effects of Grade in School on Thinking Skills

We also examined whether a student's grade level at school, for example being a sophomore or junior, might affect performance on the various outcome measures. Of the measures that were examined (*STAT* multiple choice items, *STAT* essay, paper assignment scores, and exam grades), only *STAT* multiple choice scores seem to have been affected by grade in school. Figure 1.9 illustrates the relationship. It seems as if those students who were sophomores improved much more dramatically than those who were juniors. These grade level differences may indicate that students, who are less well developed, with fewer pre-college or college-level skills, for example, those who are younger are more likely to gain benefits from an intervention designed to improve thinking abilities. Further research may be necessary to identify the underlying factors, characteristics or aptitudes of students, in interaction with the intervention, including specific triarchic aptitude patterns that this grade level variable may represent.



(Vertical bars denote 0.95 confidence intervals).

Figure 1.9. Effect of teaching thinking intervention and peer coaching on *Sternberg Triarchic Abilities Test* multiple choice scores ($F(3, 41) = 3.1839$, $p < .05$).

Summary and Conclusions

The purpose of this study was to examine the feasibility and impact of an intervention designed to improve the thinking skills of ethnic minority, high ability, high school students. The intervention was based on Sternberg's theory of triarchic intelligence and his work that has shown that students who are instructed and evaluated using methods that match their initial profile of abilities perform better in school than students whose abilities are not matched to their instruction and assessment. This study represented a modified replication of this approach (Sternberg, 1995a). High ability, high school students were recruited to participate in an intervention based on their performance on the *STAT* and were given content-based instruction in a particular thinking ability based on their highest score and intervention instruction to improve in the area where they received the lowest score.

This research explored four overarching questions: (a) What is the pattern of triarchic thinking skills in ethnic minority high ability high school students? (b) Are there differences in triarchic thinking skills between students from primarily African descent and those from Latina/o descent? (c) Is there a different pattern of triarchic thinking skills in these students when compared to students in the Yale summer intervention? And (d) What is the impact of an intensive intervention designed to enhance triarchic thinking skills in ethnic minority high, ability high, school students? (e.g., Does peer coaching make a difference?)

Several key findings are summarized briefly here. This study was able to replicate the Sternberg approach and to demonstrate some impact of an intervention

designed to improve triarchic thinking abilities. Results suggest that there is a slightly different pattern of thinking skills present among ethnic minority, high school students when compared with a sample of students that is less ethnically diverse. There seems to be less strong a relationship between analytical and creative thinking and between practical and creative thinking for the ethnically diverse set of youngsters participating in this research. They also seem to perform less well, overall, at pretest than the primarily European descent sample described by Sternberg (1995a) but at posttest following the intervention, their *STAT* scores are nearly identical to the Sternberg original sample.

We were also interested in ethnic differences among the students participating in our intervention in the interest of exploring cultural variation and how it might affect thinking skills. We report that there were no significant differences in thinking skills at pretest between the two largest ethnic groups represented. Students who described themselves as "Hispanic" and those who claimed to have some "African descent" did not differ in practical, creative or analytical thinking and there were no differential effects of the intervention based on ethnic group membership.

The intervention activities had a differential impact on triarchic thinking skills. Based on the multiple choice subtests of the *STAT* we observed that the analytic and creative posttests scores increased significantly and the practical scores remained virtually the same. The intervention seemed most effective for the skills most immediately and obviously necessary for academic success. Practical skills may require more intensive long-term and experience-based intervention activities if change is to occur. These results seem to suggest that this type of college-based intensive and supportive intervention, using aptitude matching for instruction and intervention may be quite effective for changing ethnic minority students' analytical and creative skills. It does not however appear to be effective in changing practical skills. Future research may need to consider how the psychometric properties of the *STAT* may have influenced these results.

We were interested in the effectiveness of peer coaching for improving *STAT* and academic performance. We found that coaching from another high ability, high school student who had previously participated in the intervention was not effective in changing *STAT* scores at posttests. However, there were some significant effects of peer coaching on written exams and for class paper assignments. Some of this might be explained by the emphasis in training that the peer coaches received and by their level of experience. It may be more concrete and a simpler task to teach someone a few "tricks" that would improve writing at an introductory level and more complex to help someone develop a new approach to thinking. Therefore, peer coaches may be able to handle the former task more easily than the latter and thus have greater impact on writing skills than on thinking skills

Mentoring by a high ability and very successful college student was provided to each intervention participant. This was probably a significant aspect of the intervention that contributed to its effectiveness. This conclusion is supported by the fact that mentor quality, as measured by ratings of the mentor's effectiveness and quality at two points in

time, and the number of mentoring sessions each student attended, were significantly related to performance on the *STAT* outcomes at posttest. We also found that younger students seemed to benefit more from the intervention than older students.

The pattern of results reported here suggests several interesting directions for future research. The impact results shown, despite the current psychometric quality of the *STAT*, indicate that these important thinking skills can be shaped by direct intervention. This suggests that the *STAT* and the Triarchic model for instruction designed to improve practical, analytical, and creative thinking skills is useful. Therefore, future studies that could improve the psychometric properties of the *STAT* and the development of alternative measurement strategies, particularly for assessing practical skills are warranted. More work is needed to develop appropriate interventions for changing practical skills and for assessing impact on practical thinking. Using strategies designed to create larger and more stratified sampling approaches, it may also be possible to explore more fully the aptitude x treatment x age interactions that may help us to more fully explain how and when to intervene to develop maximum intellectual potential across diverse populations of students.

Chapter 2: Language Background and Writing Performance in High Ability, Hispanic, and African American, High School Students[7]

Introduction

The National Assessment Educational Progress (NAEP) reviews the academic achievement of American students in several domains. According to this review, Hispanic and indigenous African American students have lower writing scores, compared to their "White" counterparts, in three types of writing tasks: (a) informative, (b) persuasive, and (c) imaginative (Applebee, 1994; Campbell, Voelkl, & Donahu, 1998; Vanneman, 1998). There have been many efforts to explain ethnic differences in overall achievement (for example, see Steinberg, Dornbush, & Brown, 1992). One of the explanations for the lower writing achievement of Hispanic and indigenous African American students is that they use a different spoken language, unlike students who write better than they do and who speak mostly Standard English. Many Hispanics and African American students are exposed to or use a different language or nonstandard English dialects, including African American Vernacular English (AAVE).

Many research studies have found that the spoken language background is related to academic writing in Standard English. Despite extensive research on the correlates of academic achievement, the influence of language on academic success in gifted students is not well understood. There are few studies of native speakers of Spanish and the impact of language use on achievement in the area of challenging school work (Castle, 1993; Ogbu, 1992). Few studies have looked at the relationship between language backgrounds and writing in English by bilingual minority students although many studies on bilinguals have been conducted (Valdes, 1992). The majority of studies on bilinguals and writing have focused on students who are in "English as a Second Language" (ESL) programs; on foreign students, in the United States for short periods; and on recent immigrants. The influence of Spanish use by Hispanic students on writing is not well understood. There is also little information available on language use and writing performance of high ability, Hispanic American, high school students.

The language that is learned first, and often spoken at home by some students, has been described as an explanation of poor writing performance and overall low academic achievement, particularly in native born African descent and native Spanish speaking students (Coleman, 1997; Foster, 1992; Smitherman, 1993; Steinberg, Dornbush, & Brown, 1992; Whiteman, 1981). Typically these students use both Standard English and nonstandard English. Also, these students may have different levels of confidence in their ability to speak Standard English and their level of comfort with using nonstandard

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[7] The pilot study reported here is based in part on a City College of New York Psychology Department Masters thesis by the last author of this monograph. The authors would like to thank Nicole Koethner for editing portions of this monograph and Robin Fontaine for editing and contributing thinking about language, self and identity to our work. We also acknowledge the contribution of Dr. Patricia Laurence to developing an approach to coding the essay responses on the *Sternberg Triarchic Abilities Test*.

English. Because spoken language is an important factor affecting writing performance, it would be expected that writing performance could depend on one's confidence in speaking Standard English and use of nonstandard English. Therefore, it is important to examine the influence of language dialect on writing ability in high ability, African American students. The present study used data from an intervention research project known as the Teaching Thinking Project (TTP). The TTP was designed to implement an intervention to foster academic skills in high ability, ethnic minority, high school students, using Sternberg's triarchic intelligence model (1985), and to evaluate its impact on thinking skills. This project offered an opportunity to explore language background and language use of a rarely examined population. The focus of the research described here was to document the language use of high ability, Hispanic and African American students and examine the relationship between language use and academic writing performance.

Review of the Literature

Hispanic Bilingual Students and Academic Writing

The Hispanic population continues to be the largest and fastest growing minority group in the United States and consists of a wide range of ethnic groups with varying countries of origin and language and cultural backgrounds (Hernandez & Evans, 1998). Variation in language use is a major characteristic of the Hispanic population. Many Hispanic students who speak English and Spanish can be classified as bilingual. However, Hispanic bilinguals are so diverse that they cannot be considered as a single group. According to the Valdes (1992) categorization of bilinguals most of the Hispanic bilingual students in the United States are "circumstantial bilinguals" because they use English as a necessity rather than by choice. Valdes further divides circumstantial bilinguals into "incipient bilinguals" who are in the process of learning a second language and tend to have limited English proficiency, and "fluent /functional bilinguals." Since Hispanics have diverse language characteristics, detailed information on language background needs to be investigated to understand the relationship between writing and spoken language of this group (Valdes, 1992).

Factors Related to Writing Proficiency

There are a number of factors that have been related to language use and proficiency levels in English for bilingual speakers and some of these factors are discussed here (Cronnell, 1983; Mckay, 1997; Nielsen & Lerner, 1986; Reid, 1997; Valdes, 1992; Whitcher, 1994). For example, the type of Spanish spoken varies depending on the Spanish speakers' country of origin. Immigration history also influences the language characteristics of Hispanic students. Students who recently immigrated in the United States may know Spanish grammar well and speak formal Spanish fluently in contrast to the students who were born and raised in the United States. Although for some of those students Spanish is the first spoken language, they did not

receive formal education in Spanish as a consequence they have limited Spanish skills in reading and writing.

Many researchers have addressed the interference of Spanish syntax and semantics in English writing of Spanish English speaking bilingual students (Pearlman, 1978; Whitcher, 1994). Often instances of Spanish speaking students' writing errors can be attributed to Spanish interference. Spanish speaking students make writing errors by applying Spanish rules of grammar, pronunciation, usage, or spelling to English writing rules. Pearlman (1978) recognized that Hispanic ESL students often misused cognates, which are the words that have the same meaning in two languages.

The difficulties non-native writers have with the second language composition relates to a lack of automatization in the vocabulary and grammar of the second language (Galvan, 1986; Martin-Betancourt, 1986, as cited in Schecter & Harklau, 1992). Galvan's (1986) ethnographic study provides information on how bilingual students use languages and what kinds of problems they experience during composition. This study examined 10 bilingual Spanish speaking graduate students who were studying in the United States. In this study, a bilingual Spanish speaking graduate student reported that while composing in English he often had to halt his thinking and writing to search for the right word and to check if syntax, grammar, and spelling that he used were correct. Because of unfamiliarity with English writing convention, bilinguals in the study tended to focus more on mechanical aspects of writing (Galvan, 1986). Galvan's research demonstrates how this focus may hinder developing and organizing ideas in coherent ways.

Although there are many studies on bilinguals (e.g., Hakuta & D'Andrea, 1995), some studies on bilinguals and writing, surprisingly, little work has been done on minority students who have a language background that includes having learned more than one language, including English. The majority of research on the writing of Hispanic bilinguals often looks at the writing of ESL Spanish speaking students and foreign born international students who are quite different from Hispanic American students who have a bilingual background. Reid (1997) showed that international students and United States language minority students are different in language experience and therefore have different writing problems by examining the writing of Spanish speaking graduate students and Vietnamese speaking immigrants in graduate school. Amastae (1981) examined sociolinguistic background and its relationship to writing using writing samples of Mexican American college freshman in South Texas. Most of these students had received education in English. Thus, even for students whose first language and home language was Spanish, many of them had English as their dominant language. Despite these foundations, the use of English by these students varied according to socio-economic (SES) level. With an increase in SES, students tended to consider English as a first language, have more confidence in English and to use English more outside the home. However, at the highest level of SES, the relationship between SES and language use was reversed. Spanish was the first language learned by these students and these students reported having more confidence in Spanish.

Amastae (1981) found that the errors in these students' writing samples were not directly related to Spanish speech features nor were all of the problems of these Spanish speaking students common or similar. Nevertheless several common problems were found in all of the writing samples, including (a) a lack of orthographic practice, (b) a lack of standard usage, and (c) use of informal discourse modes. Amastae speculated that the problems in these Spanish speaking students' writing samples were more related to lack of educational opportunity than to Spanish language use.

Castilleja (1987) also speculated that writing problems among other Spanish speaking students are not a result of interference from Spanish language use. Some of the Hispanic Spanish speaking students in this study had a high level of skills in spoken Spanish, but they lacked Spanish language skills in reading and writing. Castilleja also speculated that Hispanic bilingual students, educated in bilingual programs, also lacked Spanish speaking skills, since Spanish is rarely used academically. Castilleja also reported that the college level Spanish speaking students often had difficulty reading and writing well in Spanish. Contrary to the Spanish language interference theory, Castilleja suggests that Hispanic students share the same basic problems as poor writers.

Another view, suggested by Whitcher (1994), is that bilinguals' specific dual language experiences leads to a different perception of how to approach writing tasks. In an intensive case study, Whitcher found that all of the six participants studied had learned to speak Spanish first and had earned English as a second language at school. However, specific language experience and background varied in the group. The "Spanish-first learned" and "English-first learned" bilingual participants fell into three categories: (a) Spanish dominant bilinguals, (b) English dominant bilinguals, and (c) impartial bilinguals. Whitcher found that there were two students in each category. Whitcher found that formal education seemed to influence linguistic development. For example, the two English dominant bilinguals, "Irene" and "Norma" (not their real names) had different formal education backgrounds. Irene learned to read and write in Spanish and also received education in English at an early age. She also had academic or school experience writing in both Spanish and English. Irene claimed that she could easily express her thoughts in both languages. Nevertheless, Irene thought that her ability to write in Spanish writing was influenced by her English usage because she had received most of her higher education in English. On the other hand, Norma received her formal education only in English and, while she spoke Spanish at home, her only school experience with Spanish was when she took high school Spanish courses. As a consequence of these very different experiences, Norma perceived that her written English was better than her written Spanish. She was self conscious about writing in Spanish in a formal setting, but pretty comfortable about informal writing in Spanish (e.g., letter writing, notes to friends).

Among immigrants who speak languages other than English there seems to be a trend toward using English more than using native languages (McKay, 1997; Portes & Schauffler 1994; Veltman, 1983). Students in the United States who begin school using a language other than English usually acquire excellent English proficiency as they reach adolescence. Bahrick, Hall, Goggin, Bahrick, and Berger (1994) found that individuals

who were younger than 13 years old at the time of immigration tended to become English dominant students as they approach adolescence. Students coming from homes where a language other than English is spoken tend to prefer speaking and writing in English to their first-learned language.

Nielsen and Lerner (1986) found that 79% of Hispanic high school seniors, who were classified as bilinguals, reported a higher proficiency in English than in Spanish. Portes and Schauffler (1994) found that Latin American second-generation youth in South Florida preferred speaking English to Spanish. They report that immigrant children in this study had widespread competence in English and demonstrated an unambiguous preference for it in everyday communication. These authors argue that because of this preference for speaking English, the preservation of languages spoken by immigrant parents may be at risk. They see this as a potential threat to the intellectual well being of bilingual children because true bilingualism may contribute to cognitive flexibility, higher scores on intelligence tests, and to creativity (Portes & Schauffler, 1996). Portes and Schauffler describe research conducted on French and English speaking children in Canada, demonstrating that when social class is controlled, true bilinguals performed better on a variety of cognitive tests (Peal & Lambert, 1962).

Given the language assimilation of ethnic minorities, most Hispanic American high school students are English dominant bilinguals. There seems to be little agreement in the literature about how bilingual status influences academic achievement. Some studies report a positive and others negative relationship between bilingualism and academic achievement (see Garcia, 1993). One study found that the frequency of Spanish use was negatively related to academic achievement of Hispanic bilingual high school students (Fernandez & Nielsen, 1986). In this study, a bilingual student was identified as someone who has some exposure to Spanish. Another study found that there was no significant correlation between the amount of Spanish spoken at home and Comprehensive Test of Basic Skills (CTBS) scores (Cook, 1990). In this study, Hispanic youngsters from Spanish language homes did not have a disadvantage in academic performance if they used Spanish at home. Adams, Astone, and Nunez-Wormack (1994) did not find a relationship between frequency of using Spanish by Mexican and Puerto Rican ninth graders and GPA.

Bilingualism and Writing Performance Among Hispanic Students

In general, we know very little about effects of bilingualism or English dominant bilingualism on the writing performance in these students. However, there is a plethora of studies available on composition in a second language. But, studies on writing performance of Hispanic American students who are not in the process of learning English as a second language, but who have bilingual background, are scarce. Furthermore, inconsistent results from studies on the effects of bilingualism on academic achievement suggest that the role of language background in explaining achievement is complex.

The effect of English-usage proficiency of bilinguals on academic performance is another language factor relationship that has been investigated and studies of this have also yielded varying results. Nielsen and Lerner (1986) found that self-reported English proficiency was positively related to academic achievement of Hispanic high school students. In this study, English proficiency was measured by asking students to assess four English abilities: (a) understanding, (b) listening, (c) reading, and (d) writing. Academic achievement was measured using students' scores on standardized tests in reading, vocabulary, and mathematics and by interviewing them about their educational expectations. Adams et al., (1994) however showed that the relationship between self-reported English proficiency and GPA varied depending on ethnic groups. Self reported English proficiency was negatively related to GPA in Mexican ninth graders but for Puerto Rican students there was an inverse relationship between these two variables. The authors of this monograph offer an explanation for the Mexican American findings and speculate that for Mexican high school students, higher English proficiency may indicate greater acculturation to American society and thus poorer self-esteem and lower academic expectations.

The relationship between Spanish language proficiency and academic achievement is also not clearly established. Fernandez and Nielsen (1986) found a positive relationship between self reported Spanish proficiency and scholastic achievement of Hispanic bilingual high school seniors. Proficiency in Spanish was most positively related to standardized vocabulary scores among three scores (vocabulary, reading, and mathematics). However, Adams et al. (1994) found that self reported Spanish proficiency of Mexican and Puerto Rican ninth graders was not related to GPA.

Studies of the effects of bilingualism on academic achievement have shown the relationship between bilingualism and academic achievement is complex. However, language background may not be as strong a determinant of academic achievement in bilingual students as previously thought. Fernadez and Nielsen (1986) found that regardless of their language backgrounds, Hispanic students had lower academic achievement than White students did. Other factors associated with being bilingual such as Hispanics' minority status in the United States may explain poor achievement not bilingual status directly (Castilleja, 1987). The value of first language or native language for life success, in some cases, is clear. When a person is able to use a native or first language that is valued by society, supposedly using two languages does not disadvantage him or her. However, many of these complex issues have not been studied by researchers interested in understanding spoken language use and ability and the relationship of these variables to writing.

African American Vernacular English and Writing

Numerous studies have been conducted about the influence of dialect on writing. In particular, African American Vernacular English (AAVE), a dialect that differs from Standard English in many aspects, has been studied. AAVE has been shown to differ from Standard English in such characteristics as phonology, grammar, semantics, pragmatics, vocabulary, etc. (Wolfram & Schilling-Estes, 1998). AAVE, spoken by a

number of African Americans students at home and in school settings, may be one of the factors that interfere with high writing achievement in African American students (Coleman, 1997; Foster, 1992; Smitherman, 1993; Whiteman, 1981). The influence of the features of AAVE on writing is well documented. Several key features of AAVE have been described including: (a) absence of verbal "s," (b) absence of plural "s," (c) possessive "s" absence, (d) absence of the consonant cluster "ed" and (e) absences of the words "is" and "are" (Whiteman, 1981; Wolfram & Schilling-Estes, 1998). The influence of AAVE on writing is often found at the mechanical level. Due to the features of spoken AAVE, AAVE-speaking children tend to have more spelling errors than children who speak Standard English because young children usually spell words phonetically (Cronnell, 1983).

Ball (1993) also reported that African American adolescents had slightly lower overall means for mechanic scores on writing samples than non-African American adolescents described as Asian, Hispanic, and White. However, the differences found between these students were not statistically significant. In another study, Engelhard, Walker, Gordon, and Gabrielson (1994) found differences between African American eighth graders and their White counterparts in writing quality as measured by the conventional tools of mechanics and usage. These differences in mechanical writing skill were greater than when writing quality was measured by examining characteristics related to topic development such as content, organization, style, and sentence formation.

Features of Writing in Speakers of AAVE

Whiteman (1981) investigated whether nonstandard features in writing are solely attributable to writer's nonstandard oral language patterns by comparing writing samples of nonstandard Southern AAVE speakers with those of Southern White Standard English speakers. In this study, Whiteman found that dialect was related to writing ability. Nonstandard Southern AAVE speakers' writing was often characterized by some nonstandard features in the writing of the participants. However, Whiteman found that inflectional suffixes such as "s" and "ed" were the most frequent nonstandard grammatical patterns in writing of all students. These nonstandard features not only appeared in the writing of students who omit these suffixes in speech, but also in the writing of those who did not omit those features in speech. NAEP data also showed that the absence rates in writing of inflectional suffixes such as verbal "s," plural "s," and consonant cluster "ed" decreased with age. These nonstandard features occurred more often in the writing of native-born African descent students of all ages, and in the writing of European descent White 9 years-olds, when compared to these older writers. It appears however that nonstandard features in writing are not always affected by speech patterns, but these nonstandard writing characteristics might also be explained by acquisition factors. Nevertheless, Whiteman did not discount the influence of speech background on writing because the frequency of nonstandard features in the writing samples examined in this study was much higher in the writing of AAVE speakers than in the writing of southern English speakers.

AAVE influences not only grammatical aspects of writing and spoken language, but it also influences how people organize their writing. In one study investigating organizational patterns of African American adolescents, Ball (1992) found that regardless of academic achievement level, some students preferred AAVE-based organizational patterns such as narrative interspersion and circumlocution in academic expository writing. Ball (1992) describes narrative interspersion as writing in which a pattern or sub-pattern is embedded within other patterns and in which a writer intersperses a narrative within expository text. Circumlocution is described by Ball (1990, 1992) as a pattern used by a writer to discusses a topic and then to divert to a related but different topic. In this type of writing, a theme is not overtly stated but connected with personal experience (Ball, 1992). Ball (1992) points out that these writing styles, preferred by African American adolescents, may contribute to low writing scores because these writing styles are not encouraged in the school setting.

Another writing problem, found in African American students who speak AAVE, is related to the discourse style found in their writing. Often AAVE speaking students use a discourse style that is more similar to spoken language. This discourse style, rooted in the oral tradition that is found in many indigenous cultures, is often not considered acceptable in school setting and consequently this may account for lower writing achievement scores of AAVE speaking students (Chaplin, 1988; Smitherman, 1993; Washington, 1996). Chaplin (1988) explored this feature of AAVE speaking students writing by comparing writing characteristics of African American students with those of students identified as "White." Chaplin rated essays based on grammar and syntax, task perception and cultural influence and found that the writing of the African American students exhibited characteristics such as conversational tone and a cultural vocabulary based on the oral tradition, while the students with which they were compared did not.

Normet (1995) investigated the relationship between cultural language background and rhetorical style and reports that African American college students used a different number of sentences depending upon the writing style they were using. African American students used more sentences in the narrative mode, regardless of written English proficiency level, than they did in the expository mode. In addition, the frequency of using cohesive devices was different across modes (1,711 for narrative mode, 1,063 for expository mode). Thus, it seems in this study that greater cohesiveness and competence in writing was achieved using the narrative, rather than the expository mode, for the African American students in the Normet (1995) sample.

As described above, some research demonstrating that AAVE has a slightly negative impact on grammatical and discourse style in writing. However, the writing problems of African American students are complex. Some researchers find that nonstandard English use is not solely responsible for writing problems of many African American students (Chaplin, 1988; Chapman, 1994). Chaplin (1988) found that although AAVE features occurred in many African American students' writing these features were not consistently used in African American students' writing. Fewer than 5% of the students used AAVE consistently. AAVE, therefore, is not the only source of African American students' writing problems.

Consistent use of AAVE features may indicate an inability to use standard forms of English in writing. However, writing difficulties may more likely stem from a lack of writing practice and effective instruction than from using AAVE. Chapman (1994) demonstrated this in a study examining 25 failing essays written by African American students for the Florida Statewide College competency test. Chaplin (1988) removed all nonstandard surface features including AAVE features, from the essays. This version and the original were then given to two raters. Each rater scored each essay independently and was also asked to explain the reasons for their scores. A passing score for the essays consisted of a combined score of at least 6 out of 10 points from both scorers. While only 35% of the essays from which surface errors and AAVE features had been removed were failed by the raters, slightly more, that is, 55% of the original essays were failed. Common explanations used by raters when giving non-passing scores included "lack of support; illogical; unfocused; unclear; repetitious; and insufficient." Based on these results, Chapman argued that the relatively low writing scores of African American students result from using AAVE, but also may have to do with the quality of education about writing received and a lack of writing practice. This research suggests that that surface errors, based in part from the use of AAVE features in writing, do not solely contribute to low writing scores of African American students.

Flower (1979), in an intensive qualitative study of language use, examined the writing processes used by three African American high school students. These students were chosen to participate in this analysis based on the amount and type of African American English Vernacular features in their oral language. One student was rated as using speech that contained a high degree of nonstandard dialect features, another was rated as using this dialect moderately often, and the third student was considered to use AAVE infrequently in speaking. Several differences were found in how these three students approached a writing task. Each used a slightly different process to write. The student who was most likely to use nonstandard dialect was more concerned about putting her thoughts on paper in the correct way and was distracted from the substantive focus of the writing task. The speaker who used dialect less often and the one using it moderately were able to put more emphasis on the organization of their compositions prior to writing. The high dialect user spent more time converting nonstandard dialect to Standard English before transcribing her thoughts onto paper than the other two speakers. She also took the longest pauses during the writing process. In the revision process, all three of the students made many grammatical changes. The speaker who used nonstandard dialect most often took the longest period of time to complete the writing task but produced the least amount of words in her composition and made the most errors.

Educators and researchers often assume that all or most African American students use some form of AAVE and are nonstandard speakers of English. However, there are many African American students who do not use nonstandard English at all and many who use nonstandard English and Standard English alternatively, depending on the situation, a phenomenon often referred to by language researchers as code-switching (Hecht, Collier, & Ribeau 1993). Because of these language-use variations African American students may have different levels of confidence in speaking nonstandard

English and Standard English than speakers who only use Standard English. Researchers have not closely looked at language background, experiences, or language use attitudes of high ability, African American students and the relationship of these variables to academic writing performance. Understanding this language background may be helpful in working with high ability youth to prepare them for challenging academic environments require translating thinking into writing.

The study of writing ability in African American students can provide important information on the nature of the problems African American students may experience in completing academic writing assignments that require sophisticated composition. This type of writing will be required of minority high school students who have high academic potential when they are asked to demonstrate their thinking skills in academic settings and for academic purposes (e.g., applications to college, course writing assignments). Speech characteristics and language use attitudes and decisions may have an influence of how students write and writing ability may enhance or hinder academic progress because it may interfere with students' ability to share their thinking in academically traditional ways. The interaction of spoken language background and characteristics with writing needs further investigation.

Writing, Language Use, and Self

Another issue that must be considered when studying language use in minority youth is that of the relationship between language and forms of self. There is a growing body of literature on the relationship between the use of language and narrative as a means of constructing a self concept and an understanding of one's social and cultural environment and surrounding events (Gilyard, 1991). Bruner's (1983) work supports the perspective that through discourse individuals construct themselves (Bruner & Kalmar, 1998). Language use is often a key to how individuals understand power relationships and how they negotiate their own self-construction and choices. The individual's creation of a self-narrative, using language choices, can make diverse events and actions coherent to the person in a context of larger meaning (Polkinghorne, 1991). In a sense, language use allows a person to create sense out of what may seem incomprehensible. This person's truth seeking and self-understanding are important psychological aspects of an individual's functioning (Miller, Hoogstra, Mintz, Fung, & Williams, 1993). Because the role of language is critical to the development of self-concept and self-awareness, it is critical to understand how changing it may affect the psychological well being of an individual. Few models focused on understanding the self make specific reference to the role of language use or narrative in the construction of self; however, this lack of attention to language usage in these models does not invalidate the importance of understanding language usage and the contribution to self-understanding. These critical questions should be examined in the context of interventions designed to change oral and written language usage to improve academic performance in speakers who do not use Standard English forms in everyday discourse.

Rationale for the Present Study

Poor use of English linguistic functioning is often blamed for a lack of writing achievement in some Hispanic and African American students. This lack of skill in writing can hinder the academic achievement of many high ability and/or gifted students who come from linguistic backgrounds that are at variance with Standard English as used in schools. These students may be very capable cognitively but unable to share their thoughts adequately due to writing skill deficiencies and oral language usage problems. A number of studies have found that the first language a student learns, or a dialect learned early in life, might interfere with learning a second language that is used for school. Writing skills, in particular, may be affected for students in this situation. Much of the research that has been done on this problem focuses on Hispanic students who are in the ESL program or who are international students.

Few studies have looked at the language background and language use of Hispanic students who are born and raised in the United States, and who have presumably spoken English from an early age. In addition, little research has looked at the relationship between language background and academic writing performance for these students. The relationship between the use of AAVE and writing skill in African American students has been examined slightly more. However, almost no information is available on high ability, African American students' spoken language background and use and the relationship of these variables with writing performance. Therefore, the present study focused on the relationship between spoken language background and use and writing performance of high ability, Hispanic and African American, high school students who were participating in the Teaching Thinking Project intervention.

Method

Research Questions

The research questions to be addressed in this study are:

1. What is the language background of high ability, Hispanic and African American, high school students?
2. Does the amount of time per day that English is spoken by students affect academic writing performance?
3. Does students' confidence in using Standard English usage affect writing performance?
4. What is the relationship among language background, language use, academic writing and creative, practical, and analytical thinking skills?

Participants

Participants in this study were involved in an intervention designed to improve their thinking skills, writing skills, and preparation for college. Participants were

students from a high ability magnet school. Participants in the first phase of this language use and writing study were from the fall 1997 cohort of Teaching Thinking Project participants. Ten students were chosen to participate in the Project in the fall of 1997. One student dropped out of the intervention early in the semester, because of personal time constraints, and the remaining nine students finished the intervention trial. For the purpose of this study, one student, a male student from Pakistan who spoke Urdu, was excluded from the study so that the total number of students who participated in the first phase of the study is eight.

All of the participants in the pilot study were female and a focus group approach was used to develop a language usage survey. There were four students who self-identified as African American and four who said they were of Hispanic origin. The mean age of the participants was 15.7 years. In a second phase of this study, an additional 24 students were recruited to complete a language usage survey and to participate in a series of phone calls about their use of English and any other languages or dialect. We also examined the language performance scores of these students, as measured by writing assignments, in relationship to their language use backgrounds. These students were recruited from other sessions of the Teaching Thinking Project intervention from 1998-2000. Demographic information of participants is presented in Table 2.1.

Table 2.1

Demographic Characteristics of Participants

Demographic Characteristics	Phase 1 *N* = 8	Phase 2 *N* = 35
ETHNICITY		
Hispanic/Latina	50%	50%
African Descent	60%	40%
AGE (Mean)	15.4	16.0
BIRTHPLACE		
United States	86%	88%
Dominican Republic	10%	3%
Jamaica	2%	7%
Other	2%	2%

Measures

Language Survey Questionnaire. Based on a focus group interview with pilot study participants, a language survey was developed for this study and administered to students participating in the language study embedded within the Teaching Thinking Project. The purpose of the survey was to examine spoken language background and to determine how language and language dialects were used. The questionnaire asks students about when they learned English, how and when they use it, and with whom. The questionnaire also asked students to report on the language background of their parents. The language survey questionnaire consisted of 32 open-ended questions. The questionnaire is presented in Appendix B.

Focus Group Survey. The focus group method was used to further explore participants' use of language and to gauge reaction to the language survey questionnaire. A group of seven students was interviewed to determine whether they understood the questions on the language survey and to gather suggestions about how they use language in everyday situations and in school. The focus group comments, based on standard practice, were used to refine questions on the language survey so that it could be used as a phone interview to collect information daily on students' language use (see Vaughn, Schumm & Sinagub, 1996).

Phone Interview Survey. The original language survey was revised, using results from the focus group survey, and developed for use as a phone interview protocol. The phone survey asked students to verify some information and to report on language use during the day of the phone survey. Students who were interviewed by phone were asked about: the first language they had learned; language used when participants spoke to parents; language used when parents spoke to participants; and level of confidence in language used in speaking and writing. Participants were also asked to assess in which language, English or a native language or dialect, they were more confident. They were asked to use two hypothetical situations to make this judgment. Participants were also asked to give an example that described a circumstance in which they used a mixture of both languages in an everyday situation. Similar questions focused on the use of Standard English (slang), if appropriate, to examine African American students' language use. These questions were similar to those asked of Spanish speaking students and focused on whether or not respondents mixed slang with Standard English in speaking and writing. In addition, they were asked to describe situations in which they mixed the two language systems. Another question assessed whether they are more confident using English or slang in speaking and writing and in what particular settings. This survey is presented in Appendix C.

To examine daily use of language, students were also asked to report the language they used in social interactions on the particular day they were interviewed.

The Sternberg Triarchic Abilities Test. Sternberg (1985; 1995a) developed this measure to assess three aspects of intelligence or thinking skills. It was used to identify eligible participants for the Teaching Thinking Project and to measure the impact of the

intervention on the students' thinking skills. The *Sternberg Triarchic Abilities Test (STAT)* consists of two parts: a multiple choice and an essay section. The multiple choice section assesses three types of thinking skills: (a) analytical, (b) practical, and (c) creative. Each thinking skill subtest assesses three content domains: (a) verbal, (b) quantitative, and (c) figural. These nine multiple choice subsets consist of two sample items and four test items. In total, there are 36 multiple choice questions allowing for a perfect score of 36. Each subtest contains 12 items. See Table 1.1 for descriptions of the subscales. The essay items also measured the three types of thinking skills and were scored using a system developed for the TTP with assistance from an expert on writing assessment in English. The essay section consists of three questions that focused on a problem requiring the use of one of the three thinking skills. The analytical problem requires students to analyze the advantages and disadvantages of having police or security guards in his or her school building. In the creative essay, the student is required to describe how he or she would reform their school system to make it an ideal one. In the practical essay, a student is asked to identify a recent problem and to describe three different practical solutions.

Two raters rated each essay response independently and discrepancies were resolved using face-to-face discussion between the two coders and a third person, usually the primary investigator. The coding system included scales that rated six dimensions that should have been reflected in a well-written essay answer including (inter-rater reliability indices for each scale are in parentheses following each): (a) Understanding and development of an idea (.91), (b) Use of Evidence (.95), (c) Organization and coherence (.85), (d) Complexity (.76), (e) Fluency (.95), and (f) Correctness (.87). A complete description of the *STAT* and the coder instructions and rating scale are included in Table 1.1 and Appendix A. The *STAT* allows one hour for the multiple choice section and 45 minutes for the essay section (15 minutes per question). Sternberg and colleagues have written extensively about the use of the *STAT* (see Sternberg, 1993a; Sternberg, Ferrari, Clinkenbeard, & Grigorenko,1996).

Paper Assignments Scores. Participants were asked to write three papers during the intervention psychology course. The paper assignments were designed to help students develop thinking skills in the area in which they had received the lowest thinking skill scores. Each paper assignment required a student to write a three-to-five-page essay on a question that challenged the respondent to use their analytical, creative, or practical thinking skills. While students were allowed to choose the question they answered for their first paper, the question they used to answer the second and third papers was assigned to them. A trained graduate student, using a scoring protocol developed for this project, scored each paper. Writing scores on each paper assignment were used as a measure of writing performance.

The analytical question for the first paper assignment asked participants to generate a research design for a study of depression and the study of intelligence. The creative question asked students to develop a theory about how high school students choose their friends, and develop a correlational study and a causal study to test their theory. The practical question asked the participants to devise a classroom system of

behavior modification for hyperactive kindergarten children. The questions for the second paper assignment were as follows: Compare and contrast arousal theory, opponent process theory, and homeostatic-regulation theory (analytical); Design a television program that includes aggression, but does not foster aggressive behavior in children ages 7-12 (creative); and create a campaign that is designed to obtain American's compliance with traffic rules using several techniques that were identified by a psychologist (practical). In the third paper assignment, the analytically focused question required the participants to write about the causes of borderline personality disorder from a learning psychodynamic and cognitive theory perspective. The creative question asked students to write a story about a day in the life of someone who has a panic disorder. For the practical question, the participants were asked to apply a cognitive therapy called social problem solving to a problem that students faced.

Scoring of Paper Assignments. A trained project staff member and the project director/primary investigator evaluated each paper assignment using a 5 point scale based on the content, style, and form. There were several criteria that were applied to judging the quality of each paper assignment. These included considering: (a) How well the paper addressed each of the different schools of thoughts or ideas that were the focus of the question or how the student included a focus on each part of the question, (b) Accuracy of the information presented, (c) Presence of new ideas introduced by the student, and (d) How well the student provided a synthesis related to the information they presented. The writing style of each paper was also judged and these criteria included consideration of (a) fluency (number of pages/words and flow of ideas), (b) organization, (c) spelling and grammar, (d) clarity of expression, and (e) originality of the presentation. A total score of 45 points was possible for a paper assignment. Students could earn 5 extra points for using sources other than their psychology textbook. Reliability for coding of these paper assignments was established using inter-rater agreement indices collected on a sample of 15 papers and was .87.

Procedures

During the first semester of this study, a focus group was conducted with eight female students to gather information that could be used to design a survey about language background and use and a phone interview to capture daily language use interactions. A senior researcher and a research assistant conducted the 40-minute focus group. Before beginning the focus group conversation, the focus group leader explained to the participants the need for the use of tape recorders. The group conversation was recorded with two tape recorders. Two focus group facilitators transcribed data from the focus group the next day.

At the mid-semester point, for each group of participants, phone interviews were conducted by one of the focus group facilitators twice a week for four consecutive weeks. Students were contacted at home by phone and interview dates, at a consistently convenient time, and location were arranged during the late afternoon or early evening. One of the focus group facilitators interviewed each student using the phone interview protocol as scheduled.

During the ending phase of each intervention semester participating students were administered the language survey measuring students' spoken language background. Before each administration, the purpose of the study was explained to the participants. Participants were told that there were no wrong or right answers to the survey and the survey was intended to assess personal use of languages. Students were also told that they could ask the investigator any questions or decline to answer any questions.

Results

Sample Characteristics

Table 2.1 presents the demographic characteristics for the pilot and the larger sample of Teaching Thinking participants who participated in the language background study. We designed the pilot study to include equal proportions of students who self-identified as having some Hispanic background or some African descent, but no Hispanic, background. In the larger sample 60% of the 34 participants were of Hispanic and 40% of African descent, but not Hispanic, background. All of the participants in the language study were female. In the pilot study the mean age was 15.2, and it was 16 years of age in the larger sample. Seventy-one percent of the pilot sample and 75% of the larger sample had lived in the United States all of their lives.

Triarchic Abilities Assessment

Student scores for the total score and each of the subtests on the *STAT* pretest are presented in Table 2.2. This table presents the means for the total sample of TTP participants and for the Hispanic and African American sub-samples participating in the language study. Means are presented for each of the two ethnic groups and for the total language study sample. There does not appear to be any meaningful or significant difference between any of the total *STAT* means for the multiple choice or the essay portion of the *STAT*. Students participating in the language study had very slightly higher total means, 1 – 2 points, but this difference is not significant.

Both sub-samples scored higher on the creative subtest of the multiple choice section and scored highest on the practical sub-section of the essay section of the *STAT*. There was no difference between analytical and creative essays for either group. Nor were there differences between the analytical and the practical multiple choice subtests of the *STAT*. In General, these students appear to be doing moderately well on the multiple choice subtests and somewhat less well on the writing portion of the *STAT*. Means ranged from 8.2 to 6.4 (approximately 53% to 68% of 12 possible points) on the multiple choice subtests and from 17.9 to 24.9 (30% to 42% of 60 possible points).

Table 2.2

Means and Standard Deviations for Ethnicity and Language Study Sub-samples and the Total Teaching Thinking Project Sample for the *Sternberg Triarchic Abilities Test* Scores (*N* = 35)

Triarchic Abilities Pretest Subtests*	Study Sub-samples							
	Ethnicity				Total Samples			
	Hispanic language		African descent		Total language		Total TTP**	
	N = 21		*N* = 14		*N* = 35		*N* = 57	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Multiple Choice								
Analytical	6.6	2.0	6.7	2.1	6.7	2.0	6.8	2.1
Creative	7.5	1.3	8.2	1.5	7.7	1.4	7.7	1.6
Practical	6.6	1.8	6.0	1.5	6.4	1.7	6.5	1.8
Total	20.7	3.1	20.9	3.5	20.8	3.2	21.5	3.8
Writing								
Analytical	18.1	4.9	18.8	4.8	18.3	4.8	17.9	5.1
Creative	19.7	5.9	17.4	6.2	18.9	6.0	18.4	5.3
Practical	22.2	4.7	24.9	4.6	23.0	4.8	21.9	5.4
Total	59.9	10.7	61.1	12.4	60.3	11.1	58.1	11.4

* The range for the multiple choice subtest scores is 0 to 12; the range for the essay subtests is 0 to 30.
** All participants who were identified.

Language Background of Hispanic Students

All the Hispanic students were bilingual. Table 2.3 summarizes information on the language background of Hispanic students. All of these students reported that Spanish was their native language. However, 25% had not learned Spanish as a first language. Fifteen percent of the total sample of Hispanic students reported learning both English and Spanish together as very young children and 10% of the students learned English as a first language. All of the Hispanic students who learned Spanish as a first language reported that they also learned to speak English frequently and equally well by the age of five. We asked students to tell us which language they preferred to use when speaking to their parents, all of them said that they preferred to speak Spanish with their father while only 75% reported this language preference when speaking with their mother. Twenty-five percent preferred to speak English with their mother.

Table 2.3

Percentage of Hispanic Students Nominating a Particular Language Background Category (N = 22)

Language Background Category	Frequency	Percentage
I consider Spanish my Native Language	20	100
Language First Learned to Speak		
Spanish	15	75
English	2	10
English and Spanish	3	15
Age at which English First Spoken Often		
Five Years (school entry)	15	75
Spoke Spanish and English Equally	5	25
Number of Years English Spoken		
12	5	25
11	10	50
No answer was given	5	25
Language Preferred to Speak with Parents		
Father		
Spanish	20	100
Mother		
Spanish	15	75
English	5	25

Language Use of Hispanic Students

Follow-up phone calls revealed that most Hispanic students tended to speak English mostly with siblings and friends. They spoke English less frequently with their parents and tended to speak in Spanish with them about 60% of the time. Table 2.4 presents the percentage of time these students reported that they spoke in a particular language or language combination with parents, siblings, and friends. Ninety-five percent preferred to use both English and Spanish in working on academic work and 65% preferred using both in dealing with social problems. About half reported that they "dreamed" in Spanish and about one-half that they dreamed in English. Phone interview data confirmed these results.

Table 2.4

Percentage of Hispanic Students Nominating Spanish or English as Easiest to Use in Various Situations ($N = 22$)

Situation	Language Nominated (%)		
	Both	Spanish	English
Academic Work	95	2	3
Dealing with Social Problems	65	20	15
I dream in . . .	0	50	50

In the follow-up phone interviews, students were asked to think about with whom they interacted on the day they were interviewed and asked to report what languages they spoke with each person with whom they interacted. Students tended to speak Spanish or mix Spanish with English when speaking with their parents. They tended to use English when speaking with friends and siblings.

Half of these Hispanic students indicated that their parents usually spoke to them in Spanish. The other half reported that their parents mixed Spanish with English. Most of the students, 75%, reported that they preferred to speak Spanish when speaking with their parents and only 25% preferred to speak English. Some students, about 27%, reported that they preferred to use different languages depending on with whom they spoke. The language spoken by participants' parents to participants was usually the same language that students preferred to speak with their parents.

Table 2.5 presents information on the language or language combination that students felt most confident about using in various situations. They were evenly divided in their preference for using English, Spanish, or a combination of both in social situations. Overwhelmingly they preferred to use English in doing academic writing. The majority, 70%, felt most confident using Spanish and English and an equal percentage reported that they would use English to do personal writing (e.g., letters, diaries). When interviewed by phone, all Hispanic students reported that they mixed languages in speaking but not in writing. These examples describe situations in which students reported using a combination of both Spanish and English:

> If I am talking to my mother in Spanish and I don't know how to say something in Spanish I will say it in English.
>
> When I speak with someone I know speaks both languages as well.
>
> When I speak to my parents when I'm not sure how to say sometimes in one language I will say it in the other to complete my ideas.

Table 2.5

Percentage of Hispanic Students Nominating Spanish or English as the Language They Use Confidently in Various Situations ($N = 22$)

Situation	Language Nominated (%)		
	Spanish	English	Both
Routine Social Talk	30	45	25
I am most confident in . . .	10	20	70
Academic Writing	0	95	5
Personal Writing (Diaries, letters, etc.)	20	70	10

In the phone interviews, students were asked about situations on that day that required speaking and writing in informal and formal situations. All Hispanic students reported that they could comfortably speak Spanish in an informal situation, such as speaking with a taxi driver or waiter. They also reported that they could do an oral presentation in Spanish in a class situation. Nevertheless, most of the Hispanic students admitted that they would be more comfortable in speaking with taxi drivers, or in informal situations, than doing an oral presentation. Regarding their writing skills, all Hispanic students answered that they could write a paper in their native language. However, they were self-conscious about their written language skill. For example,

> It wouldn't be perfect, but I think I could do it. Yes, I probably would have to ask somebody to proof read it. With little help from the dictionary.

While they reported being fairly comfortable in speaking Spanish they also reported that they did not think that their writing skills in Spanish were as well developed as their speaking skills in this language.

Language Background of African American Students

Table 2.6 presents language background data for African American students. Most of these students, 75%, reported that they considered English to be their native language. However, when students were asked what language they had first learned only 47% nominated English, the remaining half said that they had first learned another language including Spanish, French, French Creole, or some other language. Most had spoken English by age five and spoke English most of their lives. All of the African American students reported that they preferred to use English with their fathers and all except one reported the same was true for speaking with mothers.

Table 2.6

Percentage of African American Students Nominating a Particular Language Background Category (N = 17)

Language Background Category	Frequency	Percentage*
I consider English as my Native Language	17	77
Language First Learned to Speak		
Spanish	3	18
French	1	6
French Creole	4	24
English	8	47
Other	1	6
Age at which English First Spoken Often		
Three Years	1	6
Five Years	15	88
Spoke French and English well	1	6
Number of Years English Spoken		
14	3	18
13	2	12
12	1	06
All my life	11	65
Language Preferred to Speak with Parents		
Father		
English	17	100
Mother		
English	16	94
French	1	6

* May not add to 100% in each category due to rounding errors.

Self-reported Language Skills of African American Students. Table 2.7 describes for these students, as for the Hispanic students described above, the situations in which they reported using English, AAVE, or some combination of the two. Table 2.8 presents information on how confident these students were in using English in various situations. As shown in Table 2.7, and as was the case with the Latina students, most of the African

American students, 80%, nominated English as easiest to use for academic work and half reported that it was easiest to use AAVE and 30% that it was easiest to use both English and 10% (or one student) that it was easiest to use English and AAVE to deal with social situations. Sixty percent reported that they dreamed in AAVE; 30% in English only, and 10% in both.

Table 2.8 shows that most of the African American students, 70%, were most confident using AAVE to do routine social communication while all of them or 100% preferred to use English to do academic writing and 70% also preferred to use English for personal writing. While very few students nominated AAVE or the English-AAVE combination for other uses such as personal writing, academic writing, 70% stated that they were most confident using both AAVE and English. All of the African American students reported that they mixed slang with Standard English in speaking English. These examples help illustrate what students reported about this:

> When I am angry about something, I'll be mixing slang curses and stuff. I always use it Talking with friends on the phones.

Although these African American students spoke only English, except where they learned a foreign language through a formal language class, all of the students reported that they used AAVE to varying degrees.

For the question about mixing languages in writing, two students answered that they mixed slang with Standard English in writing. One student mixed slang with Standard English when she wrote to herself. Two other students reported that they never mixed slang with Standard English in writing.

Table 2.7

Percentage of African American Students Nominating AAVE or English as Easiest to Use in Various Situations ($N = 10$)

Situation	Language Nominated (%)		
	AAVE	English	Both
Academic Work	10	80	10
Dealing with Social Problems	50	20	30
I dream in . . .	60	30	10

Table 2.8

Percentage of African American Students Nominating AAVE or English as the Language They Use Confidently in Various Situations ($N = 10$)

Situation	Language Nominated (%)		
	AAVE	English	Both
Routine Social Talk	70	10	20
I am most confident in . . .	10	20	70
Academic Writing	0	100	0
Personal Writing (diaries, letters, etc.)	20	70	10

Relationships Between Language Use and Writing Performance

It was hypothesized that a preference for using Standard English would be related to writing performance. In this study, writing performance was measured by the essay question responses on the *STAT* and scores on writing assignments given as part of the Teaching Thinking intervention. We determined preference for using English by asking students if they had to choose between using English 100% of the time or being able to use English, Spanish, AAVE or some combination of languages, which would they choose. We then dummy coded the responses. Fifty-five percent of the students indicated that they would prefer to use some combination of languages and the remaining students reported that they would prefer to use English all of the time. We also hypothesized that those students who were more confident in their use of English in social situations as well, and were equally confident using English in academic situations, would perform better on writing measures. We asked students to report on how confident they were in using English in social situations and in academic situations. Those that answered that they were highly confident in both situations were considered "confident" and those that had any other response were considered "not confident." About 74% of the students were in the "confident" category.

Table 2.9 presents the intercorrelations among the writing performance measures, English usage variables, and performance on the multiple choice portion of each *STAT* subtest. Writing performance was measured using a score given on three paper assignments. The analytical, practical, and creative problem essays written as part of the *STAT* and those written on exams based on course content were also considered a measure of writing performance. Correlations among these variables were modest and a weak overall association exists as evidenced by the proportion of correlations among the total that were significant. While more than a chance level of inter-correlation occurred, only 17% of the total number of correlations that were examined were significant. In general, the multiple choice subtests were more likely to be correlated with the paper assignments and the exam essay scores. The creative and the practical multiple choice

subtests were more likely to be correlated with writing performance scores than were the analytical scores. In fact, neither of the analytical scores, the multiple choice or the essay scores, were correlated with any of the writing performance measures.

Table 2.9

Correlations of *Sternberg Triarchic Abilities Test* Pretest Scores With Course Assignments and Language Usage Variables Total Sample ($N = 35$)

Language Performance (Writing/Preference)	**Sternberg Triarchic Abilities Subscores at Pretest**							
	Analytical		**Practical**		**Creative**		**Total**	
	MC**	**ESSAY**	**MC**	**ESSAY**	**MC**	**ESSAY**	**MC**	**ESSAY**
Paper Assignment 1	.28	.14	.15	.19	.22	*	.33	.17
Paper Assignment 2	.21	*	**.37**	*	.33	*	**.43**	*
Paper Assignment 3	.33	*	.18	.16	.17	*	**.36**	*
MC Exam 1	.20	*	.28	-.24	*	.25	.26	*
MC Exam 2	.19	-.17	**.38**	-.27	**.34**	*	**.43**	-.25
MC Exam 3	.13	*	.20	-.10	*	*	.20	*
ESSAY Exam 1	.22	.10	**.34**	*	**.42**	*	**.47**	*
ESSAY Exam 2	.28	*	.15	.10	.33	-.17	**.37**	*
ESSAY Exam 3	*	*	*	*	.28	*	.08	*
TOTAL Score Exam 1	.17	-.21	**.45**	-.27	.21	*	**.40**	-.21
TOTAL Score Exam 2	.29	*	.32	*	**.40**	-.14	**.49**	-.11
TOTAL Score Exam 3	*	*	.10	*	.17	*	.16	*
COURSE Total Points	.12	*	**.35**	-.22	.16	-.18	.30	-.25
Final COURSE Grade	-.14	.14	**.41**	.17	*	*	-.32	.16
Prefer English (speak)	*	.22	**.54**	.32	*	-.39	.28	**.38**
Confident/English***	*	*	**.37**	.10	-.11	.22	**.44**	**.66**

Bolded correlations above .34 are significant at $p < .05$ or $p < .01$ (Note: 17% of 128 correlation coefficients were significant; an additional 5% approached significance.)
* indicates a correlation of less than .10
** MC = Multiple Choice Items
*** Student states that they are confident writing and speaking in English.

Preference for and Confidence in Using English. Students were categorized into two groups based on self-reports about whether they preferred speaking English or another "native" language and whether they were very confident, somewhat confident, or not confident in speaking English. We examined intercorrelations between the writing performance measures and "preference for speaking English" and "confidence in using

English for writing and speaking." We wanted to see if these variables predicted writing performance. There was a modest significant correlation (r = .54) between "preferring English" and the practical multiple choice subtest and a low but insignificant correlation (r = .32) between "preferring English" and the practical essay subtest. Preference for English had a modest negative relationship (r = .39) with the creative essay subtest and was not related to the creative multiple choice subtest. This preference for English was also moderately related to the total scores on the *STAT*. "Confidence in using English" was strongly and significantly related to the total essay score on the *STAT* (r = .66) and moderately related to the total multiple choice scores. It was also moderately related to the *STAT* practical multiple choice subtest.

Table 2.10 presents the inter-correlation between "preference for using English" and "confidence in using English." These two self-report questions were moderately and significantly correlated (r = .42). Table 2.10 also presents the intercorrelations among the writing performance measures and the *STAT* essay posttests. Fifteen percent of the 81 correlations computed were significant. Confidence in using English was moderately and significantly related to the score on the first paper assignment, less strongly related to the second paper assignment score and was unrelated to the third paper score. Confidence in English was moderately and significantly negatively correlated with the Creative Essay Posttest and moderately positively correlated with the total essay score. Preference for using English was significantly related to the first paper score but not to the second or third paper score. "Preference for using English" was also moderately related to the total Essay posttest.

Table 2.10

Intercorrelations Among Course Writing Assignments, *Sternberg Triarchic Abilities Test* Essay Performance at Posttest, and Language Usage Variables Total Sample (N = 35)

Language Performance (Writing/Preference)	**Paper 1**	**Paper 2**	**Paper 3**	**ESSAY Analytical Post**	**ESSAY Creative Post**	**ESSAY Practical Post**	**ESSAY Total**	**Prefer to use English**	**Confident in English**
Paper Assignment 1	1.0	**.48**	.33	*	*	.14	.11	**.34**	**.49**
Paper Assignment 2		1.0	**.43**	*	-.25	*	-.21	.11	**.43**
Paper Assignment 3			1.0	*	-.27	.14	*	*	.12
Essay Analytical—Post				1.0	*	.17	**.58**	*	.25
Essay Creative—Post					1.0	.13	**.60**	.29	**-.48**
Essay Practical—Post						1.0	**.70**	**.51**	.31
Essay Total—Post							1.0	.33	**.38**
Prefer English (speak)								1.0	**.42**
Confident/English									1.0

Note: About 15% of 81 correlation coefficients were significant; an additional 5% approached significance. Bolded correlations above .34 are significant at $p < .05$ or $p < .01$.

We also calculated approximate proportions to represent the amount of time per day that students spent speaking Spanish or AAVE. We found no relationship between the amount of time students spent speaking Spanish and any of the writing performance variables used in this study. Among the students who identified themselves as using AAVE in their speech, as with the students who identified themselves as "Hispanic," we found no relationship between amount of time students reported that the used AAVE in speaking and any of the writing performance measures used in this study.

Discussion

This exploratory pilot study examined relationships between characteristics of ethnic minority students' language background and performance on writing assessments and assignments. This study also allowed us to examine the language background and language use and preferences of high ability, bilingual Hispanic and of AAVE-using African American high school students and their relationship to academic writing performance. Language use and writing, in particular, are important skills that students must have if they are to succeed in college and be able to share their thinking skills and/or abilities with others. Writing is the essential tool for academic discourse and it provides the avenue that a student must use to provide others the opportunity to see how they think, reason, problem solve, and create. If a student's writing skills and language usage skills are poor or interfere with this process of providing a window into their thinking, then they may not have the opportunity to demonstrate their abilities or to show intelligence by "looking smart" on writing assignments and examinations requiring narrative exposition. This study provides one of the first opportunities to examine language preference, usage, and writing performance in high ability students who are often defined as ethnic minorities and some interesting relationships were observed between a preference of using English and confidence in using English and writing skill.

This exploratory study examined four areas of language use and performance for these adolescents including: (a) What is the language background of high ability, Hispanic and African American, high school students? (b) Does the amount of time per day that English is spoken by students affect academic writing performance? (c) Does students' confidence in using Standard English usage and preference for English affect writing performance? (d) What is the relationship among language background, language use, academic writing and creative, practical, and analytical thinking skills?

Language Background and Use

Several scholars of linguistic development have discussed the important influence of the language that is learned first, and often spoken at home by some students as an explanation for poor writing performance and overall low academic achievement particularly in native born African descent and native Spanish speaking students (Coleman, 1997; Foster, 1992; Smitherman, 1993). This research allowed us to examine some exploratory features of the language background and language use of two groups of linguistically diverse students.

As might have been expected, there were differences between Hispanic and African American students in language background and use. All of the students who were identified themselves as "Hispanic" students in the present study reported that they were bilingual and lived in a home where Spanish was spoken to some degree. The students who reported that they were of African descent, but not Hispanic, reported that, for the most part, they spoke only English and the majority of them also spoke some version of AAEV or an African American cultural jargon, some refer to it as "slang." African descent students born outside of the United States reported learning either English, or in a very few cases, French, as a first language. Both groups of students indicated a variety of ways in which they prefer to use their "native" language or "cultural speech" in a variety of settings, as indicated in the follow-up phone call survey exploring daily usage patterns. They also indicate being quite comfortable using Spanish, in the case of the "Hispanic" students or AAVE, in the case of the "African descent" students. This similarity across the two groups suggests that these culturally diverse students may be quite similar to their average ability peers in this regard.

Interestingly, despite these language background differences and this aspect of usage differences there were no differences between these students in how they performed on the *STAT*. Although not reported specifically in the results section, we also did not find any differences in the writing performance (e.g., mean grades on essay exams or paper assignments or on the STAT essay items) for the two groups. The fact that these students were very similar in their pretest *STAT* performance but different in their linguistic backgrounds suggests that any differences found in writing, *STAT* postassessment or academic language use outcomes may be attributable, in part, to language usage background characteristics. While this cannot be determined definitively without a matched case-control study, the results from this study suggest that these relationships should be explored further.

We also wanted to explore whether the amount of time per day that English is spoken by students affect academic writing performance? We postulated that students who spent more time using a language other than Standard English might not do as well on writing assignments. We did not find any relationship between the amount of time a student used another language or dialect and any of the writing performance measures, however there were differences found in students' perceptions of what English, that is what language they preferred to use and had confidence in as a language in which to express themselves. It might be assumed that there would be some correlation between language preferences and confidence ratings and the amount of time language is used. However, we did not find such a relationship. Therefore it may be that our measure of the actual amount of time students spent using a particular language may have been too crude to actually capture the reality of how this variable is expressed in this population. Perhaps if this variable is measured more accurately it might predict preference and confidence and be related to English writing performance.

Few studies have looked at the relationship between language backgrounds and writing in English by bilingual minority high school students although many other studies on bilinguals have been conducted (Valdes, 1992). This study provides one of the few

opportunities to understand the language background of high ability students and it seems remarkably similar to that of average ability students. Many research studies have found that the spoken language background is related to academic writing in Standard English. This study demonstrates what the characteristics are of the language background of high ability students who are not participating in bilingual education programs and so offers a more detailed picture of students who are bilingual. It adds to the extensive research on the correlates of academic achievement the influence of language on academic success by providing a picture of how potentially gifted students perform in this area. In the past, the influence of Spanish use by Hispanic students on writing is not well understood. This research provides a beginning formulation of the language use profile of high ability, Hispanic and African descent American, high school students.

Preference for and Confidence in Using Standard English and Writing Performance

One of the primary foci of this research was to describe and document the way in which high ability students from two cultural backgrounds who often are placed at risk for academic success by school programs and circumstances and by the behavior of teachers. We wanted to determine if the language use of high ability, Hispanic and African American students was related to academic writing performance. Due to limitations in sampling and sample size, we were only able to use descriptive approaches, based on simple correlations, to explore these relationships. We looked at the relationship between two simple questions. We asked these students about their preference for using Standard English and their confidence in using Standard English effectively. We found an interesting pattern of relationships between these variables and the writing performance variables we measured in this study. These writing variables included how students performed on three course writing assignments and how they performed on essay exams on course content. We also considered the essay items of the *STAT* pretest as a measure of writing performance, albeit an early one for this cohort of intervention participants. We describe an interesting pattern of relationship in the results section of this monograph on language usage. Confidence in using English was related to more of the writing performance measures than was preference for using English. Perhaps this is because confidence may have to do with a student's academic self-esteem rather than their actual competence. Because we do not find any relationships between observed Standard English use we cannot speculate how this relates to confidence in using English or to preference and so we cannot clearly understand what these preliminary relationships mean in this small sample. Confidence in using English was negatively related to creativity. Perhaps this relationship may be explained by differences among the triarchic abilities in their reliance on verbal ability rather than on other aspects of cognitive abilities.

Methodological Limitations

The small sample size and the exploratory and the nonstandardized nature of some of the measures and assessment strategies used in this study suggest that the results must be interpreted with caution. These limitations suggest that the results may not be

generalizable to other samples of high ability, ethnic minority, high school students and further suggests the need for designing studies that focus on the most accurate ways of observing language behavior in this population. It would also increase the external validity of this study if actual measures of school-based writing assignments could be included in the analyses. Unfortunately, a diverse and extensive collection of writing samples may not be available in most high schools due to large class sizes and a tendency by teachers to avoid assigning lengthy writing assignments. It was the case in the high school from which we recruited students that they did not have the opportunity to write many papers for most of their junior and senior courses.

This study combined qualitative and quantitative methods by employing a language survey and focus group method and using some data triangulation to understand the relationship between spoken language, language preferences, and writing performance, as suggested by Morse (1991), Cresswell, (1994), and others. The focus group discussion and follow-up phone interviews after the initial language survey helped us to explore the details of language use in greater detail. However, there are limitations in methods for collecting language use and language background. Since data on language use were based on students' recall, even for short periods of time, it may not be accurate. When code switching or switching to another language occurs in a natural setting, it may be quite difficult for one to judge what languages are used and how much one speaks in daily life. Many of the students, especially the Spanish-speaking, Hispanic students addressed this problem with us. Also, the fact that these students may have assumed that we wanted to encourage them to use Standard English and not AAVE or Spanish may have made them tend to report in a socially desirable way. Future studies probably should rely more on direct observation of language behavior and explore how these observations can be sued to validate survey measures of language behavior among sophisticated speakers.

In future research, other methods for collecting language behavior data should be used to try to minimize the problems identified above. "Experience sampling methods" could be useful to collect data on students' daily language use. Participants could carry electronic pagers and report on their language behavior and its contextual settings, and on preferences, etc. when the experimenter randomly activates the beeper. Language diaries might also be a more accurate method of assessing language behavior. This method would allow an examination of ongoing language behavior and perceptions over several days or weeks. Observational methods can also be helpful to reduce problems related to faulty recall. However, presence of observer or distracting equipment or methods may influence participants' language use.

The sample in this study did not allow us to look at the influence of gender or other student background characteristics on language use and its relationship to writing. The extensive literature on gender and language behavior makes it an important factor to explore in future studies. Research has shown that female students write better than male students (Stewig & Lamb, 1972). We do not know if this is true among high ability, ethnic minority students and if it is perhaps language confidence, preference, and background characteristics may explain the differences. Further studies are needed to

investigate whether or not gender plays a role in the writing of Hispanic and African American students.

There was an increase in students' writing scores over time. This increase in students' writing scores over time suggests the effectiveness of the Teaching Thinking Project in helping students to develop writing skills and to focus on the importance of writing skills as a way to share thinking skills and abilities. Future research is needed to investigate how to improve the writing skills of high ability students and to explore whether improved writing ability enhances thinking skills. The Teaching Thinking Project intervention model offers one approach for facilitating writing skills of Hispanic and African American students who are often not given the opportunity to develop writing skills or to explore how writing enhances thinking.

Chapter 3: Parental Support of Academic Success in High Ability, Ethnic Minority Students

Introduction

The academic competence and performance of African descent adolescents has been a long-standing policy and research focus in the educational community (Comer, 1988). It is often assumed, and there is some evidence to support this assumption, that African American youth, often described as an "ethnic minority," do not perform as well academically as European and some Asian American youth (Steele, 1997). These ethnic minority youth have often been assumed to be darker-skinned youth from cultural backgrounds that are often marginalized in the United States. These groups remain a statistical minority but more importantly they are still underrepresented among professional and some high status occupations. Often, researchers and policy experts have used a "deficit model" to explain the performance of African descent youth that focuses on genetic, cultural, and other environmental variables to explain the differences seen in achievement among different ethnic groups. Other researchers have demonstrated the positive influence of the environment in promoting achievement.

Families play a crucial role in providing the social environment that help gifted and talented students to develop their abilities (Asher, 1984; Clarke, 1983; Hines, 1991). Most of what we know about how families nurture gifted and talented students is based on observations and interviews about the experiences of families with young children (Freeman, 1993; Laosa, 1982). We know very little about how family members help gifted and talented ethnic minority students to succeed. One of the goals of the Teaching Thinking Project (TTP), described in Chapter 1 of this monograph, was to help talented high school students prepare for the challenges of a college education. The Project was designed to work collaboratively with a large urban, magnet high school near a college campus, which focuses on teaching courses that prepare students for college entry, to recruit high ability, ethnic minority students to participate in an intensive college preparation. These students were given the opportunity to enroll in a college-level course at the college free of charge.

The Teaching Thinking Project offered students the opportunity to participate in an intervention based on an enhanced college-level course in introductory psychology. The course was based on Sternberg's (1985) theory of intelligence and used materials designed by Sternberg (1995b) to teach psychology using methods that promote the three types of intelligence in the theory: analytical, practical, and creative intelligence. The intervention allowed students to receive one-on-one mentoring and tutoring, and computer and writing skill-enhancement workshops. Details about the intervention activities are presented in the first chapter of this monograph. Another goal of the Teaching Thinking Project was to understand how parents provided assistance to students as they support their adolescents' efforts to be academically successful.

Families and Parent-child Relationships as Predictors of Achievement

The relationship an adolescent has with his or her parents and the influence of the family environment on achievement is well documented (Majoribanks, 1979). However, we have no careful analyses of how these influences are relevant for African American youth. Tucker, Harris, Brady, and Herman (1996) conducted a study to investigate the relationship between parent behaviors, academic and race among second, fourth, and fifth graders, and the hypothesis that there were racial differences in these associations. They used student GPAs and scores on the Metropolitan Achievement Test as outcomes. This hypothesis was based on the theory that there are racial differences in educational and occupational attainment process and that academic achievement at different grade levels may be facilitated by different parental behaviors, depending on developmental challenges. Participants included 266 African American children and 414 European American children. The parent behaviors investigated were those commonly used when students receive bad grades: (a) restrictions, (b) verbal reprimands, (c) spanking, (d) encouragement, and (e) other consequences. Other parental behaviors explored included (a) grade expectations by mother, (b) grade expectations by father, (c) frequency of church attendance by mother, (d) frequency of church attendance by father, (e) frequency of praise by mother, (f) frequency of praise by father, (g) discipline by mother, and (h) discipline by father. A few definitive studies have given us some profiles of the home environments of Puerto Rican children and families but with one exception they focus on average and low-functioning children (Hines, 1991)

The parental behaviors selected for this study were based on Hess and Holloway's (1984) findings that five processes link family and school achievement. These processes include (a) verbal interaction between mother and children, (b) expectations of parents for achievement, (c) positive affective relationships between parents and children, (d) discipline and control strategies, and (e) parental beliefs and attributions about their children (reported in Tucker et al., 1996). Other parental behaviors, such as frequency of church attendance, were included due to Comer's (1988) assertion that children's moral, social and psychological development are critical to academic achievement and that this development is greatly influenced by the moral behaviors and attitudes of the family. A recent review of the literature on achievement in ethnic minority children also helped us to identify key factors related to high achievement (Coates, Jones, & Reyes Cruz, 2000).

In the Hess and Holloway (1984) study, the primary caregivers of children, in most cases the mother, were interviewed with a structured interview protocol and academic data sheets were used to record students' academic information. Analysis of covariance was used to assess each achievement measure (GPA and MAT score) by grade level where the independent variables in the model were the 13 parental behaviors, race of the parent, parents' marital status, and parents' income level. For the second graders' GPA, mothers' grade expectations had a significant main effect on the model. Children of mothers who expected C's had a significantly lower GPA than did the children of mothers who expected A's and B's. A significant model also resulted for the fourth graders GPA data. Specifically, grade expectation of mother, parental use of restrictions as a consequence for bad grades, mother's church attendance, and mother's

praise for satisfactory grades were significantly associated with GPA. Fourth graders, whose mothers expected C's, had lower GPAs than students with mothers expecting A's and B's. Fourth graders who received restrictions, as a result of getting bad grades had lower GPAs than did the children whose parents did not use restrictions. And, fourth graders with a mother who reported that she "never" or only "occasionally attended church" had lower GPAs than students whose mothers reported attended church frequently. Finally, fourth graders whose mothers praised them frequently for getting satisfactory grades had higher GPAs than those whose mothers did not give praise. There was a significant race by grade expectation of father for fourth graders—African American children whose father expected A's had higher GPAs than those children whose fathers expected B and C's (Tucker et al., 1996). There were no significant differences among the European American fourth graders.

Parental use of restrictions as a consequence for unsatisfactory grades was a significant predictor of eighth graders' GPA. There was also a race by mother's expectation interaction. Children of African American mothers who expected A's had significantly higher GPAs than children whose mothers expected B's or C's. The European American mothers did not differ on this variable. None of the ANCOVA applied to student MAT scores was significant, except for eighth graders. Eight graders whose parents used reprimands had significantly lower GPAs than children of parents who did not use them. This study demonstrates that parent attitude and behavior has a strong impact on children's school achievement. It may have been informative for the researchers to investigate other important variables, such as parental praise for good grades and how such variables affect children's school achievement.

Eccles and Reynolds (1996) reviewed the literature on parents' involvement in children's school settings. Their review suggested that several family characteristics are instrumental in increasing parents' involvement in their children's education: (a) social and psychological resources available to parents; (b) parents' efficacy beliefs; (c) parents' perceptions of their children; (d) parental assumptions about the role of education in their child's life; (e) parental attitude toward school; (f) parental ethnic, religious, and cultural identities; (g) parents' socialization practices; and (h) parental history of involvement in their children's education. Eccles and Reynolds (1996) also propose a model of the influences and consequences of parent involvement in the school. According to them, parent/family characteristics, neighborhood characteristics, child characteristics, teacher characteristics, school characteristics, and teacher and parent beliefs and practices impact children's school outcomes. This theoretical model postulates that a complex web of variables impacts children's outcomes in school.

In a study of the home environment of gifted Puerto Rican children, Hines (1994) found eight basic factors that lead to success in school. Her research suggests that parents need to:

1. Help their children develop strong language skills
2. Provide a strong family support system for their children
3. Let their children know that they value achievement in school

4. Become involved in their child's school and extracurricular activities
5. Let their children know that they believe their children will be successful in school and in the workplace
6. Help their children understand that the majority of successful adults have to overcome many challenges and obstacles along the way
7. Nurture a strong family bond at home helping their children develop a positive image of themselves and their culture
8. Do not let their children use cultural biases or prejudices held by others as an excuse for failure.

Hines (1994) found that the first six factors seem to be relevant in supporting high achievement across racial, ethnic, and social groups. Research suggests that Latinos are one of the most undereducated ethnic groups in the United States (Hines, 1994). One of the challenges that many underrepresented ethnic minority students face is that few or no member of their family has attended college. Wright and Olszewski-Kubilius (1993) developed a guide specifically designed to assist the needs of economically disadvantaged families with children who are first generation college attendees. Their practical guide offers suggestions to help gifted children and their families in the process of preparing and applying for college.

Discrimination, Racialized Experiences, and Academic Achievement

Physical traits such as skin-color, often used to classify individuals into so-called racial groups, are used to confer opportunity, sometimes through scholarship grants, for example. However, these classifications can also become a barrier that prevents students from taking advantage of opportunity. African American youth often self-identify as Black or African American and yet they have no choice about these labels since they will always be so labeled if their physical traits are perceived by others to fit with a designation as Black. Parents of these adolescents know this will happen and often feel they need to prepare students to address the realities of assumptions, including those made about their abilities that will be based on physical appearance. These students thus are often thrust into environments that promote their engagement in racialized thinking and behavior.

In some situations, every moment of an academic career can function to remind a student that he or she is different and often recognition of race allows others to treat some ethnic minority students differently. Claude Steele (1992, 1997) has referred to this social phenomenon in general as "stereotype threat" and demonstrated that this can lower academic performance in some minorities. The pressure of realizing that one is being thought of as different and being treated differently can affect academic performance in variety of complex ways. Aronson, Quinn, and Spencer (1998) describe the phenomenon of stereotype threat as the discomfort and distortion that people feel when they believe they may fulfill a negative stereotype held by others about their group. It is a kind of apprehension that they just might behave in such a way as to confirm the views held by others about their social group just by virtue of the fact that they are members of the

social group. Thus differential treatment and differential pressures and attributions about success can create tremendous pressures for adolescents.

Parents may contribute to an adolescent's sense of stereotype threat by creating particular racial sensitivities in a particular youth. Race often overshadows relationships that a minority student might have with other high ability students or with instructors. This race awareness does not often lead to open discord; it's just a presence, it's "there" and often it's not talked about. We have not created openness in this society to allow a discussion of racial feelings, awareness or attitudes so it is an undercurrent that is acknowledged but not addressed.

Parents who create adolescents with heightened racial sensitivity may also create adolescents who are must display particular defense mechanisms such that they appear to be overly confident even to the point of arrogance. These adolescents develop a sense of having to "handle" "White people" and see it as a personal mission not to do anything that would put them in a secondary position to a White student. This creates unbelievable stress and a situation that can never really exist for the student. So, almost anything they do will look to them like a failure. The notion that Black and White people can work together to create some new society seems to belong to a bygone era. Some students of African descent no longer feel any support from or solidarity with White Americans. They feel that they are out there alone, trying to prove their acceptability and competence. And to prove their worth they often feel that they have to be exceptional in every category and to excel in extraordinary ways when compared to their White counterparts. Often this view is created and perpetually reinforced by parental messages.

These students may begin to see everything in Black and White terms, with no in-between and this attitude can seriously interfere with their academic relationships and pursuits. It can paralyze their efforts and cloud their thinking. The adolescent may feel the need to build up an exaggerated sense of their abilities as a way of compensating for insecurities created by the sense they have that others doubt your abilities. This may create a situation where it is impossible to live up to one's own expectations. For example, Robert Sam Anson's account of the tragic death of Edmund Perry and his journey from Harlem to Exeter Academy, a prestigious college prep school, points out how Edmund learned from others how to handle being the only "Black" kid in a "White" environment.[8] He was told to "stand off," and be aloof, never let them know what you are thinking and what to make of you. You have to think of yourself as the smartest person in your neighborhood. You have to exaggerate your gifts, your abilities, and your importance. You have to live up to a reputation that no one could really have. This creates enormous pressures to succeed and to be the best. Sometimes it is not possible to live up to these expectations and the feelings of frustration and alarm when one does not live up to the impossible can be devastating and alarming.

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[8] See Anson, S. (1987). *Best intentions: The education and killing of Edmund Perry.* New York: Vintage Books.

At times the necessity to analyze academic situations in terms of what others think of as "race" can create uncomfortable tensions with persons from other groups. Students often referred to as "White," in particular, who think of themselves as aware of the Civil Rights movement and therefore not "racist" in their views, are offended by this racialized attitude that they cannot understand the struggle with identity. These tensions can create major distractions for any students living in the United States who appear to have African descent origins, whether they are African or Caribbean immigrants, Hispanic with African origins or of indigenous African descent, as they struggle to figure out how to handle the social and political dichotomy that they create for themselves. Often on the one hand they can talk about "Whites" as a group being evil, holding them back, and having to be overcome. On the other hand they often want to have White friends, date and socialize with "Whites," and form genuine and supportive alliances with "White" students. There is often the added difficulty of returning to the community of origin and being viewed as very different, as not fitting in, as "acting White." Becoming marginalized in a place that has been familiar and comforting and not entirely fitting in the academic environment can be painful and distracting. These distractions tend to make one emotionally tired and seem to allow students to hide their weaknesses and vulnerabilities from others, and more importantly, from themselves. When weaknesses are not confronted, encountered and countered they become one's academic undoing. It is also exhausting hiding one's vulnerabilities. It forces you to create a private club and you're the only member.

Racialized experience may be a significant factor that contributes to success behavior among African American youth. It can be described as experiences that provide messages that intensely emphasize the impact of race on one's achievement and personal experiences intensely. Racialized experiences make an adolescent intensely aware of the influence of his or her physical traits on presumptions others make about how to classify the adolescent into a racial group. Adolescents who come from racialized experience backgrounds tend to have received many messages about how important one's race is in determining ones future. These messages might be transmitted through observations, overt messages from parents, teachers and other significant adult and youth role models about how darker skin limits possibilities and has to be overcome by intense effort or can't be overcome no matter how hard you try. These adolescents from intensely racialized backgrounds might be characterized as overly burdened by concerns about how their physical appearance and traits ascribed to a so-called "race" might singularly, negatively influence their opportunities and ultimate successes. Because of this pervasive assumption, these youth may have personal traits that predispose them to begin to lack a positive future orientation or to be fearful of being a success. Youth and adults from racialized experience backgrounds may tend to refer to themselves as "Black" or to others as "Blacks" emphasizing a heightened focus or concern with skin-color traits. Steele (1997) has described stereotype-threat as a social phenomenon that may negatively influence achievement performance in test situations. His concept does not however, address the actual process of how this social phenomenon might actually influence achievement behavior. Some possible explanations may be found in considering how racialized experiences occur and how these experiences are mediated by personal traits and available social support resources.

The influence of racialized experience can be mediated by several factors. These include: (a) the presence of high achieving role-models, (b) the quality of relationships with parents and other role-models and the degree to which they offer messages about achievement possibilities, and (c) how internalized the messages become vis-à-vis identity; does the threat apply to me or not? Lack of high achieving role models who defy the racialized messages may moderate the negative impact of the messages on achievement. Likewise warm, supportive relationships with parents, particularly ones that are high achievers, and/or with key highly successful role models may mitigate negative effects of racialized messages. If messages about how important race is to success are internalized and becomes part of one's identity, then these racialized experiences may exert a strong influence actual success and achievement behavior.

Purpose of the Present Study

The purpose of this study was to explore what parents would report about how they encouraged and supported academic success in their youth. Parents were asked to think about present and previous ways in which this support was provided. We also wanted to see if there was a relationship between length of time parents had spent in the United States and their aspirations for their son or daughter. In addition, we wanted to see if there were any ethnic differences in aspirations, support, or involvement in educational activities. We also wanted to find out if parents, without direct probing, would refer to any barriers, such as discrimination or "race" related aspects of schooling. We also were interested in whether they would present stories or scripts about messages they gave their son or daughter about the importance of "race" or "racial" barriers to achievement success. The survey also asked parents to describe learning characteristics and level of interest in learning. These data are not discussed here.

Methods

Participants

Fifty-eight parents of ethnic minority high school students participated in this study of parental support for academic achievement. Parents participating in this study were those of student participating in the Teaching Thinking Project intervention and parents of students who participated in a pretesting session. All were parents of high school students attending an urban "magnet" high school that largely served ethnic minority students from Hispanic and African descent backgrounds. Table 3.1 presents the sample sizes for the intervention and non-intervention groups. Parents could elect to participate in Spanish or in English. While most parents participated in English, 18 of the 58 parents, or 31%, returned a survey, or participated in a survey by interview, in Spanish. Participation or survey return rates were quite respectable. Of 99 surveys that were distributed, 58 were returned for a response/return rate of 58%. All of the participating parents were female.

Table 3.1

Sample Distribution for Parent Support of Academic Achievement Survey

Parent Support Surveys Sent and Returned				
Parent Group	Sent	Returned		Total
		English	Spanish	
TTP* Intervention	57	20	8	28
Non-Intervention**	42	20	10	30
TOTAL	99	40	18	58

* Teaching Thinking participants, parents of high school students
** Students who were pretested but not selected as participants in the Teaching Thinking intervention

Measure

The Parent Support Survey. The Parent Support of Academic Success Survey (PSAS) (Coates, 1999) was developed for this survey and is based on the work of Hines (1994) and the findings and the guidelines suggested by Wright and Olszewski-Kubilius (1993). The PSAS assesses parents' views on education, their role in the education of their adolescent and their views on their adolescents' academic and professional future. The survey is composed of 39 closed-format and open-ended questions. The questions cover topics such as: How important is it for you that your son/daughter receives an education? What do you share with your son/daughter about your dreams and hopes for his/her future? How did you help your son/daughter decide to which college he/she would apply? Completing the questionnaire takes approximately 40 minutes. Spanish- and English-language versions of the survey were developed and a version for parents of daughters and one for parents of sons. A sample copy of the survey and recruiting materials appears in Appendix D.

Results

Demographic Characteristics of Responding Parents

Ninety-nine parents of participants in the TTP and of students who were pretested, but not selected, were sent surveys or set up for phone survey interviews. Of this group, an attempt was made to recruit all of the TTP participants and 42 of the non-participants were also available for recruitment into this study. Twenty in each group returned the survey in English and 8 and 10 respectively returned it or were interviewed in Spanish. There were no differences between the groups in ethnicity of the target student. About 60% of the parent respondents in both groups were parents of children who identified with the "Hispanic" ethnicity category and approximately 40% were

parents of children identified with an African descent ethnic group, not identified as Hispanic. However, two Asian students responded in the participant group and there were none in the nonparticipating group.

It is interesting to note how parents answered the question on the survey asking them to describe their cultural background. Only one-half of the parent respondents mentioned an ethnic group such as "Hispanic" or "Dominican." The other half of these parents used other terms to describe their "cultural background" such as:

- Working people, family oriented, reputable people
- Rich and with an incredible variety of color
- I am proud of my heritage and culture
- As the foundation to go on
- Education is one of # one priorities
- Very rich and loving
- Southern origins raised in Washington DC
- Excellent
- Religious, family is important, getting an education is of paramount importance
- Intelligent, religion . . . well disciplined.

These parents were also asked how long they had lived in the United States and their age. Using these variables we determined that 67% of parent respondents had lived in the United States from birth or before age 10. The remaining, 33% of parents had lived in the United States on average for 13 years. Two parents did not give any response to this item. One additional "non-respondent" asked, "How important is this question for this survey?"

Parents were also asked: "What languages are spoken at your home?" They could identify more than one language. Forty percent identified *only* English. Eight-percent identified English and another language. Of these, 70% of group identified Spanish also and 30% identified "other," including Caribbean dialects, French and Creole, and Asian languages other than Chinese. Two families identified Chinese as the only language spoken in the home.

Parental Educational Aspirations for Academic Achievement[9]

The Importance of Educational Attainment. Parents were asked to provide a Likert-scale rating to respond to an item about the importance of education: "How important is it for your daughter/son to receive an education?" As expected, most parents indicated that education was extremely important. The mean rating for the total sample

[9] Bulleted comments appear verbatim as written by parents or translated in full or as an excerpt of a longer comment. In some cases words or ending are added for clarity and appear in italics. In a few instances a word that does not appear to be grammatically correct but does not detract from the meaning or content of the comment appears in quotation marks. For some comments a word is added in brackets following a word that appears to be incorrect, appearing in italics that may be the word a parent meant to include.

was 4.8 and there were no differences between any of the previously identified sub-samples in this rating. Parents were also asked to provide a narrative explanation of why education was important to them. We used qualitative content analysis to identify prevalent themes in these written responses. Eighty percent of the respondents gave a narrative answer to this question, a higher proportion responded to this question than to any other open-ended question on the survey/interview. Most of the comments, 70%, were focused on a theme suggesting that education was the preparation for a secure, future, free of "trouble" and dependency on others. For example:

- . . . her future depends on it. . . . with a good profession she could get a good job and perform better in the future . . . will not have to depend on anyone . . .
- . . . for her future
- . . . to make sure that in the future she does not have to struggle
- . . . to be self sufficient and independent is extremely important for a Black woman
- . . . to establish a better future for herself
- . . . because that will ensure her future
- Without education, life down the road tends to be hard and good education substitutes for great income with jobs down the road.
- I want my daughter to become educated and have an extremely stable occupation later in life.
- I want her to grow up to be an independent person useful to society.

Other responses seemed to focus more on upward mobility and how education would enhance opportunities to make a son or daughter achieve a better social standing. Examples of these responses are:

- . . . acquiring a good education makes one to turn into a socially adaptable being, one with better opportunities of obtaining a good job, hence, a better person.
- Education increases opportunities; the individual has a wider range of choices for the future, in my opinion.
- A good education is one of the chief methods of achieving success in the secular world.
- . . . doorway to opportunity.
- An awareness that a sound education is the only ticket to a viable career upward mobility and a satisfactory standard of living.
- Having an education she will have a better place in the society.
- In gain*(ing)* an education is a means of moving up in the world and gaining recognition and attaining one's dream.
- In this educated society one needs not less than college education in order to advance. Without it, it is almost impossible to achieve one's dreams.

Some comments seemed to focus more on the importance of education as a family legacy or tradition. To some extent some of these comments overlap with the two themes

described above but mention this additional dimension of importance. The last comment in the list does not mention family but some comments referred to the importance of education for a child from a particular cultural background; implying that this background made education very necessary for success. These statements are examples of this theme:

- It is very important for me that my family gets an education so that they have success in the United States.
- I have always told her how important education is to our family. I have showed her examples of what can be accomplished with a good education.
- Legacy of education in family. Preparation for a life of usefulness professional employment.
- As a young woman . . . a Black woman she has to have education and knowledge of who she is to succeed in life. "knowledge is power."

Specific Career Aspirations. Parents were asked if their child's professional interests were defined and most, 78% responded, "yes." Parents' professional aspirations for their children and the children's professional aspirations noted by their parents are shown in Table 3.2. For these 77 parents most (61%) thought that their son or daughter aspired to enter the fields of law or medicine. Only 10% nominated business, 14% engineering, and 5% education. Less than 10% combined nominated arts, entertainment, or sports as career areas they thought their child aspired to enter.

When asked what career *they* would choose for their son or daughter, 89 parents responded and the pattern of careers chosen was somewhat different from the pattern that emerged when parents indicated what career they thought their child aspired to obtain. In this instance 75% nominated law and medicine; 16% engineering and 6% business and education. Ten percent nominated "other." None nominated "sports" or "entertainment" and one parent nominated "the arts." For "other" parents wrote/said:

- . . . the one he wants, my wish is that he graduates OK
- . . . the one she chooses
- . . . what she chooses
- Computers/Computer programming
- . . . whatever she decides her judgment is sound
- Arts/Writer
- Journalism/Communication, mass media
- Psychology
- . . . whatever makes her happy; what she is interested "*on.*"*[in]*

Table 3.2

Parental and Child Career Aspirations as Identified by Parent Respondent (*N* = 58)

Professional Area	Percentage of Respondents	
	Child Aspiration Noted by Parent	Parent's Aspiration for Child
	N = 58	*N* = 55
Business	10*	5
Medicine	35	50
Law	25	15
Education	5	1
Engineering	14	16
Arts	3	0
Entertainment	6	0
Sports	0	0
Other	2	9
No response	0	3

* For both columns of percentages: May not add to 100% due to rounding errors.

General aspirations for child's future accomplishments. Parents were also asked, "What do you think your son/daughter will accomplish?" Seventy percent of the parents provided some narrative comments to this question. These comments were organized into themes that consistently occurred among them. Some comments referred to a specific career goal, about 25% fell into this category, for example:

- . . . if she continues to do as she has done so far, she might accomplish her goal . . . computer science.
- Be a dedicated teacher. She will be able to do all that she wishes to do.
- To be a professional and to be successful.
- She wants to be a writer and based on her work I *know* that she can make it.

Some of the comments about what they thought their child could accomplish could be classified as assessments of the child's characteristics and abilities and confidence that these abilities will allow them to achieve a career goal. This type of comment was the most numerous that occurred in response to this question. About 67% of the comments fell into this category. Examples of these comments are:

- . . . everything that he sets himself to do because he has the potential and most importantly the study habits.
- Whatever she decides—she has always been hard-working and determined.
- He is motivated, and goal focused and determined to be an engineer. I do believe he can become that electrical engineer.
- My daughter has lots of skills. I wish she would succeed in any field of study.
- I think that my son can accomplish those goals that he sets for himself and those he carries through. It is hard to say what my son can do, but I do know that if he puts his mind to it, that he can do it.
- She can do *whatever* her heart desires. She put her best out when she does things for beyond-she *excees* [exceeds] in all that she does. I want her to accomplish all her dreams.
- My son is very interested in business and he is studious and hard working, I know he is going to achieve his aim.

Other comments, much fewer, were more general in nature and did not seem to specify a specific career or characteristic of the child that could lead to achieving a career goal, even though some of these comments expressed a general confidence in the child. Examples were:

- Success.
- . . . anything she wants.
- I am hoping that she will be able to attain whatever she sets on to do.
- Whatever she intends to do.
- Anything she puts her mind to she can achieve. She will be very successful in college and beyond.
- I feel she can achieve whatever goals she sets for herself.
- I think my daughter can accomplish many things, but at the same time I don't push her to accomplish great feats.

One comment did not fall into any category and seemed to be characterized as a strategy a parent would use to support achievement:

- I motivate him by telling him that if he does not graduate he would not be "*no one*" *[anyone]* in the future.

How Aspirations Are Shared to Provide Achievement Support. Parents were asked to describe how they shared their aspirations with their son or daughter (e.g., "their dreams and hopes for his or her future"). Sixty percent of them did so. These comments could be classified into five categories that reflect what the parents reported that they shared with their son or daughter about their hopes that in the future the child will achieve a goal or learn how to achieve one. These categories are: (a) Profession, material success, and specific career oriented; (b) Offering a lesson or a way to be successful; (c) Desires for the child to obtain satisfaction and enjoyment; (d) Goal

attainment focused on parent's happiness; and (e) Parent does not share aspirations with son or daughter. Most of the comments fell into the first category, 46%. Examples of what aspirations parents shared that focused on attaining a profession or career are:

- I tell her that I want her to be a professional . . . that the only thing that I can give her is a good profession, and help her in what I can.
- . . . that I want him to finish any college career.
- I want him to be a professional and a man who does good for the society that we live *in.*
- Get a good education and advance herself as much as possible.
- I want him to be a professional and a man who does good for the society that we live in.
- I want her to graduate and make her own money (good money).
- I tell my daughter to do well in school and find a steady job.
- I want her to be a doctor and get married and have a wonderful family one day.
- I told her I will support her in whatever field she *choses* [chooses].

The second most frequent type of comment were comments that referred to a lesson or a characteristic that they hoped their son or daughter would learn or express that would lead to success. Twenty five percent of the comments fell into this category. Examples were:

- that she learns from my life so that she will always study and better herself.
- Dreams/goals of your [missing words] don't always seem apparent or attainable to others: nevertheless be tenacious and go for it.
- I let him know he can be anything he wants to be. It's not enough to dream however but to have a plan of action to realize his dreams.
- Never stop trying—if one avenue is blocked try another route.
- He she is a good person and treats herself and others with respect . . . "be the best she can be in what she does."

An almost equal proportion of parents nominated the fourth category as the third. This category was characterized by statements that focused on hoping that a son or daughter would achieve personal satisfaction or enjoyment from a future career choice. Examples of this type of statement were:

- I tell her I want her to be satisfied and successful in her chosen career.
- I want her to select and pursue a profession she will enjoy. She should plan to attend graduate school.

Four of the parents that shared comments about aspirations said that they did not share aspirations with their children. Examples of this type of comment were:

- The truth is that I do not make comments about many things about her future.
- I don't share anything with my son, but being so disciplined, my hope for him is that he is going to be successful.

Two parents made comments that were classified as focused on the parent achieving satisfaction from the child's aspirations. These comments were:

- . . . how happy she will make me when she gets her *master* [Master's degree].
- I share the dreams of him being successful and living though the same problems that I lived though while I was growing up.

Length of Time in the United States and Aspirations. Chi square analysis was used to examine the relationship between type of career choice, "medicine/law" or all other categories, including "other" and the length of time in the United States. There were no associations found between length of time in the United States for comparisons between parents who had been in the United States from birth and up to age 10 and those who had been in the United States for 10 years or less in what kind of career aspiration they reported that they had for their son or daughter. We also used chi square analysis to examine the relationship between length of time in the United States, as described above, and what type of aspirations about "hopes and dreams" that parents shared with their sons and daughters. This association was also not significant, however there was a tendency for parents who had been in the United States for less time to make comments that were "profession," rather than "lesson" or "satisfaction" oriented or to make no comment at all and for parents who had been in the United States longer to make comments that focused on career or life satisfaction and on lessons that they hoped their son or daughter would learn about how to be successful. There were no ethnic differences in aspirations shared by these parents.

Support for Academic Achievement

Questions on the *Parent Support for Academic Achievement Survey* asked parents to report on several aspects of how they supported the achievement and academic success of their son or daughter. These questions, about parental support for achievement, can be categorized according to focus. These categories are: (a) Parental strategies used to encourage academic interests and participating in activities designed to encourage interests (including a focus on grades), (b) Homework help, (c) School involvement, (d) Communicating messages about the importance of education, (e) Participation and supervision of after school activities, and (f) Help in identifying a college and college financial support.

Encouragement of Academic and Other Interests. Parents were asked to indicate how they encouraged their son's or daughter's interests by selecting a particular pre-identified category that represented the way in which they encouraged their child's interests. For these parents most, 50% selected "giving her/him things that would help

her/him develop an area of interest (e.g., books, an instrument, equipment, lessons); 20% selected, "arranging for him/her to attend after school activities . . .;" and 10% were distributed across the categories, "through words of support" and "helping him/her find information." Twenty percent of the 58 parents wrote in "other" ways, such as:

- Everyday . . . I would ask him "How did it go?" and sporadically I gave him small compliments.
- Activities—scouting, church leadership.
- Summer camp, internship, work (voluntary and paid).
- Everything in life is important even the things she really didn't care for (classical music)—she has a sense now for all the types of music.

Parents were also asked to give three examples of activities that they had used to help a son or daughter focus on learning. These statements were categorized according to their focus on direct/proximal and interactive support strategies or on distal, indirect support strategies. Examples of direct/proximal and interactive support strategies were:

- . . . sit with her and repeat words to her . . . until she learned them.
- Reading; working in the computer together; going to the library frequently; also trips to museums, etc.
- Took advantage of spontaneous teaching moments; encouraged her to keep a diary; let her see [me] try things (and many times fail!) so that she'd know there is no success without failure sometimes.
- Museum trips; travel; girl scouting.
- Read and discussed literature books with him-novels, plays etc.
- I formed like a type of small school at home making competitive games with others on mathematics and reading.

Examples of less involved more indirect, but perhaps equally important, support strategies included:

- I belong to the parents' association; accompany him to the school program; made sure that he finished his homework; always. . . . I went to the parents' meetings to see if there were any problems.
- I took her to the library and to art classes, assist [ed] with her homework, attended events at her school. (Note: homework reference overlaps with above category.)
- I used to take her to the library and choose educational books for her to read.
- Examined homework regularly, postmortem (?) on subject tests.
- I don't do anything with my son that focused on learning. My son studies with his brothers in college. I just give him *advise* [advice].
- Gave him flash cards; Sunday comic strip
- Arranged for private tutoring and utilized tutoring at school.

Most of the parents, 80%, indicated that they used distal and less face-to-face interactive strategies to support their child's learning. About 10% indicated that they used more direct strategies and another five percent said that they had used a combination of both types of strategies to support learning.

Encouraging Good Grades. Parents were asked to indicate whether they encouraged their son or daughter to "get" good grades by checking "yes" or "no." Forty-five percent of the sample of parents checked "yes." These parents were asked to indicate how they encouraged their son or daughter to achieve good grades. Very few parents indicated that they used monetary or material gifts to encourage achievement of good grades. Only 20% of parents checked this category. Most checked, "through words of encouragement," 40%. Five percent nominated the category, "studying with him or her" and 3% selected the category, "arranging for additional classes/tutoring." The remaining parents checked "other" and several parents across all of the categories offered narrative responses such as:

- I usually call my friends in front of him to talk to them about what happened with my son [bragging].
- Shared information with family and friends.
- It also was expected of her, she was a smart girl.
- We told her we were proud of her.
- *Consistent* discipline; maintaining a quite hw/study area.
- Help him formulate short and long term goals.
- Assisting her in her school work.
- Microscope, books instead of toys

Encouragement and Support for Homework. Parents were asked how they helped with homework in high school, if and when their son or daughter needed help, and how they encouraged that homework be completed. They were also asked to indicate who typically helped with homework and they could select more than one category. Therefore percentages were calculated based on the total number of nominations that occurred. For the 58 parents there were 130 nominations or check marks made for all of the categories in this item. The category "me/parent" received the most nominations, 30%, followed in frequency by the category "siblings," 40%. The category, "other parent" received 13% of the nominations. The combined categories of "teachers," "mentors," and "peers" received 10% of the nominations and the category "relatives," including "grandparents" received 7% of the nominations.

School Involvement. Parents were asked to indicate the kind of involvement they had had with their child's school when the child was in elementary school, junior high school and high school by checking all of the categories of involvement that applied to them for each time period in the following categories: "met with teachers," "belonged to a parent group," "volunteered to assist teachers," and "other." Very few parents, only 10% indicated involvement in the high school years and most of this involvement was "belonging to a parent group" and "meeting with teachers." During the elementary school and the middle school years, there was more involvement indicated. Sixty-five

and 25%, respectively, for each time period indicated that they were involved in "meeting with teachers or assisting teachers" and "belonging to a parent group." The remaining parents either left the item blank or wrote in "no involvement," "none in particular," or "none of the above."

Communicating Messages About the Importance of Education. Parents were asked to indicate how they let their son or daughter know how important it is for you that she/he gets an education. The majority, 75% selected the category, "talk to her/him about it" as the one that best represented how they communicated to their child about the importance of education. Thirty percent selected the category "give him/her educational books" and 10%, "take her to libraries, museums" as the strategy that they used to communicate about education's importance. The remaining 15% of parents wrote comments in the "other" category such as:

- . . . motivating her.
- . . . taken her to work, watched programs about education.
- . . . encourage extracurricular activities.
- She is well motivated and I have . . . *if* [from] a young child told her how important education *is*.

Child's Participation in and Parent Supervision of After School Activities. Only a few parents, 35% responded to the question on the survey asking about after school arrangements during junior high school. The survey asked parents to indicate what kind of after school arrangements were in place for their son or daughter for a typical day during the early part of junior high school. There were 25 nominations distributed over the six categories associated with this question and these were from about 30% of the survey parents. The distribution was as follows: "hung out with friends," 30%; "studied home alone," 27%; "went to an after school program and/or took other classes," 30%; "library," 11%; and "studied," "played sports," 1%.

There were some narrative responses to this item for parent reports about what happened after school in middle school and what typically happened in high school. The narrative answers provided for each of these time periods help to reflect similar responses:

Junior High School	High School
• Work with the computer at home	• Computer or telephone with friends
• Came straight home! We lived far away from her junior high school. After school activities were difficult to manage.	• Community Center
• Piano lessons	• Piano lessons
• Weekdays were for studying and chores	• Extra activities, ex. mentoring other students. Tutoring other kids

Help With Identifying a College, Applying for It, and College Financial Support. A series of questions on the *Parental Support for Academic Achievement Survey* explored how parents provided support as students identified and applied to colleges during junior and senior year. Sixty-four percent of the parents indicated that they had helped their son or daughter with college information. When probed about how they helped there were 111 nominations dispersed across six categories, about three per parent. Sixty percent of the nominations were for the category, "offered encouragement, guidance and support;" and eight percent were in the category, "talked with her about the schools. . . ." Twenty percent of the nominations were in the category "helped her make plans to visit schools," and 10% of the nominations were for the category, "referred her to others who know about applying . . ." About 2% of parents wrote a narrative answer to this question, examples of these narrative answers were:

- Accompanied her on college tour; checked out websites re college; accompanied her to college fair at Riverbank State Park
- Organized information
- Took him to visit colleges
- I had 3 other daughters in colleges.

Parents were also asked how they helped their son or daughter decide to which colleges to apply. Most parents, 40% selected "offered encouragement, guidance and support . . ." when responding to this question. A few others, 26% choose the category "referred her to friends/family who are familiar with applying to college." A small proportion of parents, 5%, said they did not play a role in the college decision making process and the remaining 29% of parents offered narrative comments that elaborated on these two pre-identified response categories. For example:

- I did not help him decide to which college he would attend but instead let him go to the one he *wanted to go* [wanted to attend]
- Speaking with a counselor
- Basically we weighted pros and cons but she was a part of a number of programs . . . that helped her think about this.
- That she thinks how does she want to study comfortably and which we could afford.
- Basically we discussed pros, cons, neutrals, narrowed down choices, then she decided.
- Discussed location; went on college visits and reviewed books and viewed videos with her.

Race-based Barriers to Educational Achievement

One of this study's aims was to explore whether and how parents reported on their children's experiences with any "race-based" barriers to educational attainment. These parents did not refer to race-based discrimination that had occurred nor did they express any concerns directly about race-based discrimination or cultural biases that might affect their child's access to educational attainment. A small percentage of parents who

identified as being of African descent said that they thought their daughters would have to perform at a higher standard to be recognized as able or competent, but these references were not made by many parents and were only made tangentially.

Conclusions

The purpose of this study was to provide descriptive and exploratory information from parents about how they encouraged and supported academic success in their youth. Parents were asked to think about present and previous ways in which this support was provided. We also wanted to see if there was a relationship between length of time parents had spent in the United States and their aspirations for their son or daughter. Another focus of the study was to explore ethnic differences in aspirations, support, or involvement in educational activities. We also wanted to find out if parents, without direct probing, would refer to any barriers, such as discrimination or "race" related aspects of schooling. We were interested in whether they would present stories or scripts about messages they gave their son or daughter about the importance of "race" or "racial" barriers to achievement success.

It was extremely difficult to get parents to participate in this survey. Parents of youth who historically experience social inequalities are often quite challenged in terms of available time for participation in activities not seen as directly relevant to their children's success or the family's economic viability. Therefore, participation in research is not highly valued among these parents. Yet despite the logical conclusion most parents reach about participation in research, we were able to find 58 parents, of the 134 with whom we had contact over the course of the study, to respond to a survey and/or an interview about their aspirations for their children and their support of their academic achievement. We were not able to explore gender differences among these parents because we were not able to interview any fathers. We also had a very small sample of young men who participated in the intervention so it was not possible to examine whether parental aspirations and support was different for young men when compared to young women.

It was somewhat surprising that parents did not seem to have much concern about racial stereotypes as a threat to their son or daughter's future. They did not spontaneously mention these concerns nor did they indicate that they felt it was necessary to racialize the experience of a son or daughter. There are a number of reasons why we failed to find any evidence of this phenomenon. One reason may have been that the survey did not target this behavior. Understanding this phenomenon in students and in parents will probably require more direct and in-depth probing.

Chapter 4: The Sternberg-Wagner Thinking Styles Inventory—A Validation Study Based on Assessment of High Ability, Ethnic Minority, High School and College Students

Introduction

A thinking style is a preferred way of thinking. It is not ability, but rather how an individual uses abilities that she or he possesses (Sternberg & Wagner, 1991). The last 40 years have seen a plethora of research examining the relationship among thinking styles and cognition (Sternberg, 1997). Traditional assessments in the cognition-centered approached have focused on dichotomous categories, such as reflection-impulsivity, compartmentalization, and abstract versus concrete (Grigorenko & Sternberg, 1995; 1997). One of the main criticisms of these approaches is that the styles seem too similar to abilities (Kogan, 1973). This causes value judgments to be placed on styles, and places styles outside of the domain in which they should be assessed (i.e., *how* one does a task versus how *well* one does a task). Additionally, placing people in dichotomous categories does not allow for the assessment or acknowledgment of overlap across various styles, and does not eliminate the individual differences that will exist within groups (Sternberg, 1997).

Personality-centered styles include assessment based on the work of Carl Jung (Myers & Myers, 1980). In short, it assesses one's attitudes in dealing with other people. Another personality-centered approach has been proposed by Gregorc (1979). The *Energic Theory of Mind Styles* assesses styles based on how people organize space and time (Gregorc, 1979). Although the personality-based theories tend to be more comprehensive than cognition based theories, a major criticism is that statistical analyses of the structure underlying the data from the tests that are used to measure the constructs provide only mixed support for theories (e.g., Goldsmith, 1985; Joniak & Isaksen 1988).

Another thinking styles approach that has been proposed are learning styles (Dunn & Dunn, 1978; Kolb, 1978). Kolb's learning styles focus on how people like to learn and proposes four learning styles: (a) converging, (b) diverging, (c) assimilating, and (d) accommodating. The Dunn theory includes environmental, emotional, sociological, and physical aspects of learning. Both of these learning styles theories are used predominantly in educational settings. One of the main criticisms to this approach is that there is no theory as to how the different styles were chosen or why they are called styles as opposed to abilities.

Typical research on thinking styles has not examined the multiple dimensions of these styles and the relationship between cognitive styles and abilities. Sternberg (1988b; 1997) has attempted to address the multi-dimensional issue by creating the mental theory of self-government. This theory posits that thinking style, or one's approach to thinking, is directly related to the forms of government that exists in the world. In other words, the structure of government is not coincidental. Government represents the external manifestations of cognitive processes. Thus, life's events are not

only a function of *how well* the individual thinks, but also *how* she or he thinks. The parallels between the governmental organization of society and mental processes include the need to govern one's self, to decide on priorities, to allocate resources, to be responsive to situational changes, and to overcome obstacles to change. Similar to governments, individuals do not have a single style, but rather a profile of styles.

The proposed theory includes the several categories of thinking styles including functions, forms, levels, and scope of thinking. There are three "functions" in this thinking style approach: (a) legislative, (b) executive, (c) judicial; four "forms" of thinking style: (d) monarchic, (e) hierarchic, (f) oligarchic, and (g) anarchic; two "levels" of styles: (h) global and (i) local; two scope characteristics: (j) internal and (k) external; and two orientation characteristics described as "leanings:" (l) conservative and (m) progressive of governments (see Sternberg & Wagner, 1991 and Sternberg, 1997 for more details). Sternberg (1997) uses the analogy of a mental "government" to illustrate how thinking styles operate cognitively. Generally, governments serve three functions. They create plans, carry out plans, and weigh options. The legislative thinking style is represented by an individual's desire to create new ways of handling situations. They are particularly conducive to creativity because creative people possess both the ability and the desire to come up with new ideas. Executive thinkers usually carry out the plans formulated by the legislative thinker. Executive thinkers have a preference for following rules and adhering to preexisting guidelines. Judicial thinkers prefer to weigh options, analyze and evaluate existing rules and procedures.

In addition to the three functions, the theory of mental self-government specifies four forms of thinking styles that result in different ways of handling situations: monarchic, hierarchic, oligarchic, and anarchic. Monarchic thinkers like to complete one task before moving on to the next. Hierarchic thinkers prefer to set up a hierarchical schedule of task completion. They recognize the need to set priorities. Oligarchic thinkers, unlike hierarchic thinkers, tend to be motivated by working on several tasks of equal importance. Anarchic thinkers prefer to work in situations in which the tasks are ambiguous and difficult to categorize.

There are two levels of thinking styles in the theory of mental self-government: global and local. Global thinkers prefer to deal with abstract situations. They are not attuned to detail. On the other hand, local thinkers prefer very concrete problem-solving tasks that can be pragmatically handled.

The theory of mental self-government also includes the scope of thinking styles. Internal thinkers are concerned with individual or internal concerns. They tend to be introverted and prefer to work independently. In contrast, external thinkers tend to be extroverted and gregarious. They prefer to work with other people to handle situations.

Finally, there are also two "leanings" or thinking styles orientations in the theory of mental self-government: progressive and conservative. Progressive thinkers are not necessarily "politically" liberal. However, they prefer to go beyond existing rules and procedures and to maximize change. Conservative thinkers tend to avoid unknown

territory and stick to existing rules and procedures. In other words, they prefer to minimize change.

This study explores thinking styles in two samples of ethnic minority students. In the first study, we describe the thinking styles of a group of high ability high school students and explore the relationship between thinking styles and aspects of thinking skills based on the Sternberg theory of triarchic intelligence. In a second study, we assess the reliability and validity of the 13 subscales of the Sternberg and Wagner (1991) *Thinking Styles Inventory (TSI)* using a diverse sample of ethnic minority college students. It was hypothesized that the *TSI* subscales' structure may vary by gender and ethnicity and be different from the original sample. Factor analysis information is not available for the Sternberg-Wagner sample. However, the factor composition, content validity, and construct validity of the subscales will be assessed using a sample of ethnic minority college students. Reliability statistics, which are available for the Sternberg-Wagner sample, are compared to the reliability statistics for the ethnic minority college sample. Predictive validity is also determined using the college sample.

Methods

Participants

Study 1

Participants for the first study were part of a larger study, known as the Teaching Thinking Project located at a public university in large northeastern urban city, that examined the effects of an instructional method on the analytical, practical, and creative thinking skills or the "intelligence" of high ability, ethnic minority, high school students. The approach was based on the Sternberg theory of triarchic intelligence and materials developed to promote these three aspects of intelligence or thinking skills (Sternberg & Clinkenbeard, 1995; Sternberg, 1995a). Participants received a college level psychology course that focused on enhancing their creative, analytical, and practical abilities. They also received peer coaching from a prior participant, mentoring from undergraduate students, and computer instruction. New students were recruited at the beginning of four semesters, fall 1996 through fall 1998. The sample included 57, eleventh and twelfth grade students from a magnet high school that enrolled the most intellectually competent students throughout a large northeastern city. High school guidance counselors assisted in recruiting most of the student participants and participation was voluntary. Participants in this sample had a mean age of 16.2 years (*SD* = .76).

Women students were 82% of the sample. The sample was ethnically diverse and included African Americans (28%), Latino Americans (37%), West Indians (15%), and Asian Americans (20%). Forty-seven of the 57 students completed the Thinking Styles demographic characteristics are described in Table 4.1. The Teaching Thinking intervention is described in Chapter 1 of this research monograph.

Study 2

Participants in the second study attended two public universities in the same urban northeastern city. The majority of the sample, 75%, was beginning college students. Another 14% were high school graduates who had not yet taken a college course but intended to do so and approximately 11% of the sample included college juniors and seniors. Students were recruited from psychology courses and participants pools at the two participating colleges. Participation was voluntary. Participants in this sample had a mean age of 20.1 years (SD = 2.89). Actual ages ranged from 17 to 33 years of age. Women comprised 55% of the sample. Sample participants identified various ethnic group categorizations, such as African, African American, Bengali, Egyptian, East Indian, and Hispanic, along with numerous other ethnic group categorizations. Only two participants identified themselves as White or European American. Approximately one-half of the sample listed English as their primary language. The remaining participants listed numerous languages, such as Amharina, Gujarati, Igbo, Urdo, and Spanish, among many other language categorizations. Table 4.1 describes the demographic characteristics of the participants in the second study.

Procedures and Measures

Study 1. In study 1, students were assessed using the *Sternberg Triarchic Abilities Test (STAT)* (1993b) the *Thinking Styles Inventory- Short Form (TSI-SF)*, (Sternberg, 1988b) and a Demographic Profile Survey that was part of a measure of social network characteristics in adolescence (Coates, 1996). These measures were administered, along with other assessment instruments, prior to and during a first class meeting at the beginning of a student's participation in the intensive intervention, at the beginning of an academic semester. The *STAT* measures creative, practical, and analytical thinking skills using a series of multiple choice items and essay questions (Sternberg, 1985, 1995a). The *TSI-SF* is the shortened version of the longer 104-item *TSI* (Sternberg & Wagner, 1991). The *TSI-SF* is a 65-item self-report measure that assesses an individual's preference for certain types of tasks. It consists of 13 subscales that were constructed to examine the thinking styles discussed in the introduction. Each scale includes five Likert-type items with seven anchor points: *not at all well* (1), *not very well* (2), *slightly well* (3), *somewhat well* (4), *well* (5), *very well* (6), and *extremely well* (7). Each respondent was asked to indicate how well an item fit the way she or he typically did things at school, at home, or on the job. Table 4.2 includes summary descriptions of each thinking style.

Study 2. In study 2, the *TSI-SF* was administered using one of the following procedures: (a) distributed to students in a psychology class who returned the questionnaires to a designated location upon completion or (b) administered to students participating in a participant pool who returned the questionnaire to the primary investigator upon completion. These students also completed a demographic profile.

Table 4.1

Percentages, Means, and Standard Deviations for Sample Demographic Characteristics (N=269)

Variable	Percentage	*M*	*SD*	*Range*
Age		20.1	2.89	17 – 33
Gender				
Men	44			
Women	56			
Marital Status				
Single	93			
Married	6			
Divorced	1			
Education Level				
High school student	13			
First 2 yrs. college	76			
Last 2 yrs. college	10			
College graduate	1			
Grade Point Average		2.7	.98	
2.0 – 2.9	39			
3.0 – 4.0	61			
Level of Religious Practice				
High	17			
Medium	24			
Low	30			
Uninvolved	24			
Political Preference				
Republican	8			
Democrat	46			
Liberal	3			
Independent	7			
Radical	2			
Uninterested	35			

Table 4.2

Summary Descriptions of Each Thinking Style Scale

Scale Name	Thinking Style Task or Situation Preference Description
Anarchic	Tasks or situations that lend themselves to various approaches.
Conservative	Tasks or situations that require adherence to existing rules.
Executive	Tasks or situations that allows one to carry out already existing procedures.
External	Tasks or situations that allow working with others in a group.
Global	Tasks or situations that require work with global and abstract ideas.
Hierarchic	Tasks or situations that allow the creation of a hierarchy of goals to fulfill.
Internal	Tasks or situations that allow independent work.
Judicial	Tasks or situations that require comparison-contrast, evaluation, or analysis.
Legislative	Tasks or situations that require creation and formulation of ideas.
Local	Tasks or situations that require independent work.
Monarchic	Tasks or situations that allow focusing on one thing at a time.
Oligarchic[a]	Tasks or situations that allow working with competing approaches.
Progressive	Tasks or situations that involve unfamiliarity and ambiguity.

Note. From R. J. Sternberg and R. K. Wagner (1991). *MSG Thinking Styles Manual*.
[a] Items suggest that adherence to group pressures may be a better descriptor of task preference.

Results and Discussion

Study 1

Thinking Styles and Thinking Skills in Ethnic Minority High School Students. Table 4.3 presents the descriptive statistics for each subscale on the thinking style subscales for the high school participants. This table also presents the mean data for the college sample described below in Study 2. Figure 4.1 presents a graphic representation of these students thinking style scores.

Table 4.3

Means, Standard Deviations, and Reliability for Each Subscale of the Thinking Styles Questionnaire for High School and College Samples

	High School ($N = 46$)			**College** ($N = 222$)		
Subscale	***M***	***SD***	**Alpha***	***M***	***SD***	**Alpha**
Anarchic	25.16	3.69	.47	24.93	4.08	.47
Conservative	21.67	4.89	.71	21.50	4.89	.71
Executive	24.39	5.24	.82	24.00	5.53	.82
External	25.31	4.72	.70	24.83	5.23	.70
Global	21.57	7.46	**.31**	20.67	5.04	.81
Hierarchic	25.24	4.02	.50	25.59	4.17	.50
Internal	23.91	11.11	**.28**	22.57	5.02	.62
Judicial	25.07	4.40	.64	24.26	4.70	.64
Legislative	26.17	4.11	.73	26.17	3.94	.72
Local	21.87	3.37	**.28**	22.07	4.10	**.28**
Monarchic	22.07	3.97	**.38**	22.02	4.12	**.38**
Oligarchic	19.11	6.03	.78	19.33	6.07	.78
Progressive	24.57	5.26	.87	24.38	5.03	.87

* Alphas with sufficient scale reliabilities indicated in bold; those with insufficient scale reliabilities are not in bold (DeVellis, 1991).

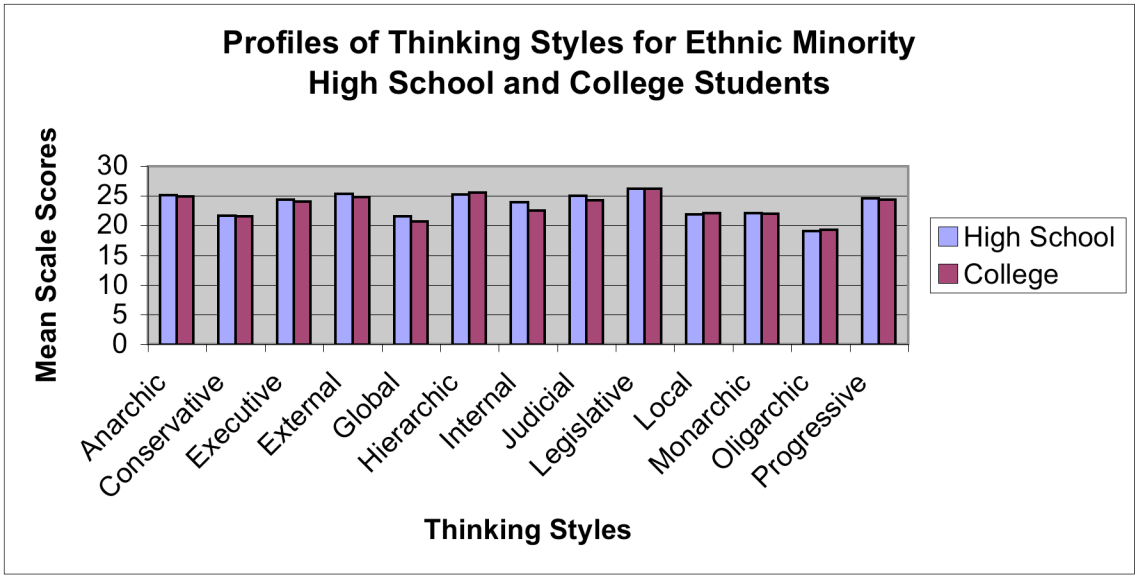

Figure 4.1. Profiles of thinking styles means for high school and college samples.

This figure shows that the high school students and college students are almost identical in their profile of thinking styles. There were no significant differences between the two groups in thinking styles. The means for each of the thinking styles are in the mid to high range. Both samples had the lowest style scores for the oligarchic thinking style and highest score for the legislative style. Both the high school and college sample means were also high for the external, executive, judicial, and anarchic styles. The high school sample had a slightly higher mean for the "global" and the "internal" style.

We also wanted to examine the relationship between thinking styles and thinking ability or skills, also referred to as "intelligence" by some theorists. We assessed thinking style and thinking ability using the triarchic approach to intelligence in the high school sample only. Sternberg and colleagues have hypothesized relationships between styles and intellectual abilities (Sternberg, 1997). For example, Sternberg suggests that legislative thinkers should be more "creative." Multiple regression analysis was used to evaluate how well each total score predicted three different types of intelligence, creative, practical, and analytical, for the 46 high school students. None of the thinking styles were predictive of *any* of the three aspects of intelligence. Interestingly, in contrast to Sternberg's hypothesized relationships between thinking styles, the legislative thinking style was not predictive of creative intelligence.

Study 2

Thinking Styles in Ethnic Minority College Students. Table 4.3 and Figure 4.1 present the descriptive statistics for the college sample's thinking style subscales scores. The figure shows that participants tended to prefer tasks representative of legislative, hierarchic, and progressive thinking styles, respectively. Conversely, they least preferred tasks representative of an oligarchic or global thinking style, respectively.

Internal Consistencies and Inter-correlations of the Subscales. Internal consistency analyses were conducted on each of the 13 subscales. Internal consistency reliability coefficients (alphas), listed in Table 4.3, ranged from .28 to .87. Six of the subscales (i.e., anarchic, hierarchic, internal, judicial, local, and monarchic) had alphas that were less than .65. The same six subscales had average inter-item correlations that were less than .30. Table 4.4 shows the subscale intercorrelations, which suggest that subscales within each of the three factors in the final three-factor solution tend to be significantly correlated, thereby providing more evidence for the three-factor solution.

Exploratory Factor Analysis of the Thinking Style Test With Ethnic Minority College Students. Sternberg (1997) hypothesized particular relationships among the thinking styles to examine this we used exploratory factor analyses to describe the relationships among the thinking styles for this sample of ethnic minority college students. To reduce the number of variables to a smaller subset, second order factor analyses were conducted, using the subscales as variables in the analyses, based on the larger sample of college students. Bartlett's test for sphericity was significant (257.84, $p < .001$), indicating that the data were amenable to factor analysis. The first analysis involved a direct oblimen rotation. Four significant factors using the Kaiser criterion

(eigenvalues > 1) emerged, explaining 68.6% of the variance in the 13 subscales. A number of the subscales *double-loaded, triple-loaded*, or significantly *negatively loaded* on the four factors. Additionally, the component correlation matrix showed a low correlation between the factors. Thus, the next factor analysis was conducted using varimax rotation in an attempt to "force" the subscales onto factors. This analysis yielded a four-factor structure on which two of the subscales (monarchic and anarchic) double loaded. The monarchic subscale double-loaded on factors two and three. The anarchic subscale double-loaded on factors one and two. From these initial exploratory analyses emerged factors on which there were multiple loadings. Thus, additional exploratory analyses were conducted in which a set number of factors were extracted to test the fit of several structures to the data.

Table 4.4

Inter-correlation Matrix for Thinking Style Sub-scales

	An.	Cons.	Exec.	Ext.	Glob.	Hier.	Int.	Jud.	Leg.	Loc.	Mon.	Olig.	Prog.
An.		.32*	.40**	.16	.10	.28	.39**	.25	.36*	.36*	.36*	.2	.44**
Cons.			.81***	.31*	.24	-.07	-.18	.15	-.24	.35*	.41**	.53***	-.23
Exec.				.31*	.24	-.21	-.22	.23	-.22	.50***	.36*	.41**	-.10
Ext.					.11	.02	-.23	.15	.10	.34*	.05	.32*	.03
Glob.						.04	.17	.46**	.27	.06	.26	.27	.27
Hier.							.51***	.20	.39**	.16	.12	-.11	.11
Int.								.17	.58***	.15	.28	-.16	.54***
Jud.									.29*	.16	.59***	.11	.32*
Leg.										.01	.22	-.11	.59***
Loc.											.27	.12	.15
Mon.												.07	.13
Olig.													.01
Prog.													

Note. * $p < .05$, ** $p < .01$, *** $p < .001$
An. = Anarchic; Cons.=Conservative; Exec.=Executive; Ext.=External; Glob.=Global; Heir.=Heirarchic; Int.=Internal; Jud.=Judicial; Leg.=Legislative; Loc.=Local; Mon.=Monarchic; Olig.=Oligarchic; Prog.=Progressive

An exploratory factor analysis with an orthogonal rotation was performed to test the fit of a five-factor structure to the data. This first model accounted for 75% of the variance. However, one subscale (oligarchic) triple-loaded on factors one, four, and five, and one subscale (anarchic) double-loaded on factors one and two.

A Three-factor Approach and Its Interpretation. Next a three-factor approach was used. The best fit was a three-factor structure of the data. These results are presented in Table 4.5. This factor structure accounted for 60% of the variance with only one subscale, anarchic, double loading on factors one and two. The first factor to emerge includes these styles: (a) executive, (b) local, (c) conservative, (d) oligarchic, and (e) external thinking. It seems to represent "closed minded" thinking styles, with loadings from .52 to .86. This factor explained 27.2% of the variance. The second factor included: (a) legislative, (b) progressive, (c) hierarchic, and (d) internal thinking styles and may represent a form of "self-reliant" thinking style. Loadings on this factor were from .63 to .83. This factor explained about 23.1% of the variance. The third factor included (a) judicial, (b) global, and (c) monarchic thinking and could be described as an "openness" style with loadings from .52 to .81. This factor explained only 9.7% of the variance. All loadings were significant because a loading of .40 was sufficient for significance at the .01 probability level on each of the factors. Additionally, in only one case did a subscale, anarchic, load on more than one item. These data suggest that the group of subscales that constitutes each of the three factors is relatively "pure" in factor structure. Furthermore, this three-factor solution was strengthened by follow-up exploratory factor analyses of each factor. Individual exploratory factor analyses of factor one, factor two, and factor three yielded only one factor, which accounted for 53.3%, 60%, and 62.6% of the variance, respectively.

The three-factor solution explains more of the variance observed in the 13 thinking styles than the other solutions tested. This solution consists of the following three underlying factors: (a) closed-mindedness, (b) openness, and (c) self-reliance. A closed minded thinker is one who prefers structure, follows guidelines, rules, procedures, and enjoys working with others. Openness represents a thinker who prefers to evaluate and analyze existing ideas, very open to abstract thinking, however likes to focus on one thing at a time until complete. A self-reliant thinker is one who likes to create, form and plan, a person who works well with unfamiliar and unambiguous information and prefers to work independent.

Convergent and Discriminant Validity. Using the college sample the, convergent and discriminant validity of the thinking style subscales was assessed. Each item was correlated with its own subscale (with the item removed) and with each of the other subscales. Although for none of the subscales were the relationships consistent, there was some, although inconsistent, evidence of convergent validity and discriminant validity. In other words, only a few of Sternberg's hypothesized relationships between subscales could actually be substantiated. For example, two of the items on the executive subscale were significantly negatively correlated with two items on the legislative subscale, in accordance with hypotheses. Similarly, two of the external subscale and internal subscale items were significantly negatively correlated. A similar pattern was

found for the global and local subscales and for the internal and external subscales. However, there were also many discrepancies in the item analyses. Some items from one subscale either were not correlated with items on another subscale that they were hypothesized to be related to or they were significantly correlated in an opposite direction of the hypothesis. For example, some items on the hierarchic subscale were both positively correlated and negatively correlated with items on the oligarchic subscale. Similarly, some items were more correlated with items on other scales than with items on their respective scale. For example, one item on the global scale was perfectly correlated with an item on the legislative scale. Similarly, one item on the local subscale was perfectly correlated with an item on the oligarchic subscale. Another item on the local subscale was perfectly correlated with an item on the monarchic subscale.

Table 4.5

Three-factor Rotated Component Matrix

Subscale	Component*		
	1	2	3
Conservative	**.84**	-.23	.20
Executive	**.86**	-.19	.19
Local	**.69**	.34	-.13
Oligarchic	**.53**	-.23	.01
External	**.52**	-.00	.00
Internal	-.14	**.83**	.14
Legislative	-.19	**.73**	.35
Hierarchic	.00	**.68**	-.10
Progressive	-.10	**.64**	.38
Global	.01	.00	**.81**
Judicial	.16	.23	**.75**
Monarchic	.38	.26	**.52**
Anarchic	**.53**	.61	.01

* Bolded loadings are statistically significant.

Thinking Style, Gender, and Other Demographic Characteristics. Correlation coefficients were computed for the college sample between several demographic variables such as gender, age, marital status, education level, and grade-point-average and each of the 13 thinking style subscale scores. There were not enough high school students or gender diversity in that sample to do these analyses. Only modest

correlations were observed across this matrix of relationships. Some of the correlations, though modest, they were significant and are mentioned here. Women tended to be more executive in thinking style, that is they prefer to follow already existing procedures, and to prefer an oligarchic style, or one where you work with competing approaches (r = -.16, p < .02). Older participants were more likely to prefer a judicial thinking style, one that allows for comparison and contrasting information (r = .20, p < .01) and to be progressive in style or to prefer more ambiguous situations or tasks (r = .15, p < .05). Participants who were married or divorced were more likely to be global or abstract (r = .16, p < .02), monarchic or preferring to focus one thing at a time (r = .20, p < .01), and internal or independent thinkers (r = .17, p < .01). Participants with higher education levels tended to be more judicious, that is they also like to compare and contrast (r = .16, p < .02). Students with higher grade point averages tended to be hierarchical thinkers, that is they like to employ a hierarchy of goals to fulfill (r = .19, p < .01).

Sternberg (1997) hypothesizes that there are gender and ethnicity differences in thinking styles. Therefore, one-way analyses of variance were conducted to evaluate the relationship between each of the subscale totals and ethnicity. In the college sample, ethnicity was an open-ended response variable, which resulted in 97 different ethnicity categorizations. For the smaller sample of 46 high school students, ethnicity was reduced to four groups that included African American, Dominican American, Puerto Rican, West Indian, and Asian American. Significant differences based on ethnic group membership were only found for external thinking style, F (4, 41) = 2.37, p > .07. Post-hoc comparisons revealed that African American high school students tended to have a more external thinking style than the other groups. Similarly, analyses of variance were conducted to evaluate the relationship between each of the subscales and gender. These analyses confirm that in the college sample, there were gender differences in executive thinking style and in oligarchic thinking style, F(1, 213) = 4.75, p < .05 and F(1, 217) = 5.67, p < .05, respectively. Males tended to have more executive and oligarchic thinking styles than females.

There were also modest, yet significant, relationships found between demographic characteristics and the three extracted factors of closed-mindedness, openness, and self-reliance, described earlier. Gender was predictive of an "open" thinking style with women being less open, F(1, 206) = 4.04, p <.05. Very few participants were married or divorced. They tended to be more closed-minded and yet more self-reliant than those who had not ever married, F(1, 203) = 11.90, p < .001; F(1, 206) = 6.79, p < .01, respectively. Participants who were religiously active were also more open thinkers than those who were less so, F(1, 195) = 10.15, p < .01.

Conclusions

The content validity of the *TSI-SF* was evaluated using theoretical perspectives on cognition, styles, and abilities. Because traditional assessments of thinking style tend to be derived from existing theories within cognition and ability, it was difficult to assess

the content of the *TSI*, which is based on governmental operations, based on prior assessments of style.

The *TSI-SF* was evaluated using exploratory factory analysis (EFA), an extracting procedure that allows for the extraction of a particular number of factors. The initial exploratory factor analyses with an orthogonal rotation accounted for 69% of the variance and extracted four components, on which two of the thinking styles double loaded. Although the follow-up EFA explained 60% of the variance, each thinking style satisfactorily loaded onto a factor, with the exception of the anarchic thinking style, which double loaded on factors one and two in all factor analyses. Thus, the three-factor solution was deemed the best empirical solution. The three factor solution and the uni-dimensionality of each factor was also supported by follow-up exploratory analyses of each factor, each of which extracted only one factor and accounted for approximately 60% of the variance. The three-factor solution suggests that the 13 thinking styles can be reduced to three overall factors: openness, closed-mindedness, and self-reliance.

There were many inconsistencies between the alphas derived from the thinking style data from the college sample of ethnic minority students and the alphas based on the Sternberg-Wagner sample (1991)[10]. Also there is no theoretical explanation of the strategy used to create the *TSI-SF* so it is difficult to interpret the theoretical significance of these findings. Many of the inter-correlations reported were less than .30, suggesting that the items on nearly half of the scales are not substantially correlated with one another and possibly not internally consistent. Similarly, there were six subscales on which the alphas were less than .65, with a range of .28 to .87. The Sternberg-Wagner sample had alphas that ranged from .43 to .78. More recent assessments by Sternberg (1997) have found alphas that range from .57 to .88, although sample characteristics were not reported. There were four subscales on which alphas from the high ability high school sample (5-item subscales) were larger than alphas from the Sternberg-Wagner sample, which used the 8-item scale, suggesting that the factor structure may vary across samples.

In examining the construct validity and criterion-related validity of the *TSI-SF*, relationships were hypothesized between the thinking styles, demographics, and abilities. Sternberg (1997) suggests that thinking styles are somewhat contextual and may vary across ages, ethnicities, and other environmental situations. The analyses revealed that African Americans tended to have higher scores on the external subscale and lower scores on the internal scale than the other ethnic groups. This finding supports research on locus of control that examined ethnic group differences (Hillman, Wood, & Sawilowsky, 1992). Considering that an external thinking style reflects one's reliance on others for the completion of tasks, there may be some relationship between an external thinking style and an external locus of control. The factor structure of Sternberg's original sample, which consisted predominantly of students of European descent, was not consistent with our isolation of a simple factor structure in a large sample consisting predominantly of students of African descent. Therefore, ethnicity should be considered as one area where further explorations of thinking styles could yield significant findings.

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[10] Sternberg's and Wagner's reliabilities are based on the longer 8-item version of the subscales.

The analyses also revealed that men tended to have higher scores on the executive and oligarchic thinking styles. These findings may be representative of the more traditional roles that men play in today's society. Although both men and women work in today's world, many people continue to use or believe in some version of gender-specific roles. Thus, men are often in positions that allow them to continue to follow already-existing procedures, but are also forced to work with competing approaches, given the waning prevalence of gender-specific roles in society today.

Thinking styles also have hypothesized relationships in predicting abilities. Grigorenko and Sternberg (1997) were interested in assessing whether or not styles predicted academic achievement when abilities are taken into account. They found the legislative and judicial style to be modestly, (i.e., from .15 to .23) positively correlated with scores on *STAT* (Sternberg, 1985). The legislative and judicial styles were also modestly correlated, .14 and .17, respectively, with a final course final exam. These results did not support Sternberg's findings showing relationships between thinking styles and intelligence. Although there were some relationships within the high ability, high school sample that approached significance, because of the small sample size there may not have been enough power in this design to detect any significant relationships.

There also appears to be some relationship between thinking styles and academic achievement. This finding suggests that perhaps the relationship between intelligence and thinking styles varies as a function of other factors that may exert influence or perhaps grade point average is not the best indicator of academic achievement. In the college sample, students with higher grade point averages tended to be more hierarchic thinkers (i.e., they tend to prefer tasks that allow the creation of a hierarchy of goals to fulfill). Future investigations should assess the relationships among thinking styles and various indices of academic achievement.

In summary, the *TSI* subscales were derived practically and exploratory analyses were used to evaluate the 13 subscales. The procedures yielded promising results in terms of underlying factor structure. Coefficient alphas of many of the scales were not adequate for the high ability high school sample. This may be an artifact of both the sample size and the small number of items, or more likely it may suggest differences in factor structure across samples. We were unable to replicate the Sternberg's 13-factor structure in the smaller sample of high ability high school students or in the college sample students of African descent. Content validity could not be assessed by the literature.

Differences were found for two thinking styles between male and females and among the ethnic groups, suggesting that researchers may have to analyze for such factors when assessing the *TSI*. In terms of construct validity, profiles of thinking styles differed across intellectual abilities and grade point average as compared with Sternberg's findings. The *TSI* may be an improvement over other traditional measures because it includes multiple items for each subscale, the subscales are drawn from a practical assessment of the day-to-day functioning and situations, and it assesses the multidimensional and interactive aspects of styles. As such, the *TSI* should be useful to

researchers who wish to examine cognition and abilities. In addition, educators may be able to better develop interventions to enhance academic performance. However, researchers must consider the degree to which a factor structure is replicable by uncovering similar structures across multiple independent samples. If this is not possible, additional analyses must be conducted, as illustrated in this study, to assess the relationships among thinking styles and various demographic, educational, and social indices.

Chapter 5: Naïve Theories about Giftedness and Academic Success in Ethnic Minority, High School and College Students

Introduction

Giftedness and academic and personal life success are distinct but related concepts. Gifted persons are sometimes very successful academically and in some cases they are not. Academic success and personal life success is quite possible, obviously, without a designation of "giftedness." Success is related to a number of factors and experiences and yet we know little about how gifted or high ability, ethnic minority students conceptualize academic success and whether and how internalized theories about success exist and influence their success behavior.

Very young children in all social categories have typically been described as being competent learners and as having a high degree of confidence in their abilities (Alexander, Entwistle, & Dauber, 1993). During middle childhood and into adolescence and early adulthood, this profile changes dramatically and minority adolescents' failure in school is explained by a number of factors (Ogbu, 1992). Decades of research on academic achievement and failure have left us with many explanations of how children often described as ethnic minorities, in particular those described as "Black" or "African American" and those that are native speakers of Spanish, as well as children who are members of these groups *and* are low income, come to devalue academic achievement and fail at school. However, we have few studies that explore what youth, who are members of these groups, tell us about how they define success and academic achievement.

Work by Kern and Coates (1991), Pollard (1993), and Shade (1981) has explored factors related to academic achievement in students they describe as "African American" and Steinberg, Dornbusch, and Brown (1992) have described ethnic differences in explanations of adolescent achievement using an ecological perspective. This research identifies a number of factors that have been related to academic achievement such as having a positive self-perception and interpersonal support, having an active problem solving style, being detached and reserved and able to obey and conform to expectations. Steinberg and his colleagues found that there were ethnic group differences in parenting practices, family values about education and adolescents' beliefs about occupational rewards of academic success. Specifically, they find that in adolescents they describe as "White," achievement is related to parents who use an authoritative parenting style and to peer support for achievement. For adolescents they describe as "Hispanic," low achievement is related to authoritative parenting and lack of peer support for achievement. In the students they describe as "Asian American," high peer support for achievement seems to counter the negative impact of authoritarian parenting, and in the group designated as "African American," they suggest that peer support for achievement is absent and this absence has negative consequences that are not overcome by the positive influence of authoritative parenting in this group.

Winner (1996, 2000) and others have described the characteristics of gifted children, adolescents and adults (see also Shore & Kanevsky, 1993; VanTassel-Baska, 1989). Winner (1996, 2000) describes gifted children as "having a deep intrinsic motivation to master a domain in which they have high ability and are almost manic in their energy level." She also suggests that gifted children are highly introverted, despite a preference for being with others, and that they spend more time alone than do adolescents who are not gifted. In the cognitive domain, Winner (2000) further describes gifted children as having a rather uneven profile in the cognitive domains (e.g., verbal-math) and in music, art, and athletics. The introverted characteristics as well as having deep intrinsic motivation suggest that gifted or high ability adolescents may have a highly developed internal sense of their abilities and how to translate those abilities into success.

Sternberg (1995b) has proposed a theory to define what we mean by "giftedness." His theory suggests that society labels a person as gifted using five criteria: (a) excellence, (b) rarity, (c) productivity, (d) demonstrability, and (e) value. Persons who are gifted, he proposes, "excel in something in a way that is rare, needs to produce some kind of product or products, and thereby to demonstrate giftedness, and the product must be of some kind that is valued" (p. 47). Sternberg validated this theory by testing 26 male and female students and 39 parents of gifted children in an eastern state. A demographic profile of these two samples was not specified. Respondents evaluated descriptions of hypothetical students and were asked to make two determinations: (a) how likely is it that a school would identify this child as gifted? and (b) how likely is it that you would identify this child as gifted? In Sternberg's study, multiple regression analysis was used to determine the importance of the ratings made in each category and, in general, the results were consistent with the five points made about the characteristics of giftedness.

In this chapter, a theory is presented about the nature of internal motivation in high ability adolescents and young adults. This theory suggests that high ability adolescents have a well-developed internal working model of success. Such an internalized model might operate in a similar fashion to an internal working model of attachment. Attachment theory suggests that individuals incorporate their experiences in the "first" relationship with mother into an internal theory about relationships and that they use this theory or "internal working model" to understand what to expect from all relationships (Ainsworth, Blehar, Waters, & Wall, 1979; Bowlby, 1973).

This chapter briefly presents a description of the cultural meaning of success. The theory about internal working models of success, as a contributing factor in achieving success in high ability students, proposes that this internal model is necessary if high ability students are going to be able to use their gifts and talents to be successful. Six essays written by highly successful college students who were asked to describe the nature of success and how it is achieved are also presented and discussed in relationship to this theory.

The chapter also presents preliminary data on ethnic minority students' perceptions of the concept of giftedness and self-appraisals of abilities held by high ability students. This information comes from high ability high school students who

describe themselves as "Latina or Latino," "Caribbean of African descent," "Hispanic," or "African American." These observations are offered to provide insights into some of the cognitive factors that may be influencing academic success and future life success in high ability, ethnic minority adolescents. These perceptions, descriptions, and self-appraisals may suggest some of the themes, factors, and characteristics that need to be explored further to more fully understand high ability and gifted ethnic minority youth.

Definitions of Success and the Cultural Meaning of Success

Success is a culturally embedded phenomenon. It can be defined in many different ways depending on dominant and subordinate cultural trends in a society. A dominant cultural group may define the meaning of success for a society. However, some members of that society, who may or may not belong to this dominant social group, may not conform to these achievement standards and may create their own definitions by modifying those provided by the dominant culture. Other members may choose to abide by the norms for success. Furthermore, a definition of success may be dependent on to what individual a definition is applied. A person's age and potential for development and in some case gender and other intrinsic physical traits are incorporated into some definitions of success. Definitions of success ultimately depend on social and personal values, expectations, opportunity structures, and personal capabilities.

Western and Nonwestern Views of Success[11]

In the United States, and some other western capitalist societies, ultimate adult success is defined as the attainment of economic power and social prestige. Other success outcomes, for example those that apply to children, are often viewed as necessary "stepping stones" to the ultimate adult success outcome. Economic success, in these societies, is sometimes a symbol of self-realization. Being successful or "making it," in this context, means earning or acquiring enough money to have a lifestyle centered on material acquisition and satisfying material desires that are obvious to others (e.g., travel, social events, desirable housing, objects that make life convenient and that suggest social prestige). This highlights the "external" nature of the self or one's identity. Thus, in capitalist cultures a person's identity is largely determined by what material goods they have acquired or are able to obtain.

Other cultural perspectives on success define success using humanistic, rather than material standards. This perspective exists among some members of capitalist societies and forms the core of some eastern, communal societies. In this cultural tradition success is defined as having a challenging and interesting life; raising a moral family and sharing closeness with family members, overcoming personal difficulties, and developing one's talents and capabilities. Part of this development of talent involves a self-directed journey to find out what unique task(s) you have been placed on earth to accomplish. In this framework, the process and accomplishment of overcoming personal barriers that block the achievement of personal goals is extremely important and

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[11] The authors acknowledge the contribution of Alwyn Gilkes to earlier considerations and discussions of how to define success among African American adolescents.

sometimes gets greater consideration in defining success than achieving the goal. This humanistic view of success also often incorporates into the definition of success a desire to experience life as the successful integration of personal and career goals. One is expected to be equally successful or to achieve a balance between personal, social, and professional goals. These goals are qualitatively different, but can be complementary.

Types of Success Goals

There are three major types of goals that are usually considered when describing adult success. These are personal, academic, and professional goals. The major personal goals that are often considered are: (a) accepting one's personal traits and characteristics, (b) developing and expressing one's talents and skills, (c) developing and sustaining close and healthy relationships with family and friends, (d) having a sense of community and place. Academic success is often characterized by: (a) having a sense of mastery in a particular field of interest, (b) achieving some respect and recognition by peers and instructors, (c) having a sense of satisfaction with academic and career choices, (d) awareness of professional and economic potential possible from one's academic achievements. Professional success includes: (a) finding employment that allows one to use acquired and developed expertise and talents productively; (b) enjoyment and satisfaction with the nature of one's employment and work; (c) achieving, perhaps gradually, economic independence that provides an adequate, sustainable living for oneself or family; (d) sustaining community development by contributing economic and personal resources to one's neighborhood and community-at-large.

In societies where success is equated with economic prosperity, often professional careers are increasingly becoming more specialized. In these societies, prestige is equated with having a state-of-the-art college-level education and degree. For the very wealthy, it is an assumed luxury. For those less economically advantaged, it becomes a necessary passport to economic security. Often ethnic and so-called racial minorities have been prevented from acquiring quality education in elementary and secondary schools thus have limited access to competitive institutions of higher education. Students who do enter college programs are considered talented and sometimes lucky. Often low-income or otherwise disadvantaged students have to overcome a number of significant social and personal barriers to succeed in college. It is often assumed that these students will not do well and often they do not because they cannot overcome the barriers to their success.

The Process of Achieving Success

Regardless of the cultural perspective in defining success, we can think of success as the degree to which one attains a desired end or accomplishes a specific goal. Achieving success is dependent on values and expectations that are acquired by an individual and incorporated into what we define later in this chapter as an "internal model of success." We would argue that this "internal working model of success" must be developed and functioning for an individual to achieve academic and professional success. Achievement of success is also dependent on personal traits, such as motivation

and talent. Whether one is successful is also dependent on the opportunity structures that exist for an individual.

An Internal Working Model of Success

Scholars in developmental science, and other areas of psychology, have theorized that the achievement of important developmental milestones depends on the type of internalized and psychological "view" that the individual has of what is expected of them and of others. In the area of relationships with others, this internal working model has been labeled "attachment." A focus on promoting the achievement of oppressed minority youngsters should include some regard for how these youngsters view their possibilities and their expectations for themselves and for others' behavior toward them. In the area of achievement, some consideration has been given to the concept of achievement motivation as a representation of the internal drive needed for achieving high-end academic goals. There are other factors that need to be incorporated into a full working model of success. Such a model could be useful in identifying program activities that might be helpful in promoting success attainment in this group. In this chapter, we propose the major components of a good, internal working model of success.

In the proposed internal working model of success, there are several characteristics that seem to provide substantial support for thoughts and feelings about performance that lead to achieving academic and other success-oriented goals. These characteristics may constitute the inner workings and mental schema that help to frame and guide adolescents' actions. We identify these elements below. Adolescents who have good internal working models of success can often be characterized as:

1. Having an intrinsic interest in learning and following a path based on their interests, current skills, and skills that they would like to develop.
2. Able to experience a future self and have a future orientation that is focused on career or professional development and employment after college or other personal success markers.
3. Having a personal sense of well being and a satisfaction with choices made to date.
4. Understanding of the relationship between effort and performance and an appreciation of the limits of personal success. (Hard work and diligent effort lead to an achieved academic goal.)
5. Able to set goals and assess progress toward goals with the realization that sometimes goals need to be modified.
6. Able to seek help and advice and apply such help and advice appropriately.
7. Understanding that success is incremental and not achieved overnight.
8. Able to appreciate the connection between what they can learn in a course, given its content, and some real world application. This appreciation may be independent of any orientation toward earning a "good" grade.

9. Understanding the nature of the specific training necessary for professional school admission and an appreciation for what steps are required to achieve professional credentials post baccalaureate.

Prerequisites for Applying an Internal Working Model of Success. There are probably a number of prerequisite experiences and opportunities that provide the basis for developing a good internal working model of success that is functional. These platform experiences are briefly acknowledged here. They include:

1. Excellent physical and mental health; student is not burdened with anxieties, excessive concern about the future, and worried about success.
2. A strong sense of self and possibility of moving toward the future.
3. Involvement with friends, family, and close relationships that are satisfying and supportive and contribute to a sense of well being.
4. Access to necessary material resources.

Often objective criteria must be used to judge whether a student is successful in achieving goals and measuring up against cultural standards of success. These include:

1. Average-high to high grade-point-average (GPA), especially in upper division and "major" courses.
2. Presence of an organized academically rigorous program of study.
3. Good use of college resources and faculty that maximizes GPA and other goals.
4. Class work and course attendance is consistent.
5. Works well with others, involved in student study groups and social groups, formal and informal.
6. Knowledgeable about college services, how to use the library, college writing and skill center, health services, and other support services, effectively whether needed or not.

Other Issues. A consideration of the cognitive ideation associated with achieving success will need to include a focus on many pathways to success, including whether or not success is achieved, the development of marketable skills, coping with oppression (e.g., for certain classes of adolescents); and dealing with shattered success expectations. One might develop profiles to describe various aspects of achieving success goals, e.g., (a) getting there, (b) graduating from formal training program, (c) ideals, (d) how goals change, (e) revised outcomes, and (f) outcomes achieved.

We wanted to explore the perceptions high school and college students had of giftedness and academic success, respectively. This qualitative study explored how the two groups of students reported on their understanding of the nature of giftedness and of success in academic settings. We examined the themes and content they presented to determine whether or not there seemed to be some preliminary evidence of an internal working model of success in high ability, successful college students, as described in this

chapter, and evidence of Sternberg's (1995b) pentagonal implicit theory of giftedness in high ability, high school students.

Method

Study 1

Participants and Procedures. In the spring of 1999, we recruited high school students from among a group of students who were being pretested as part of a selection process designed to identify participants from among the group for thinking skills intervention. The students were attending a magnet high school in a large northeastern city for high ability students interested in medicine, law, business, and engineering. Students were assessed using the *Sternberg Triarchic Abilities Test (STAT)* (Sternberg, 1991b) and a demographic profile. Forty-five students, 15 male and 30 female, completed a brief survey asking them to provide narrative answers to four questions. All of the students were from families considered ethnic minorities in the United States. Fifty percent were from "Hispanic" origin groups and were primarily Dominican and Puerto Rican. About 20% were of African descent and had been born in the United States and about 10% were of African descent and had been born in Haiti, Jamaica, Trinidad, Canada, and other Western Hemisphere locations other than the United States. The remainder of the students were of Asian descent, primarily Chinese American or Middle Eastern.

Students answered the following open-ended questions:

1. What is your definition of gifted?
2. What does it mean to say that someone is gifted?
3. Do you know anyone who is gifted and/or talented? (Relationship to the respondent)
4. What are your special gifts and talents?

The narrative responses to each question were transcribed and analyzed using content analysis procedures to identify themes that corresponded to characteristics of gifted and talented adolescents described in the psychological and educational literature.

Study 2

Participants and Procedures. Six college students attending a large public university serving primarily ethnic minority and immigrant college students were recruited in 1999 from a pool of applicants interested in being hired as mentors for an intervention designed to improve the thinking abilities of high ability, high school students. All of the students were from ethnic minority backgrounds. Three had been born in the United States, and three were born outside of the United States. All were of African descent and one was of Hispanic descent. Two of the six students were male.

Each student was asked to prepare a 2-3 page typed essay focusing on the following instructions:

> Please write a brief essay on your academic success. Try to focus your essay on what academic success means to you, how you have achieved it and any advice you would have for someone else who wanted to be academically successful.

Students were given one week during the middle of a regular academic semester to complete the essay and return it to the Project office. Two men and four women students submitted essays. These students were somewhat non traditional in that they were older than typical college students nationally, but not for the 4-year college they were attending. The ages of the two male undergraduate students were 40 and 25. The women students were ages 19, 22, 32, and 24. All of the students were college seniors with a mean GPA of 3.8. Each student had also completed the multiple choice portion of the *STAT* and had a mean of 8.9, 9.1, and 9.3 on the analytical, creative, and practical subtests of the *STAT*, respectively.

Results

Study 1

Students' responses are organized according to prevalent themes represented in their narrative responses to the four questions about giftedness. Initially, the responses of the male and female students were organized separately. However, there were no differences in how the male and female students responded to any of the four questions. Consequently, the responses from the male and female students are presented together.

Definitions of Giftedness. Students were asked to write down their definition of "giftedness." In general, students wrote very brief answers, a sentence, or a phrase. Each phrase was analyzed for key phrases and fit into only one of the themes that seemed to represent its content and focus. The prevalent themes mentioned in response to this question are identified in Table 5.1. Some of the students (19 of 45 students) said that a talent was something you were naturally born with or inherited. The themes and number of students responding are mentioned in the table. Only 4 students of the 45 offered no response to this question.

Table 5.2 shows the themes represented in students' answers to the second question about giftedness. We wanted to ask about giftedness in two ways, one that seemed more abstract or analytical and one that seemed more concrete, applied, or practical. The responses to the practical question were more difficult to organize and were more vague than the answers to the question about defining giftedness. Most of the students said that if a person was gifted it meant that she or he had talents that others did not, in other words they defined giftedness in this context in terms of rarity. There were 11 of the 45 students who responded in this way. The other responses may be seen in Table 5.2.

Table 5.1

Categories for Students' Definitions of "Gifted"

Question	Response Categories	Frequency
1. What is your definition of giftedness?	(1) Something you were naturally born with, a special talent or knowledge/not learned/inherited abilities performed at a high standard	19
	(2) Skill or something that you learn and can do better than others/special talent others don't have	9
	(3) Ability to learn quickly	5
	(4) Ability to expand a gift you already have	4
	(5) It is being special/extraordinary (unspecified origin)	3
	(6) Ability to perform a task perfectly or with ease	1
	(7) No answer	4

Table 5.2

Categories for What It Means to Say That Someone Is Gifted

Question	Response Categories	Frequency
1. What does it mean to say that someone is gifted?	(1) Someone with talents the average person doesn't have	11
	(2) A very intelligent person/intellectually smart; above average IQ	8
	(3) Someone who can do something without having to learn it/without previous knowledge	6
	(4) Someone who knows how to do something special; perform tasks extraordinarily well due to talent	4
	(5) They enjoy what they do; dedicated to what they do	3
	(6) Someone who can perform a task perfectly while others can't	3
	(7) No answer	10

Students were also asked to distinguish between giftedness and talent by describing what it means to say that someone has special talents. In Table 5.3 these responses are organized by themes and frequency counts for each theme. It was very difficult to categorize the answers and most of the students, 29 of 45, did not answer this question.

These high school students were also asked to identify anyone that they knew who was gifted and to indicate their relationship to them. Seven students did not give any answer; seven identified immediate family members, including mother and father and the remaining student responses were rather evenly distributed over the remaining categories, "extended family," "acquaintance," "friend," "self," "person known about but not personally known" (see Table 5.4).

Table 5.3

Categories for What It Means to Say That Someone Is Talented

Question	Response Categories	Frequency
1. What does it mean to say that someone is talented?	(1) Can acquire the talent through perseverance and dedication	1
	(2) Being skilled at something that few people know how to do	6
	(3) The person can perform different tasks very well	1
	(4) Being able to do something you enjoy and be good at it	1
		1
	(5) Having or not having the ability to do the same as others	1
	(6) Doing something one is good at with absolute perfection	1
	(7) Being able to do something in a wide variety of environments	1
	(8) Someone who has been influenced by society to develop a skill	1
	(9) Being able to do something with great ease due to being gifted and practicing a lot	1
	(10) Having a talent that is unusual, hardly recognizable, that few people understand	1
	(11) Someone who stands out from the rest	29
	(12) No answer	

Table 5.4

Nomination Categories for Persons Known Who Are Gifted

Question	Response Categories	Frequency
1. Do you know anyone who is gifted and/or talented?	(1) Immediate family	7
	a. Parents (subset of the above)	[2]
	b. Sibling (subset of the above)	[5]
	(2) Extended family (cousin, niece, aunt, etc.)	8
	(3) Acquaintance	7
	(4) Friend	6
	(5) Self (Me)	5
	(6) Person know about but not personally known	5
	(7) No answer	7

These high school students were also asked to describe their special talents and asked to identify the two most important ones. We categorized them according to five categories that seemed to capture the talents and gifts that they nominated. In a few cases, students differentiated between a talent and a gift but there was nothing that really distinguished between the two in substance. There were five categories that represented the responses. These categories were (a) arts, (b) abilities, (c) academic areas, (d) characteristics, (e) skills, and (f) sports. The categories used for classifying these responses and the frequency of responses in each category appear in Table 5.5.

Table 5.5

Response Categories for Nominated "Gifts" and "Talents"

Question	Response Categories (and examples of responses)	Frequency
1. What are your special gifts and talents?	ARTS	**32**
	(1) stepping (as in marching corps)	
	(2) poetry	
	(3) drawing	
	(4) painting	
	(5) arts	
	(6) playing an instrument	
	(7) writing stories	
	(8) acting	
	ABILITIES	**19**
	(1) ability to understand new topics quickly	
	(2) ability to understand and relate to others	
	ACADEMIC AREAS	**7**
	(1) science	
	(2) math	
	(3) English	
	CHARACTERISTICS	**5**
	(1) patience	
	(2) reading endlessly	
	SKILLS	**10**
	(1) signing	
	(2) speaking in public	
	SPORTS	**9**
	(1) sports (able to learn any sport quickly and perform very well)	
	NO RESPONSE	**4**

Study 2

The seven essays that were submitted for the second study appear in Appendix E in their entirety. One reader examined each essay and identified themes that seemed to present some of the characteristics of an internal model of success that were identified earlier in this chapter. Overall, the essays seemed to be of two distinct types. The first three essays are chronological and offer very little insight, at first glance, about internalized understanding of the characteristics of personal success. They could be described as externally focused and concerned with the practical and "administrative" tasks of getting into college, staying in college, and going through the process. The last three are more representative of internalized thinking about what success means with the fourth essay bridging the two types. This fourth essay, by a female student, is somewhat autobiographical, although not as much as the first three. It also contains particular insights. The last is the most clearly representative of an internal working model of success and, interestingly, is written by the most experienced and the oldest student of the group.

A detailed content analysis of the seven essays is beyond the scope of this brief report; however, several themes that suggest evidence of an internal working model of success are evident in the essays. The most frequently evident are:

1. Ability to experience a future orientation
2. Having a personal sense of well being and satisfaction with choices made
3. Appreciation for the personal effort and performance relationship
4. Ability to seek help and advice and apply it appropriately (more difficult to see the later half of this statement)
5. Understanding of the specific nature of training necessary for future career goals.

Some of the themes were considerably less obvious and/or present including:

1. Intrinsic interest in learning and following a path based on interests
2. Ability to set goals and (especially) realization that goals that are set may need to be changed
3. Understanding that success is incremental and not achieved overnight.

Discussion

In the first study, we collected data on high ability, high school students' responses to open-ended questions about giftedness, talent, and their self-assessments about their gifts and talents. We were interested in exploring what naïve or "implicit" theories (e.g., Sternberg, 1995b) these high ability ethnic minority students maintained about giftedness. Sternberg has proposed what he calls a "pentagonal implicit theory of giftedness." He states that the goal of this theory is to capture and make systematic the notions that individuals hold about the nature of giftedness. His theory suggests that

giftedness, as understood by most persons, is characterized by five criteria: (a) excellence, (b) rarity, (c) productivity, (d) demonstrability, and (e) value. The first three criteria are rather obvious having to do with superiority on some dimension relative to peers, possessing a high level of an attribute that is rare relative to peers, and having the characteristic of superior productivity relative to the dimension along which the individual is evaluated. The last two criteria are less obvious. Demonstrability has to do with the notion that the individual's superiority along a particular dimension must be demonstrable through one or more tests that are valid assessments. One might also consider that this "demonstrability" could be assessed using a situational or practically based test and not necessarily assessed traditionally. The final criterion, value, refers to the person showing superior performance on some dimension that is valued by society or by that person.

Sternberg reports for a sample of 24 male and female students at Yale University and for 39 parents of gifted children, both samples are of unspecified ethnicity but are analyzed by gender, that these samples considered the five criteria in the pentagonal theory as important in determining giftedness. It would appear that the qualitative data for these ethnic minority, high ability, high school students supports this implicit theory in part as well. The qualitative findings for the ethnic minority students suggest that the "excellence" and "rarity" standard were well represented among their narrative responses to questions about the nature of giftedness. There was some evidence of "productivity" and much less of the "value" criterion and little instance of the importance of "demonstrability."

These results are not entirely comparable with those generated in the Sternberg (1995b) study and future work will need to examine these implicit theories with larger samples, exploring the influence of cultural diversity and setting on implicit understanding of giftedness. It may also be informative to use quantitative approaches or more in depth qualitative studies or case studies to understand how this implicit understanding of giftedness influences parental support of giftedness and the performance and achievement of gifted individuals.

It was somewhat surprising to find that these students so overwhelmingly viewed themselves as talented in the arts and were much less likely to view their gifts and talents as characterized by specific abilities, focused on particular academic areas, or aligned with particular skills. Perhaps this reflects others' views of them or perhaps there are some other cultural or social reasons that they maintain this perception. This will need to be explored in other research. The perception of talent as being primarily in the arts area is surprising, to some extent, because these students were recruited from a magnet school that focuses on the sciences, medicine, engineering, and law.

In this chapter, we proposed that students who are academically successful, particularly high ability students, must maintain an internal working model of success that guides how they think about success and must implement strategies that will result in success. We described this theory in the introduction to this chapter. In the second study, we found some evidence that high ability high school students who are highly

successful differ greatly in how they describe their understanding of the nature of academic success. Students seem to differ in whether or not they can offer any insights that reflect what characterizes success in our society. About half of the college students whose essays were analyzed could do this and about half could not. Particular characteristics of success that emerged were described and those themes that were less obviously present are described as well. There do not appear to be any unifying or emergent factors or qualities of these two groups of themes. It will be necessary in future research to develop assessment strategies for further exploring the nature of this internal working model of success.

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Appendix A
Rating Scale Materials Developed for the *Sternberg Triarchic Abilities Test*

Rating Scale Materials Developed for the *Sternberg Triarchic Abilities Test* (Sternberg, 1991)

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Note: Appendix includes Instructions to Raters for the Essay Coding Sheet used to rate the Essay items from the *Sternberg Triarchic Abilities Test* and the Rating Form used for each essay item. A sample of the materials used to train raters how to identify creative, practical, or analytical thinking in essays focused on particular triarchic thinking types is included as the last item in these appendix materials. The materials focused on analysis of creative thinking were used to give raters a sense of what to look for in judging the presence of particular types of thinking abilities.

Coder Instructions for Rating Scales to Evaluate the *Sternberg Triarchic Abilities Test* Essay Items

Developed by
Deborah Coates, Patricia Laurence, and Mariolga Reyes Cruz

Instructions to the Scorer: *Use the rating scale in each category to rate each essay on each dimension. Read the essay in its entirety first. Then reread or scan it to rate each essay on each criterion. Try to make the ratings as independent from each other as possible, rate each essay on one criterion at a time.*

Understanding and Development of an Idea: *Does the student address the issue posed in the question? Does he or she state a position? Is there evidence of practical, creative or analytical skills (Note the type of essay question they are answering and definitions of this type of thinking skills)? Does the student use evidence to support the thesis? Does he or she develop ideas and not just state or assert them? Does he present specific examples or facts or solutions in the course of the discussion? Does she observe the causes of a problem? Are there specific details and ideas? Analytical essays should state facts and evidence even more; practical ones should present solutions to practical problems; creative ones should present a synthesis of different sources of information.*

Organization and Coherence: *Does the student present ideas in an orderly fashion with standard paragraph, inverted pyramid or pyramid markers? Does he or she express relationships among the ideas presented? Does the essay hold together or cohere with the standard use of various discourse patterns?*

Complexity: *Does the student acknowledge the existence of other points of view or the existence of other opinions? Does he or she use counter-evidence or counter arguments?*

Fluency: *Did the student appear to be able to generate a sufficient amount of writing for the time period and use appropriate vocabulary and clarity in phrasing?*

Correctness: *Does the student use standard forms of grammar, vocabulary, spelling correctly? Verbs: Correct tenses and control over verb endings; Are tenses consistent or do they shift inappropriately? Sentence Boundaries: Standard sentence patterns including correct use of punctuation signals and capitalization, frequent pattern of run-ons or fragment, Syntax: Wandering modifiers, parallelisms, and unclear sentences, Words in standard English patterns or reversals of subject-verb order; omissions of common words, Correct singular and plural forms for nouns, Subject verb agreement in present tense and third person, Pronoun agreement, Vocabulary: Correct words, used appropriately, Spelling: Are common words spelled correctly?*

Rating Scales to Evaluate the *Sternberg Triarchic Abilities Test* Essay Items

Developed by
Deborah Coates, Patricia Laurence, and Mariolga Reyes Cruz

NOTE: This scale is to be used with the Rater Instructions for evaluating these essays.

1. Understanding:

1	2	3	4	5
Poor	Not well developed	About Average	Better than Average	Excellent

2. Evidence:

1	2	3	4	5
Poor Use	Not much or well presented	Some	Better than Average Use	Excellent

3. Organization:

1	2	3	4	5
Poor	Not well Organized	About Average	Better than Average	Excellent

4. Complexity:

1	2	3	4	5
Very simple	Some Complexity	About Average	Better than Average	Excellent

5. Fluency

1	2	3	4	5
Poor	Not much	About Average	Better than Average	Excellent

6. Correctness

1	2	3	4	5
Many Errors	Some errors	Better than Average	A few errors	Almost no errors

Add up all ratings 1. ___ +2. ___ +3. ___ + 4. ___ + 5. ___ + 6. ___ = TOTAL _____

Operational Definition and Anchoring for *Sternberg Triarchic Abilities Test*
Creative Essay

A. Redefining the problem and insightful thinking

1. Selective encoding - refers to when the writer is able to recognize information that has been given in a particular problem, as key to solving the problem. Examples of selective encoding are excerpt from creative essays written by participants (Original from the manual)

Examples: "As a student representative, I would ensure that all children whether rich or poor, receive a fair and decent education" (Id number, 9719, 1st par.). The example shows the writer's understanding of the question, particularly, the potential of utilizing the power and authority that comes along with being student representative to a committee with the power to create the idea school. Being a student representative, my committee and I will reform A. Philip Randolph's school system to try and satisfy every students needs and concerns" (Id number 2761, 1st par.).

2. Selective comparison - refers to when the student uses analogies and metaphors to conceptualize and complete the task (Original from the manual).

Examples: "The buildings won't be so factory like" (Id number, 2798, 1st par.). "Teachers who would go that extra mile to see a child succeed" (Id number 2886, 1st par.). "Extra mile" was metaphorically used to describe the teacher's attempts and efforts to help a student being successful.

3. Selective combination - refers to when the student puts together information, that at first do not seem to fit together (original from the manual).

Examples: "Renovation of school buildings are important because often when you are in a gloomy place, you often become tired" (Id number, 7436, 2nd par.).
1 (i.e., poor)=When the writer does not demonstrate the use of selective encoding, selective comparison nor selective combination or when the writer uses 1 of the three.
2 (i.e., weak, below average)=When the writer uses any one combination of the three.
3 (i.e., average)=When the writer uses two combinations of the three with one instance.
4 (i.e., good, above average)=When the writer uses two combinations of the three with more than two instances.
5 (i.e., very good)=When the writer uses three combinations of the three with more than one instance.

B. Fluency - refers to the number of different responses. This definition is taken from the article: Glover, J. A., & Sautter, F. (1977). Relation of four components of creativity to risk-taking preferences. *Psychological Reports, 41,* 227-230. In this article, task was to "list as many illustration as you can think of for the concept." The scorer must quantify the total of all different responses. For example, if the writer listed five illustrations the writer's fluency score would be five (original from the manual).

New: Refers to the number of different ideas for changing the present school system to make an ideal one.

Examples: Count different ideas of changing in school system addressed by a writer.

This operational definition was applied to essays from fall 1997 for anchoring.

Student ID#	Number of Different Ideas of Changes
1817	13
8860	6
5765	4
2886	7
4126	13
7792	5
6034	6
2761	6
7074	4

1. (i.e., poor)=3 or below
2. (i.e., weak, below average)=4-6
3. (i.e., average)=7-9
4. (i.e., good, above average)=10-12
5. (i.e., very good)=13 or above

C. Elaboration - refers to the number of words per response. Elaboration is defined as the mean number of words per response (original from the manual). This definition was taken from Glover, J. A. and Sautter, F. (1977).
New: Refers to the average number of words per idea.

Examples: Count every word in an essay and divide it into the number of different Ideas. (Based on students from Fall 1997)

Student ID #	Elaboration Score
1817	300/13=23
8860	202/6=34
5765	182/4=46
2886	201/7=29
4126	276/13=21
7792	187/5=37
6034	267/6=45
2761	146/6=24
7074	192/4=48

1. (i.e., poor)=21 or below
2. (i.e., weak, below average)=22-29
3. (i.e., average)=30-37
4. (i.e., good, above average)=38-45
5. (i.e., very good)=46 or above

D. Flexibility - refers to numbers of different forms of responses. The total of all the different forms of responses, i.e., if five illustrations are in the same form, (e.g., analogies) the flexibility score is one. If two responses are of the same form (analogy), two others of another form (graphic representation), and two others still another form (contrast), the flexibility score would be three. Analyses, analogies, syntheses, comparisons, contrast investigations of relationships, graphical representations, and artistic representations comprised all the observed categories.
New: The nature of creative essay task limits the writer to use some of eight possible categories mentioned above. It seems to overlap with selective encoding, comparison, and combination. Suggested operational definition of flexibility is that mean score for the number of ideas on each component. In this definition, both the number of ideas and the number of components are taken into account.
Examples: Count all different ideas or examples for changes that a writer mentioned in an essay. Then, divide the total score by 3 or 4* (building, teacher, curriculum, and other aspect). The average score would be flexibility.
Let's say that a student gives 2 examples of changes to building, 1 to teacher, and to curriculum, and to other aspects. Flexibility score is obtained from this following calculation. Sum of # of Changes/4: (2+1+ 0+1)/4=1. Thus, the writer would get 1 for flexibility.
Note:* If other aspect is not considered as another component, then, divide the total score by 3. This needs to be discussed.

In the following table, other aspect was considered as a separate component.

Students ID #	Number of Changes Components (number of examples)	Flexibility Scores= Sum of # of changes for each component/ 4
1817	Building (6)Teacher (2) Curriculum (2) Other (3)	13/4=3
8860	Building (2) Teacher (1) Curriculum (2) Other (1)	6/4=2
5765	Building (1) Teacher (2) Curriculum (0) Other (1)	4/4=1
2886	Building (0) Teacher (3) Curriculum (4) Other (0)	7/4=2
4126	Building (7) Teacher (2) Curriculum (2) Other (2)	13/4=3
7792	Building (0) Teacher (1) Curriculum (0) Other (4)	5/4=1
6034	Building (1) Teacher (0) Curriculum (3) Other (2)	6/4=2
2761	Building (1) Teacher (1) Curriculum (1) Other (0)	6/4=2
7074	Building (3) Teacher (0) Curriculum (0) Other (1)	4/4=1

1. (i.e., poor)=1
2. (i.e., weak, below average)=2
3. (i.e., average)=3
4. (i.e., good, above average)=4
5. (i.e., very good)=5

E. Originality - refers to statistically infrequent responses, as determined by how frequently an illustration occurred within all the creative essays. An illustration that appeared on only one of all the essays on the creative question is recorded as an original response. To facilitate scoring, list all the illustration used by all the writers to answer the creative question and determine how frequently each illustration appeared in the essays (original from the manual).

Examples: Identify examples that the writer wants to change in a school system. List every example given by the writer in his/her essay. Then check the writer's with examples used by other writers. In order to do anchors for originality, a scorer needs to list every example used in the creative essays.

Building

Example	Frequency	Originality
1. Air conditioner	3	3/15=0.2
2. Heaters	1	1/15=0.14
3. Lockers	3	3/15=0.43
4. Repainting	2	2/15=0.14
5. Swimming pool	2	2/15=0.29
6. Computers	1	1/15=0.14
7. Up to date equipment	1	1/15=0.14
8. Replacement of stolen and vandalized property	1	1/15=0.14
9. Large building	1	1/15=0.14
10. Long lasting material	1	1/15=0.14
11. Gymnasium	1	1/15=0.14
12. Swimming classes	1	1/15=0.14
13. Elevators	2	2/15=0.29
14. Escalators	1	1/15=0.14
15. Clean, comfortable, safe environment	1	1/15=0.14

1. Get teacher prepared for course and handle students (1817) 2. Provide Skills for specific course (1817) 3. Increase in number of teachers (8860, 5765, 4126) 4. Choose teachers on merit, and feelings toward students (5765) 5. Choose teachers who care about students on school topics and problems and students' life (2886) 6. Respect and care between teacher and student (2886, 2761) 8. Choose teachers who provide students with hope and skills (2886) 9. Choose teachers who know variety of subjects (4126)		

Curriculum

Example (ID#)	Frequency	Originality
1. Demanding (1817) 2. Challenging (1817, 8860, 4126) 3. Not forcing students (8860) 4. Teachers is more involvement in class (2886) 5. More discussion (2886) 6. Making some lessons a game (2886) 7. Giving awards (2886) 8. Making sure every student learn (4126) 9. Particular classes longer, two or three times a week (6034) 10. Extending class period (6034)		

Other

Example (ID#)	Frequency	Originality
1. Extra curriculum (1817) 2. More clean up people (8860) 3. Self governed student committee (5765) 4. Counselor (4126) 5. More bathrooms with toilet papers (7074)		

Teacher

Teacher	(1817) preparation skills (8860) increase in the number of teachers (5765) small class size criteria of choosing teachers (2886) help students on school topics and on school care about student's life respect and care provide students with hope and skills (4126) more teachers teachers who know more variety of subjects (7792) a small class size for more attention to students (6034) no example (7074) no example (2761) respected by students	

Curriculum	(1817) demanding challenging (8860) getting students challenged not forcing students (5765) no example (2886) teacher's more involvement more discussion making some lessons a game giving awards (4126) making sure every students learn more challenging material more materials, books, and science and math tools (7792) no example (6034) math, science, and global studies classes longer and 2-3 times a week extended class period (7074) no example (2761) providing and demanding above average class and courses	

Other	(1817) extra curriculum (8860) more cleanup people (5765) student government's rule (2886) no example (4126) counselor talk about life problems and school problems (7792) buying textbooks, and materials repainting building raising teacher's salary improving teacher's requirements (6034) more programs social or cultural activities (7074) more bathrooms maintaining toilet papers (2761) no example	

1. (i.e., poor)=
2. (i.e., weak, below average)=
3. (i.e., average)=
4. (i.e., good, above average)**=**
5. (i.e., very good)=

Student ID # 1817

Components	Examples	Number of Changes
Building	1. Air conditioners 2. Heaters 3. Locker 4. Repainting 5. Swimming pool 6. Computers	6
Teacher	1. Preparation 2. Skills	2
Curriculum	1. Demanding 2. Challenging	2
Other	1. Extra curriculum	1

Student ID # 8860

Components	Examples	Number of Changes
Building	1. Up to date equipment with training 2. Replacement of stolen and vandalized property	2
Teacher	1. Increase in the number of teachers	1
Curriculum	1. Getting students challenged 2. Not forcing students	2
Other	1. More cleanup people	1

Student ID # 5765

Components	Examples	Number of Changes
Building	1. Large building	1
Teacher	1. Small class size 2. Criteria of choosing teachers	2
Curriculum	0	0
Other	1. Student government's rule	1

Student ID # 2886

Components	Examples	Number of Changes
Building	0	0
Teacher	1. Criteria of choosing teachers, care of students 1) help students on school topics and on school 2) care about student's life 2. Respect and care 3. Provide hope and skills	4
Curriculum	1. Teachers' more involvement 2. Discussion more 3. Making some lessons a game 4. Giving awards	4
Other	0	0

Student ID # 4126

Components	Examples	Number of Changes
Building	1. Long lasting material 2. Gymnasium bigger 3. A pool for recreation and swimming classes 4. Bigger classroom 5. Bigger lockers 6. Elevators 7. Escalators	7
Teachers	1. More Teachers 2. Teachers who know more variety of subjects	2
Curriculum	1. Making sure every students learn 2. More challenging material 3. More materials, books, science tools, and math tools	3
Other	1. Counselor talk about life problems and school problems	4

Student ID # 7792

Components	Examples	Number of Changes
Building	0	0
Teachers	1. Small class size for more attention to students.	1
Curriculum	0	0
Other	1. Raising money 1) buying textbooks, and materials 2) repainting building 3) raising teacher's salary 4) improving teacher's requirements	4

Student ID # 6034

Components	Examples	Number of Changes
Building	1. Air conditioners	1
Teacher	0	0
Curriculum	1. Math, science, and global studies class longer, 2- 3 times a week 2. Extended class period	2
Other	1. More programs 2. Social or cultural activities	2

Student ID # 7074

Components	Examples	Number of Changes
Building	1. Elevators 2. Air conditioner 3. Bigger locker rooms for gym	3
Teacher	0	0
Curriculum	0	0
Other	1. More bathrooms 2. Maintaining toilet papers	2

Student ID # 2761

Components	Examples	Number of Changes
Building	1. Clean, comfortable, safe environment	1
Teacher	1. Respected by students	1
Curriculum	1. Providing and demanding above average class and courses	1
Other	0	0

Appendix B
Teaching Thinking Project Language Survey

Teaching Thinking Project Language Survey

Instruction: This survey is to find out students' spoken language background. There are no correct or incorrect answers. Whatever has happened to you or is true for you is the "right" answer. You should base your answer to each question on your experiences and please try to answer each question. If you need more space to write down your answer you may use the back of the question sheets. Write down the question numbers to indicate which question you are answering if you need to do this.

THANK YOU FOR YOUR COOPERATION

SSN: (last four digits only) _____ Date of Birth:_____

Gender: ___Male ___Female

Which culture/ethnic group would you use to describe yourself? _____

1. Where were you born?_____

2. If you were not born in the U.S.A., at what age did you come to the U.S.A.? ____

3. a) How long have you been in the U.S.A.? _____
   b) Do you travel outside of the U.S.A. to your native country? ___yes ___no
   How often? _____

4. What languages do you speak now? _____

5. What language did you first learn to speak? _____

6. What language do you think of as your "native" language? _____

7. At what age did you begin speaking English? _____

8. How did you learn English before coming to the U.S.A.? Where (school, home)?

9. How many years have you spoken English? _____

10. Did you usually live in a predominantly English speaking neighborhood when you entered the U.S.A.? ___yes ___no

11. If you answered NO above, what language was spoken there? _____

12. What is your parents' first language?
    Mother _____
    Father _____

13. What language do they primarily use now?
Mother _____
Father _____

14. Did you usually talk to your parents in English while you were growing up?
___yes ___no
Do you now? ___yes ___no

15. During a weekday, what percentage of time do you speak to your parents in English?
About _____ percent of the time during the week.

16. During a weekend, what percentage of time do you talk to your parents in English?
About _____ percent of the time during the weekend.

17. Did your parents learn to speak English before entering the U.S.A.?
___yes ___no

18. Have your parents ever attended an English class after they came to the U.S.A.?
___yes ___no

NOTE: If you are an only child, skip to the question 22.

19. When you talk to your siblings, what percentage of time do you speak to them in English during a weekday?
About _____percent of the time during a weekday

20. When you talk to your siblings, what percentage of time do you speak to them in English, during a weekend?
About _____ percent of the time during the weekend

21. Do you always speak English to friends who are from the same country as you are from?
If you answered "no," what language do you speak? _____

22. During a weekday, what percentage of time do you speak English to your friends at school?
About _____ percent of the time during an average school day

23. During a weekend, what percentage of time do you speak English to your friends at school?
About _____ percent of the time during a weekend

24. During a weekday, what percentage of time do you speak English to your friends outside of school?
About _____ percent of the time during a weekday

25. During a weekend, what percentage of time do you speak English to your friends outside of school?
About _____ percent of the time during the weekend

26. Do you usually speak English with your neighbors? ___yes ___no
If no, what language do you speak with them?
_____

27. Overall, about what percentage of time do you speak English per day?
About _____ percent of the time each day

28. In general, in what situations do you think you are most likely to speak your native language? *(Be sure to check all that apply to you.)*
___school/with friends ___school with teachers/administrators
___school with students who are not my friends
___on a date ___on other social occasions ___talking to my parents
___at work ___hanging out ___other: _____
List other situations
here:_____

29. During a weekday, what percentage of time do you use your native language?
About _____ percent of the time during a weekday

30. During a weekend, what percentage of time do you use your native language?
About _____ percent of the time during a weekend

31. Do you feel more comfortable speaking your native language or English?
___My native language ___English
Why? Explain and discuss the situations in which you are most comfortable speaking your native language and those in which you are most comfortable speaking Standard English.

32. Do you dream? If so, and there is talking, what language is spoken in these dreams?
Describe
details:_____

33. In what language do you find it easiest to think about academic work, social problems, and emotional problems? Answer below:
Academic Work _____
Social Problems _____
Emotional Problems _____

34. If you had to choose one language system to use which would you choose:
___English only
___English and my native language or other language that I use

Appendix C
Language Usage Phone Interview

Language Usage Phone Interview

Date _____ _____ Weekday _____ Weekend

SS# Participant _____

Interviewer _____

1. Which ethnic group do you identify with? (Ask for cultural background)

2. Where were you born?

3. How many languages do you speak? (Ask the interviewee for listing languages)

4. What language did you learn first?

5. Which language do you consider your native language?

6. How many languages do your mother/father speak?

7. Which language does your mother/father speak to you?

8. When you talk to your parents, which language do you prefer to use?

9. Which language do you feel more confident speaking in, your native language or English?

9A. Let's say you travel to a country where they speak your native language:
   9A1. Could you speak to a taxi driver or a waiter in your native language?
   9A2. How comfortable would you be in that situation?

9B. Let's say you are an exchange student in that country:
   9B1. Could you make an oral presentation in class?
   9B2. How comfortable would you be in that situation?
   9B3. What makes that situation comfortable or uncomfortable?

10. Which language do you feel more confident writing with, your native language or English?

10A. What language do you use when you write letters or your diary?

10B. Let's go back to the student exchange situation:
   10B1. Could you write a paper for a class?
   10B2. How comfortable would you be in that situation?

11. Which language do you feel more confident speaking in, Standard English or slang? (If the student answers "slang")

11A. How would you describe slang to a foreigner?

11B. Do you mix your native language with English when you speak?

11C. Give examples of situations where you mix both languages.

12. Which language do you feel more confident writing with, Standard English or slang?

12A. Do you mix your native language with English when you write?

12B. Give examples of situations where you mix both languages.

13. In which language do you express yourself when you are upset?
13A1. Do you write when you are upset? 13A2. In what language?
13B1. Do you speak when you are upset? 13B2. In what language?

14. What language do you hear more often in your neighborhood?

15. Please think about the people with whom you interacted today.

15A. With whom did you interact this morning? (Check all that apply)
Parents _____
Siblings _____
Other family members (e.g., grandmother) _____
Friends _____
Boyfriend/Girlfriend _____
Teacher _____
Others _____

15B. What language did you use when you spoke to this person or group of the people?
Parents _____
Siblings _____
Other family members (e.g., grandmother) _____
Friends _____
Boyfriend/Girlfriend _____
Teacher _____
Others _____

15C. Could you describe each situation briefly? (Ask the interviewee about the place where the conversation occurred and the content of the conversation)

Parents
Place _____
Content _____
Siblings
Place _____
Content _____
Other family members
Place _____
Content _____
Friends
Place _____
Content _____
Teacher
Place _____
Content _____
Others
Place _____
Content _____

15D. With whom did you interact this evening? (Check that all apply)

Parents _____
Siblings _____
Other family members (e.g., grandmother) _____
Friends _____
Boyfriend/Girlfriend _____
Teacher _____
Others _____

15E. What language did you use when you spoke to this person or group of the people?

Parents _____
Siblings _____
Other family members (e.g., grandmother) _____
Friends _____
Boyfriend/Girlfriend _____
Teacher _____
Others _____

15F. Could you describe each situation briefly? (Ask the interviewee about the place where the conversation occurred and the content of the conversation)

Parents
Place _____
Content _____

Siblings
Place _____
Content _____

Other family members
Place _____
Content _____

Friends
Place _____
Content _____

Teacher
Place _____
Content _____

Others
Place _____
Content _____

16. Was it your typical day?

Appendix D
Parental Aspirations and Support for Academic Achievement Survey and Recruiting Materials

Teaching Thinking Project Parent Survey

Name: _____ Date: _____

Gender: _____ M _____ F Date of Birth: _____

We are interested in learning about parents' experiences as their daughters prepare for college. With this in mind, we would like you to respond to some questions about your daughter's education and college preparation.

Please answer the following questions as accurately as possible. Some of the questions will require you to write a brief answer. Others will require you to circle the number that is the best answer to the question. If the question could have more than one answer, we will ask you to circle all the numbers that apply.

1. From what country does your family originate? Length of time in the United States?

   _____

   Your Age: ____ ____

2. How would you describe your cultural background?

   _____

3. How important is it for you that your daughter receives an education?

1	2	3	4	5
extremely important	very important	not sure	a little important	somewhat important

4. Please explain why.

   _____

   _____

   _____

5. How do you let your daughter know how important it is for you that she gets an education? *Circle all that apply.*

   1 = talk to her about it
   2 = set an example
   3 = give her educational books
   4 = take her to libraries, museums
   5 = other _____

6. How interested in learning was your daughter when she was
   a) 5 to 10 years old?

1	2	3	4	5
extremely interested	very interested	not sure	a little interested	somewhat interested

b) 11 to 15 years old?

1	2	3	4	5
extremely interested	very interested	not sure	a little interested	somewhat interested

c) 15 and older?

1	2	3	4	5
extremely interested	very interested	not sure	a little interested	somewhat interested

7. What languages are spoken at your home? *Circle all that apply.*
   1 = English
   2 = Spanish
   3 = Chinese
   4 = other _____

8. How were your daughter's interests encouraged? *Circle all that apply.*
   1 = through words of support
   2 = helping her find information on her area of interest
   3 = giving her things that would help her develop her area of interest (for example, an instrument, books, a baseball bat)
   4 = arranging for her to attend after school activities/classes
   5 = other _____

9. In what area(s) has your daughter been successful? *Circle all that apply.*
   1 = sports
   2 = arts/dance/music
   3 = school work
   4 = getting along with people (social skills)
   5 = other _____

10 As your daughter was growing up, were there any activities that you did with her to help her learn?
   1 = yes 2 = no
   If your answer is "*no*" please go to Question # 12.

11. Please give 3 examples of activities that you did with your daughter that focused on learning.
   _____
   _____
   _____

12. Did you encourage your daughter to achieve better grades?
   1 = yes 2 = no
   If your answer is "*no*" please go to Question # 14.

13. How did you encourage your daughter to achieve better grades? *Circle all that apply*.
    1 = through words of support
    2 = studying with her
    3 = giving her educational materials to help her get better grades
    4 = arranging for additional classes/tutoring
    5 = gifts/money rewards
    6 = other _____

14. Did you reward your daughter for getting good grades?
    1 = yes 2 = no
    If your answer is "*no*" please go to Question # 16.

15. How was your daughter rewarded for getting good grades? *Circle all that apply.*
    1 = earned curfew privileges
    2 = received money for high grades
    3 = treated her to dinner, movies or the like
    4 = received additional attention (for example, more hugs, smiles, compliments)
    5 = other _____

Now we would like you to focus on the time when your daughter was in junior high school.

16. On a typical day, what did your daughter do after school? *Circle all that apply.*
    1 = went to an after school program 4 = played sports
    2 = "hung out" with friends 5 = took other classes
    3 = studied home alone 6 = library
    7 = other _____

17. Did your daughter need help with homework?
    1 = yes 2 = no
    If your answer is "*no*" please go to Question # 19.

18. Who helped your daughter with homework and assignments? *Circle all that apply*.
    1 = me 6 = adult friend(s)
    2 = other parent 7 = her classmate(s)
    3 = sibling(s) 8 = teacher(s)
    4 = grandparent(s) 9 = mentor(s)
    5 = relative(s)

The remaining questions refer to the years when your daughter was in high school.

19. Did your daughter need help with homework?
    1 = yes 2 = no
    If your answer is "*no*" please go to Question # 21.

20. Who helped your daughter with homework and assignments? *Circle all that apply.*

1 = me
2 = other parent
3 = sibling(s)
4 = grandparent(s)
5 = relative(s)
6 = adult friend(s)
7 = her classmate(s)
8 = teacher(s)
9 = mentor(s)

21. On a typical day, how did your daughter spend the time after school? *Circle all that apply.*

1 = working
2 = hanging out with friends
3 = studying
4 = playing sports
5 = taking additional classes/tutoring
6 = other _____

22. What kind of involvement did you have with your daughter's school and teachers? *Circle all that apply.*

1 = met with teachers
2 = belong to parents' group
3 = organized fund raising drives
4 = volunteered to assist teachers
5 = other _____

23. Has your daughter been interested in a particular profession?

1 = yes 2 = no

If your answer is "*no*" please go to Question # 25.

24. What fields of work does she want to be involved in? *Circle all that apply.*

1 = business
2 = medicine
3 = law
4 = education
5 = engineering
6 = arts
7 = entertainment
8 = sports
9 = other _____

25. What type of profession do you wish for your daughter?

1 = business
2 = medicine
3 = law
4 = education
5 = engineering
6 = arts
7 = entertainment
8 = sports
9 = other _____

26. In your own words, what do you think your daughter can accomplish?

_____
_____
_____

27. Do you tell your daughter about your dreams and hopes for her?

1 = yes 2 = no

28. What do you share with your daughter about your dreams and hopes for her future?

_____
_____
_____

Now, we would like you to focus on your daughter's junior and senior year in high school.

29. Did your daughter apply to college?
1 = yes 2 = no
If your answer is "*no,*" you completed the questionnaire. Please return it to us in the self-addressed stamped envelope. *Thanks for your cooperation.*

30. Is your daughter currently attending college?
1 = yes 2 = no

31. Were you one of the people who help your daughter find information about college?
1 = yes 2 = no
If your answer is "*no*" please go to Question # 33.

32. How did you help her? *Circle all that apply.*
1 = accompanied her to the library
2 = helped her make plans to visit schools
3 = talked with her about the schools I know
4 = referred her to friends/family who know about applying to college
5 = offered encouragement, guidance, support
6 = other _____

33. How did you help your daughter decide to which college she would apply?

34. How did you help her? *Circle all that apply.*
1 = accompanied her to the library
2 = helped her make plans to visit schools
3 = talked with her about the schools I know
4 = referred her to friends/family who know about applying to college
5 = offered encouragement, guidance, support
6 = other _____

35. Did your daughter show her application materials to you?
1 = yes 2 = no

36. Did she request your assistance in completing the application?
1 = yes 2 = no

37. Did your daughter prepare for the college interview?
1 = yes 2 = no
If your answer is "*no*" please go to Question # 39.

38. How did you help your daughter prepare for the college interview(s)? *Circle all that apply.*
1 = helped her get information about preparing for interviews
2 = rehearsed the interview with her
3 = put her in contact with someone who has been on a college interview
4 = other _____

39. Are you planning to support your daughter financially throughout college?
1 = yes 2 = no

40 What was your role in deciding what college your daughter would attend?
1 = discussed with her what did she like and didn't like about the schools
2 = told her what I liked and didn't like about the schools, what I could afford
3 = she made the decision on her own
4 = other (tell us more)

_____
_____
_____

You completed the questionnaire. Please return it to us
in the self-addressed stamped envelope. *Thanks for your cooperation.*

The City College of New York

The City University of New York
Department of Psychology
138th and Convent Avenue, NAC 7/120
New York, N.Y. 10031

The Teaching Thinking Project
NAC 7/307
(212) 650-5696, 650-5690

6 de marzo 2000

Estimado/a Padre/Madre:

El Teaching Thinking Project del City College of New York tiene como objetivo ayudar a estudiantes talentosos de escuela superior a prepararse para los retos de una educación universitaria. Desde el 1996, nosotros hemos colaborado con A Phillip Randolph High School ofreciendo a estudiantes "junior" y "senior" la oportunidad de tomar un curso de psicología básico en City College libre de costo. Los estudiantes que toman el curso reciben tutorías individuales, talleres de computadoras y de escritura entre otros servicios. Su hijo _____ fue considerado para participar en el proyecto. Desafortunadamente, no pudimos aceptar todos los estudiantes interesados en la clase.

A nosotros nos interesa aprender cómo ayudar los padres/madres mientras que sus hijos/as se preparan para ir a la universidad. Con este objetivo en mente, nos gustaria hacerle algunas preguntas sobre sus experiencias a través de los años que su hijo ha estado en la escuela y sobre los preparativos para que él fuera a la universidad.

Contestar este cuestionario le tomará aproximadamente 20 minutos. Hemos incluido un sobre con sello y nuestra dirección para que nos evie el cuestionario una vez lo termine. Si tiene alguna pregunta o comentario favor de contactar a mi asistente de investigación Mariolga Reyes al (212) 650-5696.

Muchas gracias por su tiempo y cooperación.

Atentamente,

Deborah L. Coates
Profesora e Investigadora Principal
Psychology Department, NAC 7/120
The City College of New York
138th Street & Convent Ave.
New York, NY 10031
(212) 650-5690

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The City University of New York
Department of Psychology
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New York, N.Y. 10031

The Teaching Thinking Project
NAC 7/307
(212) 650-5696, 650-5690

March 16, 2000

Dear Parent of _____:

We recently mailed you a letter and a set of questions that we hope you will answer for us. This is a follow-up letter. We contacted you because your son/daughter took a course here at City College during the _____ semester, while he/she was a student at A. Phillip Randolph High School. The course was called *Introduction to Psychology*.

Your son/daughter was selected for this special course because of his/her academic talent and interest in psychology and college after high school. We hope that taking the course and participating in the project has helped your son/daughter in college.

It is very important for us to know how to continue helping high school students. Your responses to the survey will help us get a better understanding of other ways in which we can help students as they prepare to go to college.

We would greatly appreciate if you take the time to fill out the survey and return it to us in the self-addressed stamped envelope we provided. If you already sent us the survey, thank you so much for assisting us in helping our youth.

If you have any questions and/or comments please contact me at the number below. You can also contact my Research Associate Mariolga Reyes at (212) 650-5696.

Thank you for your time and assistance.

Sincerely,

Deborah L. Coates, Ph.D.
Professor of Psychology
Psychology Department, NAC 7/120
The City College of New York
138th Street & Convent Ave.
New York, NY 10031
(212) 650-5690

Appendix E
Essays Written by College Students on Academic Success[1]

1 These essays are reproduced as they were submitted. No attempt has been made to modify them except as noted.

Male senior, age 25

An Untitled Essay on What Success Means[12]

I emigrated from Guyana (South America) at the end of 1987 and was unsure whether I would immediately attend college or start working full time. It was not long before I realized that I would need a college degree if I expected to gain respectable employment which would also provide a decent salary. I obtained my General Equivalency Diploma (GED) and, after consulting with counselors at the "University" headquarters in Manhattan, I decided to attend the "University. My freshman year at "University" made a significant impression on me. I was taken aback by how different things were from high school. College meant taking more personal responsibility for seeing things through. It began with registration. Although helpful academic counselors were available, they only acted as guides. Ultimately, I had to make my own decisions about issues like how many classes to take, which classes to take, how much time I could dedicate to each class, and so on. Once registration was over, I was faced with the work load of the average freshman courses. It seemed like an insurmountable mountain of work. How could I possibly study 30 pages for Psychology, another 10 for Calculus, prepare an essay for English and read about ancient Mesopotamia for World Civilizations. Not to mention the readings from the 12 books of the dreaded World Humanities 101, or that it was all due in one week! The answer was to take personal responsibility for how I was using my time. I had to arrange some of my life around my college schedule. A responsible person realizes that readings have to be done; parties could wait . . . usually.

The difference between college and high school was also evident in the high expectations educators had of students. I vividly recall walking up to a professor at the end of the first day of class and asking, "What homework should we be looking at for next time?" "Why do you think I handed out a syllabus?" was the response. I looked down at my syllabus and there it was, as clear as day, we were to begin reading chapter one. Although embarrassing, the response taught me a lesson which still holds importance for me today. The lesson was that answers to questions would not be hand fed to me; I would be expected to make a reasonable effort to seek answers for myself first. And that did not necessarily mean struggling with research on my own. In fact, working with quality groups was surprisingly helpful. The point was to develop an inquisitive mind which first tried to discover answers to questions just for the sake of finding out—using all pertinent resources. Successful students tend to do that more often than others. The philosophy made research for the countless college papers and preparation for the equally countless college exams easier.

Once I realized what I was in for in college, I was able to appreciate all of the resources "University" provides for developing students. Foremost among these is probably "University's professors' tendency to be readily accessible to students. All professors have office hours and are usually available by other means, e-mail for example. In my experience, "University" professors often go beyond the call of duty. Dr. "Generic", head of the "Name Research Project" is one of those professors. I visited Dr. "Generic" to inquire about signing up for independent studies. During my visit I mentioned that I was conducting a study on memory but needed more subjects. Dr. "Generic", although having met me briefly just once before, offered to help me find subjects. It was an unexpected but extremely helpful gesture. Dr. "Generic" kindness reminded me of other similar offers by other professors. It reinforced my belief that there was a definite commitment by "University's professors to students' academic growth.

This is probably my last semester as an undergraduate, but the lessons learned in college have long begun to pay off in my life outside of college. I may have become more personally responsible to fulfill my obligations as a freshman, but I have already found that others tend to have a certain sense of confidence in me because of my responsible nature. Similarly, I developed a resourceful mentality to ensure academic success but it has been an enormous advantage in my work career. And finally, I benefited from the kind assistance of professors like Dr. "Generic", but I learned through doing the same for newer students that the feeling derived from assisting others is where the true reward lies. I have

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[12] Note: The name of the specific university this student attends have been replaced with "generic descriptors." Any other personal identifiers have also been replaced with pseudonyms.

college to thank for these and countless other lessons (not mentioned here) that ensure that I will continue to have a rewarding life outside of college. I would be the first in line to encourage anyone contemplating attending college to do so. College provides for a richly fulfilling personal experience and at the same time it places you on track for a rewarding life.

Female senior, age 22

My College Experience[13]
[An Essay on the Meaning of Success]

In life, everyone has a specific goal they wish to obtain. For me, I wanted to earn a Bachelor's Degree in the area of my choice. I picked psychology because, I believed I could help others empower themselves and give guidance to young adults. As a young adult, I was not guided in the right direction. My parents did not attend college. They were unable to give me the guidance I needed. They were happy that I planned to go to college, rather than stay at home and work. My guidance counselor, though extremely nice, did not help me to develop my interests. He simply asked me to give him the name of a college I wanted to attend and he gave me an application. The State University of "MY STATE" at "My Town"[14] was the college I picked. My curriculum was Business Administration. This curriculum was ideal because I wanted to own a shoe store. Business Administration would teach me to run a store and manage my money. I would also learn marketing and promotion.

I enjoyed "STATE UNIVERSITY at My town" but it's only downfall was that it was a two-year college. I obtained an Associates Degree, but was unsatisfied because I *really* wanted a Bachelor's Degree. At 20 years old I finished "My town" and decided I wanted to continue my education. I went to several schools, in the hopes that my credits would be accepted. With 64 credits, I applied to other schools hoping to be accepted as a transfer student. To my dismay, none of the schools accepted all of my credits. Two schools accepted 23 of the 64 credits I transferred from STATE. I became extremely discouraged. I ended my college career and decided to find a full-time job. My previous typing skills, allowed me to work as a secretary.

As a secretary, I learned and mastered computer programs such as MS Word, WordPerfect, Excel, PowerPoint and Lotus. I worked in various industries with great salaries, but always yearned to achieve my goal and earn my Bachelor's Degree.

While looking into schools with psychology curriculums, I stumbled across a "NEW University" catalog that offered a Bachelors of Arts and Master of Arts (BA/MA) in Psychology. I contacted the school to find out the requirements of the program. My advisor was very helpful with the acceptance process. He steered me in the right direction and provided me with a list of the classes I would need to complete in order to be accepted into the program. I attended classes at night to complete the requirements. I studied hard to get into the program.

This program was unlike any other program I had previously applied to, because I was asked to submit references and to receive "A" grades in the classes I was currently taking. All of the classes for this program were offered in the day session. My advisor explained that I would have to become a full-time student to complete my. If I wished to pursue my education, I would have to give up my job. I spent a year in evening classes and made arrangements to become a Full-time student in fall '96. My advisor guided me in every step of the enrollment process.

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[13] Note: The name of the specific universities this student mentions have been replaced with "generic descriptors." Any other personal identifiers have been replaced with pseudonyms.

Over the summer months, I mentally prepared myself to return back to school. I had been out of school for six years. I was afraid that I would not be able to survive without a job. I would not allow myself to become discouraged. I wanted to achieve my goal. I wanted God to give me a sign, letting me know that my decision was correct. To my surprise, "NEW College" accepted 59 of the 64 credits I transferred to the college. I believed this to be the sign. I was on my way back to school.

I am currently a senior, working on my Masters thesis in the BA/MA program. I expect to graduate in May, 1999. It's been an absolute pleasure to attend "NEW University." One reason for my positive experience is my advisor who gave me guidance. He explained each process in depth and provided alternatives to the problems that arose. He monitored my progress and encouraged me in every way. He was essential to my achievement.

Another important factor was the support network I built in my three years at "NEW University." Many of the students in the BA/MA program shared similar experiences to mine, in that they were older and were returning to school. I did not feel alone in my quest for knowledge and a new career. I have made many friends. These friends will remain with me after my college career has ended. I have also managed to supercede my goal of obtaining my Bachelors Degree. I will receive a Masters Degree in Psychology in May 1999. For this reason, I am extremely proud. I am well on my way to my next goal. I will become a *guidance counselor* to young adults.

Female senior, age 22

An Untitled Essay on What Success Means

School has always been an important entity in my life. My parents have always emphasized that getting an education is very important. Although they did not attend college, they always stressed to my sisters and I how meaningful it was for us to gain as much knowledge as we can because knowledge is power. The reason they could not go to college was because they belonged to big families and had to work to help support their families. My father and mother are hard workers and have instilled in us to work hard at whatever we do.

I came to "this city" in November 1982 at the age of seven and have lived here ever since. I was born in Jamaica where life was not easy for the average people, everyone was trying to survive. When I was in Jamaica I was very sick with asthma and I would always be admitted to the hospital. Since I came here my asthma has not affected me as much and for that I am grateful. I made up in my mind a long time ago that I would work as hard as I could at all I endeavored to do and I have never gone back on my word.

When I first began school I was not in the top class but after a little while I was transferred to the top class. All through school I worked hard because I am a firm believer that knowledge is power. Throughout high school, where I was a part of a program that encouraged me to work hard, my focus and goal was to go on to college. It was essential for me to know what I wanted and to strive to reach that goal. Goals are important for a person to set; they help you to keep focused. At that point in my life this was my goal and after attaining that goal I could set and focus on my next goal.

Being accepted to college gave me a very wonderful feeling; I had reached one of my goals and could now work at achieving my others. At first it was a bit intimidating because of all that I heard about how hard college was. After a while, I saw that all that was needed was discipline and dedication. I had to discipline myself to hand in my assignments on time. Unlike high school the professor is not behind you making sure and reminding you to hand in your work, you have take responsibility for your own college career. Dedication was and is needed because it gets rough at times but I have to remember what my goal is and continue to strive for that. Some classes have taken more effort than others and I had to learn to give sufficient time to each semester so that my time would be used properly. Each semester I set goals for

myself as to what grade I want in each course, I always strive for an A. I work out what I must do in order to get an A in that particular class. After not doing so well one semester I remember saying to myself the next semester that I would not do less than all A=s in my classes. That semester I received all "A" grades and I think that setting goals for yourself each semester help you stay focused, it worked for me. After a semester of hard work it felt good to see a list of good grades.

Along with setting goals I had to learn that knowing what the professor wants and giving them just that was the way to help me do well. Taking good notes was also a big help to me because some professors tested on what they spoke on in their lectures. Getting my own system of taking notes took a while but was an important tool in my college career. Taking notes while I read the material for a particular course also helped me a lot.

In general college has been a wonderful experience for me. Not only learning from professors but also learning from fellow students. Being able to discuss various issues and hear others' points of view have been and continue to be one of the best parts of being in college. Although it gets hard, keeping focused on my goal(s) and thinking how much I would have achieved when finished keeps me going.

Female, age 23

[A] Successful College Experience[15]

The most graphic representation of how I felt about going to college is my college ID. My shirt was sweaty, my hair in its total exuberance, and I was displaying a confident and honest smile. Although my career goals were not too clear, I had the feeling that college life would be much more enjoyable than high school. Going to college meant going to an open space full of academic, artistic and political possibilities. Most of all, I felt on the verge of independence.

I went to the *Universidad de "my country" de Recinto de Rio Piedras,* "My Country's" renowned and respected public university. The school where, as my high school religion teacher used to say, "Communists would eat your brain alive and *independentistas* (those who believe in the independence of "My Country") would force young souls to join their terrorist forces."

High school had been a long and painful journey for me. I was used to the Montessori system of my elementary and junior high school, where everyday was a fun, challenging, and creative exploration of the unknown. Everybody treated each other as people, regardless of how you looked, how you dressed, what your parents did or how much money they had. Learning was a thrilling experience. I did so well that I covered the material of two years in one. Catholic high school, on the other hand, was a totally different world. I found myself learning all the Catholic rituals for the first time while I wondered why my hair wasn't as straight as my cousin's, and watched the in-crowd from afar. I lived in two worlds. One consisted of a reserved school life, 8 hours a day 5 days a week, with uniform, closed mouth and numbed brain. The other world consisted of dance and theater classes, performances, loving parents, and down-to-earth friends.

My grades did not suffer through my high school years. I was in the advanced group and graduated with six medals. But the joy of learning was gone. I expected college to be the beginning of an integrated life of creativity, meaningful intellectual work and independence. Luckily, I was not disappointed.

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[15] Note: The name of the specific universities this student mentions have been replaced with "generic descriptors." Any other personal identifiers have also been replaced with pseudonyms.

In the "My country University" every student pursuing a bachelor's degree goes to the General Studies Faculty for the first two years. There students have to complete basic courses in Spanish, English, Social Sciences, Humanities, Biology, and Physics. Once those courses are completed, you could apply to the Faculty of your choice.

Those first two year were like a roller coaster for me. I thought that every class was interconnected, every piece of knowledge I gained was part of a larger puzzle. It was such an exciting learning experience! (I even got an A in Biology!)

After General Studies, I transferred to the Social Sciences Faculty to do a concentration in Psychology (a Department within the Social Sciences Faculty). I took courses in Political Science, Sociology, Economics and Psychology. I took most of my electives in the Humanities Faculty (French, Theater, and Dance). This experience allowed me to further develop artistically, and to meet people with similar interests to what I had.

Adjusting to college life was fairly easy for me. I was emotionally prepared and I had many people supporting me. My parents and other family members were encouraging and caring. At that time, one of my aunts was a professor at the General Studies Faculty and my mother had friends in the Social Science Faculty. They assisted me in selecting classes taught by committed and challenging professors. Many students choose their classes based only on requirements and class schedules. Others [choose] for the professors who were less demanding. Unfortunately, most of those students were bored and couldn't see the day when school would be over!

I was interested in almost all that I was doing academically. I took only 15 credits per semester and my class schedule allowed me enough time to get home, take a nap, eat, study for 3 to 4 hours, and go to bed around 10:30 p.m. I also worked part time at the library and was involved in a theater group.

On the other hand, the university was the center of my social life. All kinds of cultural and social activities took place on campus: concerts, plays, dance performances, parties, and demonstrations. Students were able to get free tickets for most of the concerts and plays. The Cultural Activities Program brought artists from different Latin American countries to our campus. I also got involved with student organizations advocating for student's rights. All these experiences added up to my ever expanding world.

I did my third year abroad, through the Students Exchange Program. I studied in "City in Europe" where I continued studies in Social Sciences and Psychology. While in "City in Europe" I was able to compare the two totally different systems of education, My Country" and "City in Europe." I was very disappointed with the academic experience in "City in Europe." Classes were extremely large, the students did not participate in class discussion, and they were bored and apathetic. It was general practice to pass the class notes from one year to the next. The students knew that professors gave the same lecture year after year without noticing the students. There was no need to participate or even attend class to have good grades.

I returned to "My Country" to graduate. At this time, I began to consider graduate school and knew that I wanted to continue studies in Psychology but I did not know where. There was little advice regarding graduate studies, and I did not do any extensive research. Therefore, I applied to the schools I was familiar with: "My Country University," a few schools in the United States, and the *Universidad European Country*.

It was then that I began to realize that I had been taking classes with little sense of direction. The very same strengths of the BA curriculum were its weaknesses. The academic possibilities were so many that, without close supervision and advice, you could end up graduating without the specialized knowledge required to enter graduate school, particularly in psychology.

I was accepted in the "European University" and "My Country University" I decided to return to Europe to pursue doctoral studies in Social Psychology. Although my previous experience there was not positive, I thought that the Doctoral Program would be different. For example, smaller groups, committed

students and professors, etc. I was wrong. After a year of studies I decided to return to "My Country" and reapply to the Social-Community Psychology doctoral program at "My Country University."

I was fortunate enough to be accepted to the "My Country University" again. However, I felt that I needed to go to a graduate program elsewhere. I knew that I would fit in perfectly there: I was familiar with most of the faculty, their theoretical perspectives and academic interests. Nevertheless, I also knew that the program would only build on what I had already learnt instead of strengthening my weak areas.

I decided to move to "New City" in the United States with the goal of continuing my career in Psychology. It was clear to me that I had a lot to learn about mainstream American Psychology. The program at the "My Country University" provided me with a strong critical and analytical background but little knowledge about the traditional currents in Psychology. I was considering taking undergraduate courses when I learned about the MA program at "New City University" (USA). Although my long term goal is to complete a doctoral program, I thought that the MA would give me the academic and research foundation that I did not have.

Working full time, living on my own, performing and studying has not been easy. I have taken the long road. Nevertheless, having my goals clear and the support of family and friends make the difference. If there is something that would have made this process easier, it is guidance from professors and advisors who could recognize the students' potential. Overall, I have performed very well but I believe that with more institutional support I could have built a stronger undergraduate degree and taken advantage of programs for high ability students. Except for advice in choosing challenging professors, I did not receive guidance about the kind of courses and experiences that are necessary to perform well in entrance exams and graduate school applications. I was guided by what interested me at the time but not by my long term goals. Having an academic mentor would have helped me combining the interests and goals in a more productive way.

Female senior, age 24

An Untitled Essay on What Success Means

I am a student that has been given the opportunity of a second chance. I am currently a BA/MA student in Psychology, and I have experienced both sides of the college experience coin. My previous experience in college was one, with mediocre grades, studying a night before exams, not regularly reading my assigned readings, and not taking part in any extracurricular activities at school. I was born in "an African Country" during the "troubled" years, and most of my academic life was plagued by unrest and violence. This however did not stop others from being focused and achieving, but I did not have the motivation or the insight to realize just what a precious gift education is. School for me was a place I spent my day going to class or hanging out in the student center/cafeteria. I always knew what I wanted from life and what my career goals were, but I lacked the passion or vision it needed to be achieved.

The "African Country" society I lived in was a very divisive society. Women were not encouraged to achieve beyond profession, such as nursing and teaching. Being a non-white in this country exacerbated the situation even further. The then regime had a policy whereby they would only offer scholarships to those non-white students who were studying education. This resulted in many students getting an education degree, merely as a spring board, and then going back to school to do what they really wanted to do, while teaching at the same time, thereby financing their own studies. Others however got trapped in a profession that they did not want to be in, which played itself out in the general quality of education in the country amongst non-whites.

On a more personal level, my parents were going through a messy divorce, whilst I was in college, and although I thought I was handling it all quite well then, I now look back and see the devastating effect

it had on me. This all resulted in me boxing in my potential, I knew what I wanted form life, and what I wanted to give to life, but did not believe that what I wanted was possible, in fact I did not believe I had the ability to achieve my goals, of becoming a Clinical Psychologist and teaching on a tertiary level.

I was the first female in my family to pursue a college career, and only the second person overall. Because of this there was no infrastructure to support someone involved in tertiary education. Although I had the support of my family, when it came to the nuts and bolts of when and where I could study, and what I needed to do to achieve, there were no role models. Even though my grades left a lot to be desired I did manage to graduate with a Bachelors degree.

Four years later I came to the United States of America, and here for the first time in my life I learnt that everything is possible, if you put your mind to it. I decided to enter college as a transfer student, and used the lessons form the past to spur me on to a different future than the one I envisaged in South Africa. Now I also had the support of a husband, who had similar goals to mine, and together we support and encourage each other.

An important lesson that I learnt, is that nothing was going to be handed to me on a platter, [but] that I had to be an active participant in it all. College now was not a facet of my life that I left behind at the end of the day but something that became part and parcel of my life. I actively sought out ways to be involved in my area of study, such as joining student organizations and becoming involved in research. My professors were now revered as role models instead of inapproachable beings, as I viewed them before. All of the above enhanced my college experience and a sub-product is that my grades are much better now, than what they were before. I now view my whole experience as a time for me to absorb as much as I can in preparation for my future. Learning has now become exciting and the thought of expanding my world through knowledge propels me to want to learn more. I now look at my whole college experience as preparation for my profession, it can be compared to putting money in a savings account that will pay high dividends in the future, and in other words I am investing in myself.

Even though my experience in college is overall a positive one, I have had some difficulties. Studying full time resulted in my income taking a plunge; this meant that my standard of living took a dive as well. This took time to get used to, but also taught me valuable lessons in managing my finances. A second problem that I experienced was that of time management. As an English Second Language Student, it took me longer to read articles and prescribed readings, and I often found myself in trouble for not appropriating enough time for particular tasks. I was often plagued by procrastination as well, which did not make time management any easier. These are still problems that I often struggle with, but I have learnt to not be too hard on myself when I fail on these, and to find strength in the times that I have successfully negotiated my way through them.

To be successful in college involves more than just studying, even though that is an integral part of it. Surround yourself with the right role models or mentors, and taking an active part in your college experience, are important factors that can add to the success experienced in college. Something that proved to be extremely helpful was viewing college as a place to get a degree, view it as a haven where you can successfully develop every part of yourself in order to achieve your full potential. This makes it an exciting and vibrant place.

Female, senior, 23

Entering College

Nothing ever really prepares you for the actual college experience. The autonomy the student is suddenly given to govern his/or her life can be frightening and exciting all in the same breath. It is frightening in that what you decide can set the course of future events. The only one you can blame is

yourself when things go wrong. But we cannot leave out that this is a time when you cultivate friendships and live vicariously without the constant scrutiny of your parents. This is the exciting part. Butt all kidding aside it is a lot to get used to but not impossible to get through.

If there was any advice I could offer future college students it would be to first get a good advisor, someone that you would have confidence in to discuss matters concerning your academic development and other matters as well. It would also be a good idea to keep in contact with that advisor even if the department gives you another advisor because they would be able to give you a recommendation in the event you were applying to graduate school. When I was in college I did not have a good advisor to begin with but then on top of that the advising department at the college I attended kept switching advisors on me so I did not have the support I needed to help me make difficult choices. Therefore, I was not comfortable in discussing personal issues that affected my academic growth which resulted in the counselors not giving me the information I needed to figure out what courses I should take and when I should take them.

Secondly, I would tell future college students to remember that the way they studied in high school would not necessarily work once they entered college. I found that out the hard way, especially since I was taking science courses. I realized that I did not have a format that went step by step which would lead me to success. It was difficult but what I eventually ended up teaching myself how to study. In high school I always waited till the day before or two days before an exam to actually go through the material. I would memorize my notes and anything in the text book that was worth memorizing in the event there was as essay question. At the tome it worked well, my report card was filled with A's, but once I arrived in college this approach was not going to work. The material was just too great for that technique to work. My new approach was to study everyday by incorporating the notes I took in class with the notes I wrote for myself and then doing problems everyday until I new them by heart. And then finally on the day before the exam I would give myself a mock test to see how much I knew. This insight into studying was not achieved without great suffering on my part.

My experience has been that once you have these two items in place you will find that everything else falls into place. It should also be pointed out that colleges have many facilities available to aid students in crisis management if you are having a problem coping with a personal issue and academics, for example tutors, if you are having difficulty with a subject. Following the advice I have given future students should find that once they settle in and get use to their surroundings that university life is not as formidable as it once seemed.

Male, Senior, age 40

How to Succeed

Success, in any endeavor you choose to undertake, begins with your attitude. A positive attitude is the best tool you can possibly have on the road to success. A positive attitude will propel you forward toward success. A negative attitude will hold you back by providing you with more than enough excuses to block you from achieving your goals.

And speaking of goals, have one. Not having a goal is like starting a trip without a destination. Have a goal that has meaning to you, not one that has been imposed on you by someone else. It must be your goal. You must own it. Be prepared to commit the time and effort, hard work is required to achieve your goal. If you believe that working ten hours a day seven days a week will lead you to achieving your goal, don't work nine hours a day and expect to succeed. Either put in the required amount of time and effort or change your goal. Yes, changing your goal is fine as long as you have thought through your reasons for doing so, maintain a positive attitude, and are willing to commit the time and effort required to achieve the new goal.

Don't be afraid to ask questions or to ask for help. Many people, for whatever reason, refuse to ask questions. No one can know everything. The way to success is strewn with things that we don't understand. If you can ask questions, when you don't know, or ask for help, when you need it, your ability to succeed will be greatly enhanced.

One obstacle that discourages people from asking for what they need is their inability to communicate. Learn to communicate. Think about what you want to say or write before you do it. And when you speak or write to someone, make the communication as clear and straightforward as possible. The reason for communicating is to convey your idea to someone and have that person understand exactly what you mean. Practice communicating; not just talking or writing. Don't forget the thinking.

Be a good time steward. Time is the most valuable resource that we have. Learn to manage your time properly. Don't waste it. Learn to make good judgments about the appropriate use of your time. Remember, time is finite; once it's gone, it can't be retrieved. Don't put things off. Do what you need to do in enough time so that you can redo or modify it, when you are wrong, and still get it done on time.

Planning and execution are what will guide you to success in your endeavor. You must have a plan in order to succeed. The goals that you set for yourself must be part of a plan. The plan is the forest and the goals are the trees. Yes, you must recognize and know each tree and at the same time you mustn't lose sight of the forest. A sound plan, well executed, will almost guarantee success in whatever you choose to do. Make the plan extensive enough so that, when you put in all the time, effort, communications, and positive attitude, required to execute it, you will be satisfied with the resultant success.

Now, you know wh*at to do*. . . . *Do it!!!*

Research Monograph

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