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AN EVALUATIVE CASE STUDY OF THE EFFECTS OF A
LEARNING STYLE AWARENESS PROGRAM FOR NINTH
GRADERS AT AN INDEPENDENT SCHOOL

by

Dorene Casey McLaughlin

A dissertation in partial fulfillment
of the requirements for the degree of
Doctor of Education

University of San Diego

1996

Dissertation Committee

Susan Zgliczynski, Ph.D., Director
Ray Brandes, Ph.D.
Edward Kujawa Jr., Ph.D.

ABSTRACT

AN EVALUATIVE CASE STUDY OF THE EFFECTS OF A LEARNING STYLE AWARENESS PROGRAM FOR NINTH GRADERS AT AN INDEPENDENT SCHOOL

Dorene Casey McLaughlin, Ed.D., University of San Diego, 1996.
125pp.
Director: Susan Zgliczynski, Ph.D.

The purpose of this study was to examine the implementation of a year-long learning style awareness program and its effects on locus of control and academic achievement in a ninth grade population. This study was also designed to collect subjective data from students on their perceptions of responsibility for their own achievement, ability to identify their individual learning style, a willingness to ask for help, and in addition, over parental conflict.

This study was conducted, using a sample of 76 ninth graders, at an independent college preparatory school in a large Southern California city . All subjects were administered the National Association of Secondary School Principals (NASSP) Learning Style Profile and the NASSP hm Study Skills Program. They viewed the F.A.T. City video and attended a workshop on the concept of learning style. Subjects were also administered the Crandall Intellectual Achievement Responsibility Questionnaire and a researcher-designed open-ended questionnaire in both pre and posttest sessions. Subjects' cumulative grade point averages for both eighth and ninth grades were also collected. In addition, their parents and teachers were administered

the Learning Style Profile, viewed the F.A.T. City video and attended a similar workshop on learning style.

There was significant increase from pretest to posttest in locus of control scores indicating movement from external to internal control. There were no significant increases in locus of control scores between high-achieving and low-achieving students, nor were there any significant changes between male and female subjects. There was a slight drop in GPAs and an increase in parent-child conflict. However, subjects increased their ability to identify individual learning styles.

Parents' reactions to the program were very positive. Young teachers were inquisitive about the implications and applications of the concept in their classrooms. Students who were exposed to the video before receiving the results of their Learning Style Profile were better able to identify their own learning style, using terminology from the profile, than those who viewed the video after receiving LSP results.

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The impetus for this study was two-fold. First and foremost my daughter, Casey, who as the light of my life, helped me see the world through her special eyes. Special children require patience and understanding from the world around them in order to reach their full potential. While Casey could not accomplish the normal tasks of school, she has wisdom beyond her years that few acknowledged. Her strength, her style, her compassion, her caring for others were not measurable by traditional testing. She continues to absorb and learn about the world around her, but at her own pace and in her own style.

The second aspect of this study was my personal investigation into how I learn. My early schooling was both pleasurable and easy. School was fun. As the work became more complex and I was unable to excel academically, I began to doubt my abilities. My spirit did not want to quit learning, but my style didn't fit. As I struggled through this dissertation process, analyzing my thoughts and feelings attached to each task of researching, organizing and writing, it occurred to me that I was replicating the experience of the very students I was studying. They too have the spirit to learn, but somewhere, their spirits have been dampened by expectations incompatible with their styles. They too are special children, who require the patience and understanding of the leaders in their lives so that they can reach their full potential, in their own style.

Many thanks to the leaders in my life--Dr. Susan Zgliczynski who continually stimulated my creative spirit; Dr. Ray Brandes for 25 years of unconditional friendship and support; Dr. Ed Kujawa for unknowingly

intimidating me into being detailed and precise beyond my ability; Dr. Harry Woods for his insight and wisdom, and his ability to make me question and reflect on my place in the world; Dr. Alice Crilly for organizing this project into tasks that I could accomplish; Dr. Reita Walter for her diagnosis of my learning style; my children, John, Cindy, Casey and Anne who put up with their mother's anxiety and frustration, and my mother who thought I could conquer the world. And finally, my husband who financed this operation, but more importantly, believed that I could really accomplish this task in my own style.

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CHAPTER ONE

Statement of the Issue

Why are young allegedly "smart" people failing in independent schools? Why are parents, increasingly disenchanted with public schools, turning to smaller, independent schools where specialized teaching is offered to educate the individual? (Erickson, 1981, Frechtling & Frankel, 1982; and Johnson, 1985).

Historically, independent schools were designed to provide an intense college preparation program for students desiring to go on to college. Parents were willing to pay high tuition fees in order to insure that their child would be prepared for higher education. Competition for placement at the major colleges and universities increased when the public schools became more efficient in preparing their students for college (Moulton, 1992). Independent schools responded by selecting students who appeared able to meet a challenging curriculum with success, thus insuring a place in a prestigious college or university. Classrooms were smaller than public school classrooms, teachers spent more time tutoring after school, and the curriculum was said to be advanced to provide an edge over public school students in the same classes.

Many students attending an independent school come from families in which one or both parents have completed college and are successful in the community. Such parents expect their children to follow in their footsteps.

These parents desire that their children attend college and, as a result, to become academically and professionally successful.

Competition for entry into highly selective colleges or universities has caused many parents to turn to independent schools that better prepare their sons and daughters for college. Independent high schools present themselves as college preparatory institutions where courses of study are designed to resemble college curricula. Students have the opportunity to take advanced placement classes in preparation for their first year of college. In such schools they may also earn college credits. Those who succeed are frequently rewarded by formal and informal recognition from faculty as well as family.

In independent schools, parents, teachers and administrators routinely interact and communicate regarding the academic progress and emotional well-being of the students, thereby fostering a close relationship between the school and the family. These students have distinct support from faculty and parents, low student-teacher ratios, and after-school time and assistance from teachers. Teachers will go to the homes of their students to tutor and will answer telephone calls from anxious students requesting help with homework or test preparation.

In addition, parents have the financial resources for specialized tutoring and other educational support services. For these reasons, independent schools market themselves as providing a qualitatively more enriched learning environment than public schools. (Green, 1983). Yet, are independent institutions really delivering what they promise? Is the advertising and recruitment of bright children the result of a push to acquire enrollments? Whatever the case, some students, even with all the additional support and attention, real or not, are still failing. Independent schools have

not met the challenge of educating bright students who may not fit the traditional mold.

Students accepted at the subject school in this report are interviewed and tested before admission. Those accepted score average or higher on a standardized entrance examination. If learning problems are detected, that is, if their scores are not what is generally acceptable, they may be accepted on the condition that they attend the learning center on campus for tutoring. This conditional acceptance is in itself a clue that perhaps the institution is inviting students from a segment of the population who did not in fact achieve, but rather were misled by inflated grades or by self-serving teachers.

In essence, the students accepted at the subject school are in one of three categories. They may be gifted achievers who have already demonstrated their academic aptitude. They may be individuals who have been given the impression by teachers or unrealistic parents that they are college material; or, they may be individuals who became distracted in their earlier academic situation, but with assistance, reached their true achievement level.

Ostensibly, the subject school, an ideal learning environment that fosters individual, emotional, and academic growth, guarantees success. Nevertheless, a segment of the student population within the subject school that has been barely able to maintain a "C" average in regular classes. The assumption of some parents and teachers is that these students will be prepared for college placement at less selective institutions. Are parents conditioned to accept the possibility that their children may not be accepted at a university or college because a decline to the level of incompetence can occur? In other words, individuals rise to the level of their academic capability, and for some, that level is not what parents believe and in some

cases a level which parents cannot accept. The parents, therefore, put undue pressure on a child who perhaps does not have aspirations for college.

In order to explain the lack of academic success, parents resort to education professionals to diagnose and assess their child. Historically, children who experience learning problems are labeled as *learning handicapped* or *learning disabled*. Some parents and professionals have used *learning difference* as a descriptor to define learning problems. The subject school did not have the equivalent of a public school "special education program" to help these students. They did, however, have a learning center on campus designed to provide added support to students who were academically struggling. Students who attended this center were labeled *learning disabled* without standardized documentation. Others who simply were not performing well academically were required to attend the center on condition for continued acceptance at the school. Unfortunately, bright adolescent students do not care to be labeled as different or disabled since these negative identifying labels focus on what is wrong with the student. Moreover, such students are quite capable of academic success at an independent school.

These students, however, are embarrassed, socially withdrawn, and in some cases, manifest symptoms of clinical depression, chronic truancy, patterns of disruptive behavior in class settings, and substance abuse. In general, such students are viewed as academic failures by peers, parents and schools. They are perceived as willfully not doing their work, lazy, or not trying hard enough. Such students put tremendous strain on the family and school staff who believe that an extraordinary educational opportunity is being willfully sabotaged.

School records reveal that many of these students are above average at the lower school level (grades K through 5). By middle school (grades 6 through 8), they become disruptive in the classroom, socially withdrawn, and report they are bored or disinterested in learning. Teachers become somewhat frustrated with these students, as they will not respond to interventions to motivate them to engage in the learning process. By the time they reach upper school (grades 9 through 12), especially ninth grade, they are in an academic and behavioral downward trend resulting in a "disengagement" from the learning process.

These students refrain from asking for help because it is easier to appear unwilling to work than to say, "I have a problem." The mere mention of the word "tutor" elicits a powerful negative response. In interviews, these students suggest that the teacher is at fault and responsible for their failure on tests, homework or classroom exercises. They assume little responsibility for their failure or success, experiencing little internal control over their academic performance. However, many of these students say that they would like to do better in school but do not know how or where to begin and are unable to articulate the problem. Disorganization, impulsivity, low self-esteem and disinterest in the learning process seem to characterize them.

A closer look at those students who appear bright but are academically failing would lead one to believe that they are willfully sabotaging a great learning opportunity. Conclusions of teachers and parents are that these students are simply lazy and not trying. In questioning the students, they report boredom with the classroom and the material. Upon closer examination, they report that when the material gets too difficult they become frustrated and give up. They seldom seek help. They also report they

received poor grades because the teacher tricked them, or the test material is not what the teacher had assigned.

Parents attribute these problems to laziness and oppositionalism resulting in increased parent-child conflict. Occasionally parents become defensive, blaming the teacher for not understanding their child. However, parents spending thousands of dollars for their child to receive a good education expect them to be accepted at a fine college or university. What role did the student have in the decision to attend such a school? Many students enrolled in independent schools are not consulted by their parents before admission. When students academically fail in independent schools, they often state they would rather be in public school. Explanations include a desire for more freedom, need to be near their neighborhood friends, public school is easier, and a dislike for their peers in the independent school. Kohn (1993) stated that students are rarely invited to participate in school placements. Empowering students to take part in their education plan might increase responsibility and a sense of control over the learning process and reduce resistance to parent and teacher guidance and support.

How then do independent schools address the problems mentioned above? Tremendous amounts of time, attention, tutorial, and individualized instruction have been unable to encourage these students to reinvest in the learning process.

The diagnosis and treatment of learning style has been a promising new concept for helping those students who are bright but unable to succeed in the classroom. Instead of focusing on their weaknesses, and what they cannot do, academic underachievement is reframed as a learning style preference. This concept focuses on learning strengths that can begin the process of motivating students to re-engage in the learning process.

Accommodating an individual learning style requires considerable effort from the faculty and administration. This proposal requires that teachers understand the problem of each individual. They must then redesign their instructional style and course presentations to meet the needs of those students who have difficulty matching their learning style with their teacher's instruction style. Information processing simply put is this: what are the means by which students learn or desire to learn? Is this a system they have adopted for a particular reason, or is it a system that was taught at a lower level?

Research over the last twenty years has suggested that when students are taught through their identified learning style preferences, they increase academic achievement and improve their attitudes toward instruction (Dunn, 1993). First-line diagnosis with a learning style inventory could identify those students who are at risk of academic decline because their learning preferences do not fit their classroom teachers' instructional styles.

Teachers could intervene by identifying individual learning style strengths and weaknesses, and then organize more efficient and effective instruction to meet the needs of the students. Teaching to students' identified strengths, and testing in that mode would increase their chances of success. Students turn off to the learning process when they meet continuous failure. They lose confidence in their learning ability and soon adopt the characteristics of the learned helpless individual. Teachers and parents who instruct their students to "try harder" are not particularly effective (Martino, 1993).

Teachers, parents, and administrators must be able to understand unique and individual learning styles and then deliver instruction to those students who might require an individualized approach. They must teach to

their strengths, not their weaknesses. Another important aspect of learning and academic achievement was noted by Keefe (1979) who studied learning styles and locus of control. Keefe found that locus of control was a significant factor in the learning process. Internal locus of control refers to one's perception that he or she will have control over events in his or her life. There appears to be vast amounts of research suggesting that students who exhibit an internal locus of control report higher academic achievement than those with an external locus of control. External locus of control refers to one's perceptions that outcomes are controlled by external forces such as chance, fate, luck or powerful others.

Lefcourt (1982) stated that the more intelligent and achieving a person is, the more likely that person will perceive himself or herself to be an active, effective person. For the student who has experienced repeated failures during the learning process, the concept of internal locus of control does not exist. All the student knows is that he or she is a repeated failure and has no control over the learning process. In defense, therefore, the student attributes failure to sources outside his or her control. This happens when the student becomes disengaged from the learning process. He or she can no longer survive with constant failures, and so actively directs energy in non-academic areas.

Renewing student interest in the learning process becomes a monumental task by the time the student has reached the ninth grade. Ultimately, teachers, the school psychologist, counselors, tutors, and parents must work in concert to motivate the student to try again. This time, however, they must be armed with the knowledge that understanding, and teaching to the students' learning strengths, can produce academic success and an internal locus of control.

This researcher was hired by the subject school to be the personal counselor to the students. Referrals come from parents, teachers or students who are identified as having a personal or academic problem. Training and licensing in marriage and family counseling, as well as the treatment of emotionally disturbed adolescents in residential treatment centers, has well prepared this researcher for any crisis or problem involving the adolescent and the family.

Establishing trust and rapport with these students has enabled this researcher to get a closer look at the issues. Students want to share their fears and failures, and are open to the search for a new way to learn. They often have no idea that they have their own individual learning style, or that there are other ways to learn. They firmly believe they are destined to be academic failures. The task is to educate these students, parents and teachers on how these particular students learn. Students and parents are usually relieved that someone has assumed the role of advocate, mediator, and coach. Pressure on the students is alleviated, and energy redirected to more effective learning strategies.

In a report by Tollefson (1991) students who were academically unsuccessful attributed their failures to external forces. Teachers often attribute student failures to internal or controllable forces. In schools where academic expectations are high, students who are not academically successful are perceived by their teachers as willfully not trying. Their solution for this problem is to prescribe more study time. However, unlimited time on tasks will not correct their failures. Therefore, this is more than just a time-management problem.

Case Studies

The following case studies will illustrate the concerns and issues that parents, teachers and students experience when academic problems occur:

Case Study 1:

One day this researcher received a call from a father who was very concerned about his daughter's academic failure. He described her as being very bright but not applying herself to her school work, and was constantly in conflict with her family at home. In an interview with this student, she was told that her father had called and was concerned about her academic progress. The initial meeting was designed to establish trust and rapport while defining the problem. Students are very defensive and guarded when they are initially summoned to a counselor's office. Further inquiry revealed that she wanted to do better in school but seemed afraid even to talk about her failures. The matter had become very painful.

Providing this student with a new language and concept to explain her learning difficulties increased her willingness to discuss the problems. She was able to answer questions that provided a clear picture of how she processed information. She reported that each night she sat in her room and spent over three hours on homework. Further questioning revealed that she would sit looking at her homework in the belief that maybe the material would sink in if she looked at it long enough. When her learning problems were reframed as learning style preferences, she appeared quite relieved. She shared her pain and frustration with her poor academic performance and her difficult relationships at home.

Previous attempts at tutoring failed with this student. Even though she put in the time, she could not understand why her grades were not better. In the classroom, she reported that she would drift off when the material

became too complicated. She also stated she has always had this problem, even back in elementary school, but then her grades were above average. Her perception of the problem was that she simply was not intellectually capable of doing any better. She thought she was “dumb.”

Discussions with her teachers revealed that they thought she was a lovely young lady and a pleasure to have in the classroom, as she was quiet and compliant. She never caused any problems with teachers or students. However, they also believed she was intellectually incapable of achieving anything better than a “C-” average. “Nice but dumb” was their description of her.

This student was then referred to an educational specialist to assess her learning strengths and weaknesses. Tests revealed she was functioning in the superior range of intellectual ability but had significant learning deficits. Her teachers were genuinely surprised when they were told she had a superior IQ score. The student then began working with an educational therapist who specialized in teaching learning strategies.

Student, parent, and teacher conferences were scheduled to discuss exactly how she processed information. It was a concerted effort on the part of everyone to deliver information to her mode of strength. Accurate diagnosis and evaluation of her learning style, and educating all the parties involved in her education, enabled this student to achieve a “B” average and to be accepted at a four-year college. She reported she felt more in control of her academic career and that her sense of helplessness had been alleviated.

Case Study 2:

A mother called to report that her 16-year-old daughter was, in her estimation, suffering from Attention Deficit Disorder. Several previous

parent-teacher conferences resulted in perpetuating the expectation that this student would never go to college and was destined to get married and raise a family.

This very attractive young lady revealed in an interview that she had no confidence that college was attainable. Her teachers reported that she was an “airhead” who spent her time in class twirling her hair around her fingers. They thought she was a very nice young lady, but incapable of meeting the challenges of a college preparatory curriculum.

Educational testing revealed that she had significant learning problems but also that she was very bright. Another parent-teacher meeting was scheduled in which everyone was presented with the test results. Teachers were amazed and embarrassed that they had fallen into the trap of labeling a student who, in their perception, was intellectually incapable of learning.

This expectation usually starts in middle school when the curriculum becomes more difficult and students are expected to engage in more independent work. By ninth grade, these students disengage from the learning process because no one has accommodated their learning strengths. They become *learned helpless* due to inadequate assessment and understanding of their personal style of processing information. They give up.

Case Study 3:

A ninth-grade boy was referred by his mother because she was concerned that he would not be able to meet the academic expectations of high school. She reported he was learning disabled and therefore needed more time and special attention to do his work.

This young man had spent ten years hearing that he was disabled, believing that he was defective and unable to achieve academically. Constantly reminded by both parents and teachers that he was very bright but very lazy, he increased his disruptive behavior in the classroom and oppositional behavior at home. The mother became increasingly anxious and angry at her son for not trying. She believed that he was willfully sabotaging a good educational opportunity.

This student reported that he perceived himself as smart but could not understand why he was not successful. When his failures were reframed as learning style problems, he was better able to analyze his learning problems. In fact, he was able to suggest different methods of studying to accommodate his learning style. The next parent-teacher conference reinforced the idea that the only special considerations this student needed were for teachers to accommodate to his learning strengths. With new insight, this student was able to take control of his learning process and earn better grades. Family conflict was greatly reduced when a plan was developed to help this student learn according to his learning style.

Case Study 4:

The mother of the brightest boy in the school called because her son was experiencing academic difficulties. Whereas he had been an A+ student for his entire school career until the tenth grade, he was now getting A's and F's.

The initial interview with this student did not go well as he could not discuss his academic struggles without crying. He appeared quite depressed and extremely guarded when this researcher asked questions pertaining to his learning style. Previous testing had placed him in the

superior range of intellectual functioning but his grades were quite erratic now. In lower school he had been an excellent student, in middle school he was at the top of his class, but in upper school he could no longer maintain the same successes. His grades fluctuated dramatically. When it was suggested that further educational testing might provide new insight into his problems, he flatly refused. He was unwilling to look for other options for his poor performance. This young man did not improve and continued to avoid ownership or responsibility for his academic performance.

Not all students who academically struggle are willing to try a new way of learning. Not all teachers are willing to change to a teaching style that will accommodate these students. There were several other students who fell into the category of "nice but dumb." Accurate educational testing of these students usually reveals a superior IQ score, with significant learning deficits. Moreover, teacher and parent perceptions most always report that the student is lazy and oppositional. Some students reflect an inflated sense of self-esteem, others are depressed and disillusioned with school. Most do not want to discuss their failures as it is too painful to accept. Some students are so defensive that they have completely given up on the learning process and will trust no one to help them.

Information received from students over the past four years at the subject school led this researcher to focus on students' perceptions of control or *locus of control*. Those students who were academically failing tended to blame others for their failures and problems. They would state that teachers were against them or tricking them, or disliked them. They also had the most conflict with parents and teachers. It is imperative to understand students' perceptions of their individual academic successes or failures and their perceptions of the problem.

This problem occurs not only in independent schools but all schools as well. At-risk students in public schools may be identified by classroom teachers and referred to the school psychologist for educational testing. If students qualify for special education services, then a variety of placements in remedial programs can be made. Unfortunately, due to the increased size of the classroom and workload at the public school, many of these students slip through the cracks and are never identified. They usually become behavior problems and drop out of the learning environment.

School personnel could change how they talk about these students. Placing negative labels on them only serves to push them farther away from asking for help. It might well serve schools to change the terms *learning disabled* to *learning style preferences*. Restating a learning condition in more positive terms may increase students' self-esteem and the willingness to stay involved in the learning process. A school-wide program that emphasizes preferences over disabilities could change the way teachers and parents perceive the problems of students who are struggling both personally and academically.

Purpose of the Study

The purpose of this study was to examine the effects of implementing a Learning Style Awareness Program at an independent school. It was hypothesized that implementation of a comprehensive program in a ninth grade population would lead to a change in individual locus of control from external to internal, thus resulting in an increase in grade point average. Additional data from students, parents and teachers on their perceptions of the program was also collected in order to construct a comprehensive picture of the over-all effects of the program.

Hypotheses

Quantitative and qualitative data were collected using a learning style assessment instrument, a locus of control instrument, school records of student achievement (GPA), and a researcher-designed survey of student behavior. The null hypotheses addressed by this study was as follows:

Locus of Control

- Hypothesis 1.1 A group of ninth grade students at an independent school who receive a school year of learning style awareness treatment will show no change in their locus of control.
- Hypothesis 1.2 There will be no change in locus of control scores between high-achieving and low-achieving ninth grade students who receive a school year of learning style awareness treatment.
- Hypothesis 1.3 There will be no change in locus of control scores between male and female ninth grade students who receive a school year of learning style awareness treatment.

Academic Achievement

- Hypothesis 2.1 There will be no change in GPA in a group of ninth grade students at an independent school who receive a school year of learning style awareness treatment.
- Hypothesis 2.2 There will be no change in GPA between high-achieving and low-achieving ninth grade students who receive a school year of learning style awareness treatment.

- Hypothesis 2.3 There will be no change in GPA between male and female ninth grade students who receive a school year of learning style awareness treatment.
- Hypothesis 2.4 There will be no change in GPA among ninth grade students with different locus of control classifications who receive a school year of learning style awareness treatment.

Learning Style Awareness

- Hypothesis 3.1 There will be no change in learning style awareness in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

Academic Behavior

- Hypothesis 4.1 There will be no change in help-seeking behaviors in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.
- Hypothesis 4.2 There will be no change in responsibility-taking behaviors in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.
- Hypothesis 4.3 There will be no change in student-reported parent-child conflict over homework in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

Significance of the Study

Many students in independent schools have been identified gifted and talented with IQs of 132 and above. Within this population are students who struggle academically, and along with their parents and teachers, believe they are very bright, but for some unknown reason do not perform well in the classroom. These students have received years of traditional tutoring and attention and have had every known resource available to aid them toward academic success but continue to fail. Nevertheless, they have the potential to become highly successful academically. The one neglected resource needed for some is the assessment and awareness of their learning style strengths and weaknesses.

Schools on the cutting edge of restructuring their programs are most interested in teaching to students' strengths so that lifelong learning will occur and the students will reach their full potential. If classroom teachers ignore the fact that we all possess differing learning style preferences, then these bright and talented students are at risk of leaving school and becoming academic and social failures. They may never realize their academic potential. This problem exists not only in independent schools but in public schools as well.

Our future depends on the energy and intelligence of our youth. Bright talented children might quit learning because they experience repeated school failures. Restructuring the learning environment involves transformational leadership. Transformational leadership suggests that leaders perceive the aspirations of their followers and help them emerge as leaders. If academic leaders do not accurately understand their protégés as it were, they risk losing those who have the latent potential for great success. Future leaders become lost in an educational system that has failed to respond

to different learning styles, and students, after repeated failures and frustration, opt out for a life style that is consistent with what they have come to believe they are worth.

Definition of Terms

One important drawback regarding the awareness and education of learning style remains the numerous definitions that plague the literature.

For this study, terms are defined as follows:

Academic Achievement refers to grade point average or GPA.

High Achiever refers to a GPA of 3.75 or better.

Low Achiever refers to a GPA of 3.0 or lower.

Independent School refers to a nonpublic, nonreligious, nonboarding, coeducational day school specializing in college preparation.

Learning Style refers to a student's individualized and personalized preference for assimilating and integrating information into his or her own cognitive network of information.

Learning Style Inventory refers to the National Association of Secondary School Principals Learning Style Profile.

Learning Modalities refers to auditory, visual and tactile/kinesthetic processing.

Locus of Control refers to the extent of how persons perceive relationships between their actions and their outcomes.

Locus of Control Inventory refers to the Intellectual Achievement Responsibility Questionnaire (IARQ) which assesses students' perceptions of responsibility for academic achievement on a continuum of external to internal.

Internal Locus of Control refers to one's perception that he or she has control over events in his or her life.

External Locus of Control refers to one's perceptions that outcomes are controlled by external forces such as chance, fate, luck or powerful others.

Learned Helpless occurs when students believe that outcome has no relationship to their own efforts.

Lower School refers to grades K through 5.

Middle School refers to grades 6 through 8.

Upper School refers to grades 9 through 12.

Assumptions and Limitations of the Study

Assumptions

1. This researcher will administer the IARQ and open-ended questionnaire, and record the cumulative GPA both at the beginning and end of the school year.
2. The subject school will purchase, administer and score the Learning Style Profile.
3. The subject school will schedule classroom time to administer the planned interventions and will cooperate in scheduling teacher workshops and parent meetings to discuss results of the LSP.
4. Students will answer the questions truthfully without trying to present themselves in a favorable way.
5. The reliability and validity of the IARQ and LSP had been previously demonstrated using a similar population of subjects and was, therefore, sufficient for meeting the purposes of this study.

6. Grades are indicators of the students' degree of achievement.
7. There has been no learning style instrumentation or instruction previously delivered to the subjects in this study at the school site.
8. All subjects in this study will be of average intelligence or above with no serious emotional disturbances.
9. All the necessary permission slips will be obtained from both parents and students before administration of the instruments.

Limitations

This study will be limited to ninth grade students, teachers and parents at an independent high school. The selection of this setting could affect the generalizability of the results, particularly in application to public school settings.

This researcher is an employee of the school and has received specific permission to perform the data collection required in this study. The dual role of employee-researcher could be a limitation in restrictions to behavior as defined by the roles outlined in the employee contract. However, this also provides an advantage in that the researcher has more control of the procedures used in the program implementation and the data collection, and more access to the subjects and the data than might be possible for an independent researcher.

A third limitation is that the researcher has no control over events that might occur at the school site that could affect student scores on the data collection instruments or student achievement.

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

The Educational Resources Information Center (ERIC) and *Psychology Abstracts* computer searches were performed using the descriptors: learning style, locus of control, independent schools, private schools, cognitive learning, cognitive style, learning style counseling, teaching methods, and learning style assessment and profile. Numerous articles and studies were found addressing learning style, but none that discussed the implementation of a Learning Style Awareness Program in an independent school.

An internet search using the World Wide Web continued to provide information from individuals who wanted to share their research experiences and information. However, there were none that specifically addressed implementation of a Learning Style Awareness Program in an independent school.

There were also many articles on locus of control discussing the relationship between locus of control and grade point average. There was a clear absence of research focusing on the relationship between locus of control and learning style awareness in an independent school. A *Dissertation Abstracts* search produced one document by Cook (1989). Her study focused on administering a brief learning style awareness intervention to university students in Florida. University libraries were also searched for information

on learning style. Personal consultation with Dr. Tim Schaap of the Elk Grove School District in Chicago, Illinois, provided information on current learning style instruments, computer scoring, and an historical overview of the development of the NASSP Learning Style Profile.

Historically, the traditional understanding of intelligence assumed that all people learn in the same manner and that a uniform test could be developed to measure this. Psychologist Alfred Binet was the first to develop a test that would measure a child's ability to learn. This was the beginning of standardizing IQ testing in the field of education. The Stanford-Binet Test was originally used to discover a student's intellectual shortcomings. The test quickly caught on in the United States as a way to rank students according to their strengths and weaknesses and place them in classrooms. Another test, the Scholastic Aptitude Test (SAT), was used to determine if students had the intellectual ability to attend college. Thus, the education system began to use uniform intelligence testing to make judgments about how students fit into the classroom. Educators assumed that if all students learn the same way then they can be taught in the same way. Uniform teaching methods were then developed in order to educate large groups of students. These methods did not take into account the fact that some students might not fit into this model. If students had problems, educators assumed there was something wrong with them. They focused on what students could not do, not on what they could do.

In the 1960's, educational psychologists began studying cognitive styles and applying these to curriculum design. Subjective qualitative studies involving the relationship between cognitive style and grade point average (GPA) were also thoroughly evaluated and researched.

Howard Gardner's (1983) theory of multiple intelligences stimulated cognitive psychologists to rethink how students learn. The terms *learning style* and *cognitive style* were used interchangeably until Rita Dunn (1989) and James Keefe (1982) began to take a closer look at a more comprehensive description of learning style. Their definition included not only the concept of cognitive processing, but took into account environmental, emotional, and physiological factors. Banks (1991) added that learning style is not an indicator of intelligence but only the way students respond to the learning environment.

This literature review produced many articles identifying underachievement in bright students. Studies were selected for their application to that population of bright students who are unsuccessful in a school environment that seemingly has all the resources to help these students be academically successful. Many of these articles were authored by teachers and administrators in both public and private schools. These were not formal research reports but more subjective perceptions and opinions as to the causes of academic failure in bright students. Few articles addressed a concern or investigation into students' perceptions of their academic problems, nor did they take into account the emotional and psychological implications of adolescents who were bright but failing in school.

It appears that diagnosing academic failure in bright students is relatively easy by observing a pattern of failure in those students who have been successful in the past and are expected to maintain that success throughout their academic careers. The diagnosis of underachiever alluded to the fact that these students are capable of success but are "not trying" their best. But, what if students do not know how to try? Maybe they have been required to learn in a mode that is not compatible with their learning style

and after repeated failures have given up. Therefore, the articles presented in this investigation were selected to acquaint the reader with the current thinking in the field of learning problems from the perspective of learning style preferences, and the failure of an education system to treat the problem adequately.

Learning Style

Krug, Newman, and Dember (1973) studied the dynamics of bright underachievers between the ages of 7-13 with IQs ranging from 130-160 at the Children's Psychiatric Center in Cincinnati. They found that many children tested well, but had learning difficulties which resulted in low achievement. These students reported they felt threatened by their inability to fulfill the expectations of parents and teachers. They would act as if they were intentionally or willfully not doing their work when, in fact, they were unable to understand or process the information. The authors concluded by stating that, "I won't," serves as a mask for "I can't," and that these types of students have a high need to appear in control of the learning situation. Bright students, therefore, know there is a learning problem, but are unable to articulate this and defend themselves by becoming disengaged from the learning process. Many capable students, enrolled in schools where academic expectations are high, will appear to fail willfully by demonstrating that they do not study or pay attention in class.

In the early 1970s David Kolb developed the first learning style instrument, the Kolb Learning Style Inventory, which focused on how individuals perceive and process information. It evolved out of Kurt Lewin's Experiential Learning Theory and Carl Jung's dialectic tension. This inventory measured only cognitive traits of learning.

In 1978, Dr. Rita Dunn, a prominent researcher in the field of learning style and a member of the NASSP task force, developed the Learning Style Inventory designed to assess students in 24 different areas of learning preference. Her test took into consideration the physical environment and emotional state of the student. According to Dunn, every person has a learning style as individual as a signature. It is a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others. If teachers are aware of their students' preferences or styles, then the curriculum and classroom can be organized to respond to their individual needs. When permitted to learn difficult academic information or skills through their identified preferences, children tend to achieve statistically higher test scores. She states that no style is better or worse than another. Most students can master the same content, but how they master it is determined by their individual style. By 1989, research focused on learning style had been conducted at more than 60 universities.

Nancy Dixon (1982) defined learning style as the way individuals gather and process information. By understanding these differences in learning styles, and by taking them into account when designing the curriculum, greater gains can be made in learning. She writes

learning style differs from ability or intelligence.
One style is not presumed to be better than another.
Learning through listening is not necessarily better
than learning through reading. (p. 1)

Another researcher in the field of learning style assessment was Dr. James W. Keefe, director of research with the National Association of Secondary School Principals (NASSP). He defined learning style as the cognitive, affective and physiological behaviors that are stable indicators of how learners interact and respond to the learning environment.

In 1982, under Keefe's direction, NASSP created a task force to investigate the concept of learning style. After examining all the characteristics which influence student achievement, the task force created a diagnostic instrument which would identify individual learning style.

The Learning Style Profile (LSP) was developed with the hope that use of the information would enhance awareness of student learning style. The task force suggested that the curriculum could be designed to respond to those styles, and that, with the help of school counselors, communication could be improved between students and teachers.

Curry (1990) reviewed most of the published learning style inventories and instruments for use in secondary school classrooms. In 1983, she proposed a three-level model that divided cognitive and learning style measures into groups based on the author's intent to measure instructional preferences, information processing tendencies and personality descriptors. Curry hypothesized that the degree of reliability in each dimension would vary according to the main intent of the instrument. She said that teaching learning style theory and using the data from learning style inventories would aid classroom teachers in designing the curriculum that will meet individual learning style needs. This information can also influence instructional methods, examination and testing methods, and student guidance. According to Curry, students' examination scores reach optimum levels when measurement format matches students' learning style.

Therefore, when students' learning style, classroom instruction, and examination format are present, students will demonstrate statistically significant increases in academic achievement and improved attitudes toward school. Furthermore, this progress remains stable over the years.

There is a consensus among researchers that when student-teacher learning styles are congruent there is an increase in grade point average and achievement. Guild (1989) reported that teachers should not be expected to diagnose the style of each and every student, but that students should be taught about the concept of individual learning style. Administering a learning style profile, followed by an explanation of the concept, increased student achievement. She also stated that students "really start learning" when teachers deliver classroom instruction in a diversified style that focuses on the students' strengths.

It is interesting to note that Frank Pettigrew (1989) studied 15 pairs of experienced teachers and their student teachers and found that neither group was able to identify the individual learning styles of their students better than the other. It appears that experience is not necessarily a factor in meeting the needs of students with specific learning styles. Dunn (1990) recommended that teachers lacking the ability or time to diagnose learning styles could use a learning style instrument.

Cafferty (1980) studied the match between student and teacher cognitive styles and student achievement as measured by grades. The Hill Cognitive Style Mapping was administered to sophomore and junior high school students and to their teachers. He found when students were positively matched with teachers who shared similar styles for classroom instruction, they improved their grade point averages. Cafferty also stated that many educators were aware that students responded with increased

academic success if their teachers instructional formats matched students' cognitive styles. Classroom teachers who delivered information in only one mode, and assumed that all their students learned through their preferred style, contributed to losing those students who did not match their style.

Griggs (1991) trained counselors to diagnose learning styles in elementary and secondary students. She believed that if students were aware of their styles, counselors could help teachers and students reach an accommodation leading to an increase in teacher effectiveness and student achievement in the classroom. Griggs also noted learning style preferences remain constant throughout one's lifetime, although younger students have a higher need for their teachers' accommodating to their styles.

Spinner (1992) found that parents were frustrated trying to help their children with homework and the demands of academic success. Even though parents attend school activities, parent-teacher conferences, and show encouragement at home with homework, most parents do not know how their children process information. She stated that teachers can play a major role in educating parents on how to work with their children in providing optimum learning activities.

Hanson (1991) found that students who succeed tend to be "thinkers" rather than "feelers." He found that teachers who teach music and art classes which emphasize self-expression and feelings represent a teaching style that is closer to the learning style of those students who are more at-risk for academic failure.

Cook (1989) investigated the relationship of learning style awareness, academic achievement and locus of control among older community college students in Florida over one school semester. Subjects were administered the Rotter Locus of Control Scale and the Productivity Environmental Preference

Survey (PEPS), a learning style inventory. The students received feedback on their individual profiles during classroom discussion, accompanied by a handout describing study tips. There were no other interventions delivered during this study. Cook found that community college students increased their GPA and reported a change from an external to an internal locus of control score.

Sabine Jones (1993) also found that when students became aware of their individual learning style, there was an increase in control over their own learning process.

Schroeder (1993) studied the learning styles of college students and found that many of today's students are nontraditional learners who need a diversified learning program in order to succeed academically. The new students of the 1990's may not fit the old model of traditional instruction of sitting in class and listening to a lecture. If students are to succeed, then teachers must be aware of different learning styles and accommodate those differences in the classroom by offering instruction in a variety of auditory, visual and/or tactile/kinesthetic formats.

Marshall (1990) noted that teaching to learning styles represents a philosophical break from an old paradigm where control is replaced with respect for diversity and student individuality.

In a more recent review, Anderman and Maehr (1993) reported that there is a belief among early adolescents that academically they either "have 'it' or they don't." As they move through an educational experience that puts emphasis on ability, those students who put forth effort and fail view themselves as "dumb."

One possible consequence of constant failure is that students will define their life goals in terms of present failure rather than future

possibilities. For those who risk failure each day in the classroom, psychological and physical withdrawal from the learning environment may become a reality. These students see themselves as academically incompetent and impotent.

Summary

Educational researchers have studied learning style differences and student-teacher learning style matches for the past decade. The literature supports the notion that there is a strong correlation between learning style awareness, academic achievement and grade point average. When students are assessed on their learning style and understand their individual style preferences, there is an increase in GPA. This also occurs when there is a match in student style preference and teacher instructional delivery.

When there is a continued mismatch between instructional delivery and student learning preferences, there is an increased risk of student frustration. This may manifest itself in disruptive or avoidance behaviors. Students may feel a loss of control over the learning environment, and find the classroom a difficult arena as they are unable to grasp words, concepts, or demonstrate acquisition of the material. When this level of frustration continues over a long period of time, students become *learned helpless*. As such, they no longer believe that they have control over the ability to learn.

Locus of Control

Witkin (1954) studied how people view their environment. He developed the construct of field dependence/field independence and helped to design the Group Embedded Figures Test which NASSP utilized in the construction of their Learning Style Profile. Field dependent students tend to be externally influenced by peers and authority figures. Field independent

individuals are more autonomous and avoidant and tend to lean toward analytical thinking; e.g., mathematics and science areas.

In 1954, James Rotter developed a social learning theory in which he addressed the concept of internal and external locus of control. He believed a given behavior depended on an expectancy that the behavior would lead to a reinforcement that has personal value. On the basis of early experiences, an individual comes to believe that reinforcements can be controlled by either personal actions or external forces. People adopt one of two basic orientations: an internal position wherein the individual believes success to be the result of ability and effort manifested in a sense of well-being, or, an external position which attributes success to luck, fate or the actions of powerful others, leading to depression, anxiety and decreased ability to cope with stressful situations (Lefcourt, 1991). In 1957, Rotter's students, James and Phares, built upon his work and developed scales for the measurement of internal-external locus of control. Subsequently, this measure provided the source from which the Rotter Internal-External Control Scale was developed. Soon after, behavioral scientists began to develop several instruments to measure and study this construct.

The first investigation into the relationship between locus of control and academic achievement, and the second published locus of control scale, was reported by Vaughn Crandall, who in 1965, developed the Intellectual Achievement Responsibility Questionnaire (IARQ). This instrument, specifically designed for use in an educational setting, measures students' belief in their control over and responsibility for academic success and failure. Crandall focused on "significant others" such as teachers and parents as the sources of external control, as opposed to "chance and luck" proposed by Rotter. Crandall believed that students who struggled academically attributed

their failures to the teacher not lecturing well, giving trick tests, or intentionally trying to fail the students.

Tomlinson (1987) indicated that locus of control is a major factor affecting academic achievement. She defined locus of control as a polar construct whereby successes are viewed as being contingent upon their own internally controlled behaviors and failures as being independent or externally controlled. Students who demonstrate an internal locus of control are associated with academic success and abstract thinking, while those who demonstrate an external locus of control are associated with academic failure. She also associated *learned helpless* with external locus of control and with thinking that is concrete and compartmentalized. Learned helpless, she says, results when people believe that outcome has no relationship to their efforts. As a result, students lack persistence in assigned tasks and give up before they even begin, believing they will fail anyway. Tomlinson also stated that locus of control can be changed. She found that counseling, goal setting and revised curriculum planning were successful in changing an external locus of control to an internal locus of control.

Many researchers have reported that underachievers score in the external range and achievers in the internal range. Laffoon, Jenkins and Tollefson (1989) administered the IARQ to a group of underachieving-gifted, achieving-gifted and nongifted 3-5 graders. They found that underachievers scored higher on externality and achievers scored higher on internality. Boss (1989) found that students in an advanced level program were more internally controlled than regular level students and that locus of control is related to academic performance. Payne (1989) also investigated locus of control and academic achievement. Studying 643 elementary school students, she found that at-risk students were externally oriented. Klein (1990) found

that locus of control influenced both performance and confidence. Nunn (1992) studied at-risk high school students and a peer group and found significant differences in locus of control, self-concept and personal styles of learning.

Rimm and Lovance (1992), in studying the Underachievement Syndrome, found that underachievers reported that school was boring, they were disorganized, presented uneven skills, neglected turning in homework assignments, utilized convenient forgetting and demonstrated mild behavior problems. They stated that underachieving students lack an internal locus of control whereby they do not internalize the relationship between effort and outcome, process and product. They would rather make excuses and not participate than take the risk of losing or having others discover they might not be as intelligent as originally thought. This results after students have not functioned as achievers for a period of time. She concluded that a major cause of academic failure in adolescents is a sense of personal external control. Martino (1993) also noted that young adolescent students who are frustrated and resigned to failure are not encouraged by teachers who tell them to "try harder." In fact, Kohn (1993) stated that children are rarely invited to participate in choices concerning their education. She found that when students were consulted there was an increase in academic achievement.

Potvin (1992) studied the relationship between teachers and students and academic success. Teachers who felt personally responsible for their students' successes, attributed the students' failures to external causes. Those teachers who had an internal locus of control had more positive attitudes towards their students.

In another study, Kopera-Fry (1991) indicated there was a direct correlation between having an external locus of control and low academic

achievement. She administered a self-report questionnaire to 1,264 ninth grade students to study factors predicting locus of control. Locus of control scores were found to predict adolescent depression and grade point average.

Researchers also studied how to change locus of control. Reimanis (1971) conducted an experiment deliberately designed to alter locus of control in students of various age groups. He scheduled weekly meetings with teachers to discuss how to modify classroom procedures in order to help students develop more internality. He concluded that a change toward internality did occur in those students who received more individual attention with respect to learning about their behavior contingencies. In the same vein, Thompson studied locus of control among ninth graders. She implemented a program using older students as role models and peer mentors. She hoped to reduce absences, stimulate responsibility for homework, and increase participation in extracurricular activities in ninth grade students who were disengaged from the learning process. While active listening, values clarification, and goal setting were discussed between the subjects and their mentors, the freshmen students improved attendance and grades but did not participate in extracurricular activities.

Stability of locus of control has been studied by several researchers. Ortman (1988) stated that younger teenagers are less knowledgeable about real world outcomes than older teens; therefore, ninth graders would feel less in control than twelfth graders. She interviewed sixteen students, ages 14 to 18, who reported they felt they had more control now than at a younger age and would continue to gain more control as they grew older. She also found that two-thirds of the students said they had complete control and responsibility for their behavior and only one-fourth reported total control and responsibility for their feelings. Wolfle and Robertshaw (1982) found that

although locus of control, like other personality traits, is a generally stable attribute of people, change is possible. As children grow older they are able to exert more control over outcomes, thus leading to an internal locus of control.

Lefcourt (1982) reported that academic achievement requires students to persist at difficult activities requiring self-management, rather than engaging in playtime activities, for the sake of future satisfactions and goal attainment. If students have self-doubt about their potential effectiveness, the probability of engaging in persistence may be low. Academic failure previously had been attributed to low intelligence, but he reports that the Coleman Report (1966) found that achievement was best predicted by a measure of students' beliefs that achievement outcomes were determined by their own efforts. He also stated that people are not categorized as exclusively internal or external in orientation, but that they hold internal or external control expectancies about different aspects of their lives.

Hallowell and Ratey (1994), two prominent child psychiatrists, studied Attention Deficit Disorder in adults. They reported that ADD adults who were undiagnosed and/or misdiagnosed as lazy or learning disabled, and untreated during their childhood and adolescence, had low self-esteem, reported more disruptive and risk taking behaviors, low academic achievement, disorganization and an external locus of control. While ADD is a valid and debilitating disorder among children and adults, many students with this diagnosis may actually demonstrate a learning style preference which is not being met. The majority of students in any classroom will be able to attend to instruction in all modes, but some students will be very limited and focused on only one style. If that style is not acknowledged and properly instructed, students might manifest the symptoms of ADD; that is,

increased frustration and agitation, disruptive behaviors, low self-esteem, disorganization, an external locus of control and withdrawal from the learning process.

Summary

Many studies, including those cited herein, have demonstrated a significant relationship between students' sense of personal control and learning outcomes. An internal locus of control produces more positive attitudes, thus leading to a sense of mastery and competence (Creek, 1991). Researchers have found a direct relationship between an internal locus of control score and increased grade point average.

Underachieving students often report that when poor grades occur, it is their teacher's fault for not teaching well, as opposed to their own responsibility for low achievement. While independent schools encourage extra classroom contact with the teacher, students are frequently reluctant to seek out this contact for fear of appearing weak or dumb. The expectation to succeed is so strong that when unable to do the work, they will not ask for help. This population a generation ago would have been labeled learning disabled.

The research supports the notion that students who demonstrate an external locus of control are at an academic disadvantage, and that those who have an internal orientation are more academically successful. Parents and teachers can join together to help those students who experience life and the educational process as being outside their realm of control to view themselves as more capable.

CHAPTER THREE

RESEARCH AND DESIGN METHODOLOGY

Introduction

The purpose of this research was to determine the effects of implementing a Learning Style Awareness Program for ninth grade students at an independent high school in a large Southern California city. The review of the literature revealed several studies that examined the effects of learning style awareness in a single class of students, but none that investigated a school-wide implementation program. The choice of methodology was based on the proposed research questions which needed to be addressed and the population which would be studied. The research questions focused on the effects of the program on the locus of control scores of the students in the program as measured by the Crandall Intellectual Achievement Responsibility Questionnaire (IARQ), and on academic achievement as measured by grade point average (GPA) in academic subjects taken during the eighth and ninth grades. This researcher also collected data from the students, teachers and parents on the effects of the program on student behaviors related to academic activities and perceived academic problems.

This researcher, with permission from the principal at the subject school, designed the Learning Style Awareness Program. The subject school required that all ninth grade students and faculty take the NASSP Learning Style Profile. The Learning Style Awareness Program, designed and delivered

by this researcher, included examining the effects of delivering the Learning Style Profile. An experimental design was ruled out for this research because a control group could not be formed at the location of the implementation program and it would have been difficult to establish equivalency between groups from two different independent schools.

The selection of an independent school site, versus a public school site, was based on the knowledge that students in such schools would be selected for their ability to complete the required curriculum and go on to higher education. In contrast, public schools are required to accept all students who apply and do not expect all graduates to attend college. Independent schools can set the criteria for admission, and selectively accept those students who fit their profile. The subject school in this study demands that its enrollees conform to academic and behavioral standards that have been predetermined by the administration. If students do not meet the school's academic standards, then they will be dismissed.

Children attending independent schools come from economically advantaged families who are willing to pay high tuition fees for a more individualized education. Public schools not only include students from academically and financially advantaged families, but they also accommodate a wider range of academically and behaviorally diverse students. The differences, therefore, between public and independent schools are based on financial and academic standards and expectations. Any student can attend public school but not every student is accepted at an independent school.

This study required a naturalistic evaluation of the year-long implementation of a Learning Style Awareness Program. While focusing primarily on the effects of the program on the ninth grade students, information from other stakeholders, the teachers, administrators, and

parents was also collected. This researcher proposed that the program would have some effects on student perception of responsibility for academic success and on actual achievement which were characteristics measured by using the Intellectual Achievement Responsibility Questionnaire (IARQ) and grade point average (GPA) data available from the school. Scores on the IARQ were collected for ninth graders before and after the program implementation. Eighth and ninth grade GPA data were collected for each student. Qualitative methods were used to gather information from students about their subjective experiences. Such experiences included the ability to identify learning style preferences, willingness to ask for help, their perceived responsibility for their academic performance, and their perceptions of relationships at home with parents regarding homework study habits. Data were also collected from teachers, administrators and parents as to their perceptions of the effects of the program on students' behaviors.

Information regarding the effects of implementing the Learning Style Awareness Program could be useful to other schools planning to institute a similar program. Since the program included the use of the nationally available Learning Style Profile (LSP) and additional materials available from the National Association of Secondary School Principals (NASSP), interest in this project occurs beyond the school site level.

The Setting

The setting was an independent, nonreligious, nonboarding, coeducational high school which included grades nine through twelve. It was located in a major city in California and had an enrollment of 375 students. Eleven of the students were receiving full tuition scholarships due

to economic hardship. Students receiving this benefit were required to maintain a GPA of 2.0 or better.

The selected site was a college preparatory school designed to educate and guide students toward a four-year college or university. Approximately 99% of the graduating seniors from the subject school went on to a four-year college or university. During the 1994-95 school year several changes occurred.

1. The headmaster resigned and an interim headmaster was selected until a search committee could recommend a replacement.
2. Class scheduling was changed to resemble college class scheduling more closely.
3. New study areas were created to encourage students to spend more independent study time on campus between their classes.
4. New classrooms were constructed to accommodate increased enrollment.
5. Nine new teachers were hired.
6. One ninth grade teacher was absent from the classroom for 60% of the school year due to personal reasons.
7. One ninth grade teacher resigned midyear.
8. The on-site learning center was reorganized and staffed with new management due to limited parental support of the previous director.
9. The Admissions Director was replaced with a more experienced employee who was expected to increase enrollment totals.

Consideration was given to the impact these changes within the school had upon the students. There was no way to separate the impact of these changes on student locus of control, cooperation, motivation and achievement during the Learning Styles Awareness Program. Nonetheless, changes in leadership, staff, and teachers with their own teaching styles may have affected the results of this study.

Population

The student population, which received the Learning Style Awareness Program, was the entire ninth grade class consisting of 76 students. Data were collected from the social studies teachers who presented the hm Study Skills Program in their classes, other ninth grade teachers who observed students' behaviors, and from parents who shared their perceptions of the effects of the program on their sons and daughters. All students at the site were screened by the Admissions Director for admission into the ninth grade. Each student was required to score average to above average on a school-selected entrance examination, and have a minimum 2.0 GPA from the previous eighth grade semester. There were no students admitted into the ninth grade who had a history of disruptive behavior problems or low academic functioning. Some students entered directly from the subject school's eighth grade population while others were new transfers from other private or public schools in the area or out of town.

The admissions director was fully-qualified with advanced academic training. She made independent decisions on which students would or would not be accepted at the school. Admissions emphasis was put on those students who were self-motivated and could work independently. Exceptions to this rule included students who had previously been academically

successful but currently demonstrated some learning difficulties with advanced independent work. Students requiring extra assistance were directed to attend an on-site remedial learning center as a support to their classroom instruction.

The rationale for selection of the ninth grade level came from this researcher's previous knowledge that students in the eighth grade appear to have more academic problems transitioning into the ninth grade than do students into other grades. Students are accepted on academic ability and capability. The primary focus is to educate the whole child with the ultimate goal of placement in a four year college or university. Therefore, the ninth to twelfth grade scores become most important in achieving this goal.

This observer found, at the subject school, that ninth grade students experience more academic difficulties than those in the tenth through twelfth grades. In reviewing past school records of these struggling students, it became evident that a pattern of academic and behavioral decline usually began during seventh or eighth grade. The lower school grades would show exceptional achievement with no indication that these students were experiencing any difficulties.

Some students who excelled at concrete information processing in the lower grades were unable to meet the demands of the middle school curriculum. When they were asked to become more independent workers during middle school, they responded with disruptive classroom behaviors or an obvious lack of attention to school work. In examining the curriculum, the middle school students are introduced to more critical abstract thinking problems. If they are unable to transition into this higher level of thinking, they would find other diversionary ways to be present in the classroom but disengaged from the formal learning process. It is at this time that these

students are perceived as willfully being disobedient, lazy and oppositional. They are unwilling or unable to admit that they do not understand the material, and indeed, may not understand what is happening. Teachers and parents assume that if these students were successful in the past, then they should be successful in the future. Unfortunately, this is not always the case. Those students who excelled in the past may be incapable of adapting their learning style to the design of the middle school instruction.

By ninth grade, the expectations and the curriculum have changed again. If the school has not responded to meet the needs of those students who do not fit the traditional student model, then those students continue their academic decline and are dismissed from the school.

There are many factors that influence transitioning into ninth grade and critical abstract thinking. How is the subject school, which promises to educate their students whom they have already admitted with the expectation of success, going to meet the needs of students who are bright enough to learn but may have difficulty adapting to the teaching styles and curriculum requirements of the ninth grade?

Instrumentation

Three instruments were administered in this study.

Intellectual Achievement Responsibility Questionnaire (IARQ)

The Intellectual Achievement Responsibility Questionnaire (IARQ) was developed by Crandall, Katkovsky, and Crandall in 1965 (Appendix A). The IARQ measures the extent to which the student feels in control of the school environment or whether the student feels controlled by external forces. This test is composed of 34 forced-choice items, each item asking for a response to a positive or negative classroom experience and scored either

positive or negative. A student's internal positive (I+) score is obtained by summing all positive events for which the student assumed credit. The internal negative score (I-) is the total of all negative events for which the student assumes blame. Scores range on a continuum from 0 to 34, with scores near zero indicating an external locus of control and high scores up to 34 indicating an internal locus of control. This instrument was normed on over 1,000 students from grades 3-12 across the United States. This scale shows acceptable reliability and evidence of divergent and convergent validity (Lefcourt, 1991).

Scores in the internal range indicate subjects will accept personal responsibility for learning and achievement. An external score indicates subjects will attribute their successes and/or failures to others.

The IARQ was piloted with several junior and senior students to ascertain if the wording of the items was acceptable to the development and language of the subject population. Several instruments were presented to the present eighth grade teachers and middle school principal to ascertain if the item selection and wording were compatible with the development and language of the subject population. The teachers were in consensus that the IARQ was the best instrument for this population.

Researcher-Designed Open-Ended Questionnaire

An open-ended questionnaire was designed to assess a student's willingness to ask for help, to report self-perceptions of learning style, and to identify conflict at home over homework. It also was designed to assess a student's perceptions for causal factors in academic performance. A copy of the instrument is found attached to the IARQ in Appendix A.

Question selection was based on the research questions for this study and included:

1. When you have difficulty with school work, what do you do?
2. How do you learn best?
3. Do you argue with your parents over homework? If you do, what is the argument usually about?
4. When you get a grade you don't like, how do you explain it?

This questionnaire was attached to the IARQ and was administered at the beginning and end of the ninth grade year.

NASSP Learning Style Profile

The National Association of Secondary School Principals developed the Learning Style Profile (LSP). This was a multiple choice inventory consisting of 126 items, designed to assess individual learning preferences. The subject school selected the LSP over other similar learning style inventories since it could provide more comprehensive information on cognitive and environmental learning factors. All students and faculty in the ninth through twelfth grades were required to attend a workshop in which the LSP was given. It was not administered to collect data related to the research questions.

In 1982, NASSP created a task force to examine the concept of learning style. Their goal was to develop a learning style instrument that could be easily administered to secondary school students. The task force adopted an information processing model of learning style that incorporated the elements of cognitive, affective and environmental influences. The task force committee used the "General Operations Model" of Charles Letteri

(1988) as the basis of their information processing model. His model viewed learning as the storage and retrieval of information where individuals must process this information according to their individual style. This model influenced the task force, with the help of Keefe and Languie (1988), to define learning style as

the composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. It is demonstrated in that pattern of behavior and performance by which an individual approaches educational experiences. Its basis lies in the structure of neural organization by human development and the learning experiences of home, school, and society. (p. 10)

The LSP was administered to 4,871 high school students in 40 schools across the United States, selected by zip code, from NASSP's national file of all American middle level and senior high schools to ensure regional representation. The instrument assesses the cognitive, affective, and environmental elements of learning. This self-report inventory has no right or wrong answers. It contains 23 independent scales representing four higher order factors: cognitive skills, perceptual responses, study preferences and instructional preferences (Appendix B). It is computer scored, and produces a printout profile of the student's individual style.

Internal consistency reliabilities were computed for all subscales using Cronbach's alpha. Reliabilities ranged from .48 to .76. Test reliability for each subscale was also demonstrated using ten and 30 day test-retest

formats with 200 subjects in each sub-group. Ten-day reliabilities ranged from .53 for Discrimination to .82 for Manipulation. Thirty-day reliabilities ranged from .37 for Analytic Skills to .76 for Manipulation. Low reliabilities were also noted for the Study Time preference scales.

Concurrent validity of subscales was calculated using data from the Group Embedded Figures Test, the Edmonds Learning Style Identification exercise and the Learning Style Inventory. Concurrent validity is only reported for the Analytical Skill, the three perceptual response scales, the Manipulative preference and the Study Time preferences. Other subscales were assumed to be valid if they emerged in exploratory and confirmatory factor analysis as one of the independent factors.

Intervention Materials

In addition to the IARQ, the LSP and the researcher-designed open-ended questionnaire, the following materials were also utilized in this study:
hm Study Skills Program

The hm Study Skills Program is distributed by the National Association of Secondary School Principals and is intended to be used as a supplement to the distribution of the LSP results. This program included 12 activity-oriented lessons that teach study skills, is learning style sensitive, gives students insight into their own style of learning, and provides practice in their learning style strengths. The program was designed for eighth through tenth graders.

F.A.T. (Frustration, Anxiety, Tension) City Videotape:

How Difficult Can This Be?

The F.A.T. City video is a learning workshop in which the viewer spends 70 minutes experiencing life like a learning disabled student. Richard

LaVoie, the moderator, is the Executive Director of Riverview School in Massachusetts. During this video, the audience participants are asked questions, given material to read, and led through exercises which have been specifically designed to simulate the learning disabled child's experience in the classroom. The purpose of this video is to create awareness in students, parents, and teachers that children struggle with frustration, tension and anxiety when learning becomes difficult.

After reviewing other similar videotapes, this video was selected for its interactive format and sensitivity to the world of the struggling student. A component of the Learning Style Awareness Program was designed to reframe the terminology and descriptors used to describe learning problems. The terms *learning disability*, *learning difference*, *learning handicapped*, are negative professional terms used to describe those students who are academically inferior to their peers.

This researcher interviewed many students over the years who expressed pain and resentment when described with these labels. The F.A.T. City video, with its many references to learning disabilities, prompted the students, teachers and parents to discuss the implications of this terminology. By reframing these descriptors into more positive terms, this researcher anticipated that struggling students would be more willing to discuss their learning problems with professional educators and counselors. The presentation of this video was utilized as a means to acquaint the audience with the concept of learning style preferences and the individual learning style of each person.

Literature Packet

Two literature packets of current literature on the concept of learning style were compiled for the teachers and parents. The parents' packet included several articles on how learning style awareness could help parents and teachers support students to reach their maximum learning potential (Appendix F). The teachers received the same packet but with additional articles on teacher-student style match, instructional methods, application of the concept in the classroom (Appendix G).

Data Collection Procedures

In August, 1994, permission slips were mailed to all ninth grade parents requesting permission for their child to participate in the data collection portion of the study (Appendix C). Only one parent inquired about the content of this study. The Learning Style Awareness Program was implemented as part of the regular curriculum for ninth graders. A follow-up letter was mailed to the parents in May, 1995, requesting permission to access the individual grade point averages of the subjects in this study (Appendix E).

The data collection and implementation procedure occurred as follows:

Student Data Collection

1. School personnel administered the Intellectual Achievement Responsibility Questionnaire (IARQ) and the researcher-designed open-ended questionnaire to the ninth grade class.
2. School personnel administered the Learning Style Profile (LSP) to the ninth grade class.

3. All subjects received a computer generated profile of their individual LSP.
4. All subjects attended a workshop led by school personnel to discuss the results and interpretations of the LSP.
5. All subjects participated in the hm Study Skills Program incorporated into the history class curriculum.
6. All students viewed the F.A.T. City (Rosen, 1989) video during their science class.
7. Students were readministered the IARQ and the open-ended questionnaire at the end of the school year.
8. Individual counseling and consultation were available for students if requested.
9. All ninth grade teachers received copies of their students' LSP for reference.

Parent Data Collection

1. Parents who attended an evening workshop were administered the LSP.
2. Parents viewed the F.A.T. City video.
3. Parents received a computer scored profile of their individual LSP.
4. Parents received the computer scored profile of their ninth grade child.
5. Parents received information on the interpretation and implications of the LSP.
6. Parents received a literature packet of selected articles on learning style.
7. Parents attended a presentation on the concept of learning style.

Teacher Data Collection

1. All ninth through twelfth grade faculty attended a day-long workshop on learning style.
2. All teachers were administered the Learning Style Profile.
3. All teachers viewed the F.A.T. City video.
4. All teachers received their individual profile results.
5. All teachers received a literature packet of selected articles on learning style.
6. All teachers attended a presentation on educational testing, teaching strategies, and the concept of learning style.
7. All ninth grade teachers received the individual LSP of the students in their classes.

Intervention Schedule

During the first week of September there was a parent orientation meeting for all new ninth grade students. An outline of this study and a copy of the locus of control instrument (IARQ) and open-ended questionnaire were made available. Parents were encouraged to ask any questions during this time. None of the parents expressed any negative thoughts or comments during this time. Any remaining consent forms were signed at this time. Only one family did not return the signed consent form and was excluded from this study.

During the second week in September, the IARQ and open-ended questionnaire were administered to those ninth grade students who had signed consent forms. In order to insure confidentiality, the student consent form covered the two instruments (Appendix D). If students did not agree to participate they could return the packet to the collection box and walk out of

the room. Students were spaced far enough apart so that no one could detect if another person was working on the packet or not. During this time proctors walked among the students to insure honesty and the validity of the responses. Only one student declined to participate in the pretest and it happened to be the same student whose parent did not return the consent form.

During the third week of September the school administered the Learning Style Profile. This was a school curriculum requirement and all ninth graders participated. Scantron sheets were passed out with the testing booklets. Instructions were read aloud. This was an untimed test so students were instructed they could take as much time as needed. The test took approximately 50 minutes for the majority of students. Only one student required longer than one hour. The scantron sheets, machine scored, produced a printed profile of each student's individual scores.

One-half of the population received their individual profile results by the end of September, and before viewing the F.A.T. City video. The other half received their results two weeks later after viewing the F.A.T. City video. Small groups of students (8 to 12) were convened during their health and fitness class to discuss the results of the profile. Students received their scored profile and a handout explaining the scores. During these meetings they were reluctant to ask any questions or participate in discussions regarding the meaning or implications of the profile.

During the second week of October all students watched the F.A.T. City video in their science classes. Discussion was held after each viewing of the tape. Students reported that the video was very interesting and that they learned how students can have difficulties learning new information. One student reported that he knew everything about learning problems because

he had two siblings with learning disabilities. This student was observed as guarded and angry at the time. His teacher reported that it was his personal impression that he was a student with serious learning problems; however, he did not produce substantive information which backed up that thought.

In the week following the video, the remaining students received their profile results and an explanatory handout, again in small group settings. This time the students were more open and verbal in discussion about their personal experiences with the learning process. They presented examples of how they learn, and could personally relate it to their individual learning styles.

The third intervention included the two history teachers who administered the hm Study Skills Program to their respective classes. Students received the hm Study Skills Program workbook that included exercises to acquaint and enhance their awareness of their personal learning style. The teachers reported that the students were not very interested in working on this program. Many of the workbooks were lost or misplaced leading to the assumption that the students were not interested.

The fourth intervention included a teacher workshop on learning styles which included the administration of the Learning Style Profile to all the teachers in the ninth through twelfth grades. Some teachers required more than one hour to complete the inventory. They were then shown the F.A.T. City video while their individual profiles were scored. When the video ended, each teacher received his or her individual scored profile. They also received a packet of selected articles on the learning styles of teachers and students (Appendix F).

During this workshop, two speakers, a psychologist who specializes in learning disabilities, and an educational therapist who works with students

who have learning problems, gave presentations. The psychologist discussed the testing and assessment of students with learning disabilities. She also presented case studies of students who appear bright but have learning problems. These cases paralleled some of the students at the subject school. The therapist showed examples of how she treats various learning problems. The overall presentation was given in a multimodal format, that is, visual, auditory and experiential. When questioned how most teachers scored on the profile, 90% reported they were primarily visual learners.

The fifth intervention included a plan to administer the Learning Style Profile to all the parents of the subjects. Only 25 parents attended the evening presentation. It was announced through the Parent's Association in a flyer that accompanied their newsletter. This workshop was the same as that presented to the faculty with one exception. When the parents received their scored profile, they also received the scored profile of their child. Parents reported they were very happy to have this information.

The final intervention was to readminister the IARQ to the subject population. Parent consent forms (Appendix E) were mailed home requesting permission for their children to participate in the posttesting, and to access each subject's GPA scores from school records. All parents, with the exception of two, returned the signed consent forms. When the posttest materials were distributed to the students, these two students were quietly advised that their parents did not return the necessary forms, and that they were excused from participating in the testing. They were observed to have read the testing materials but did not fill them out.

Ethical Concerns

The Committee for the Protection of Human Subjects at the researcher's university reviewed the study before giving final approval to perform the research. The main concerns were the informed consent of the subjects and their parents, and the issue of confidentiality, particularly when administering the IARQ. It was determined that subjects would be handed a packet of papers with a cover sheet. Students who chose not to participate could disguise this fact by not filling out the instrument. They would then be able to return it to a stack of papers at the end of the meeting. In addition, students were seated at a distance where their neighbor would be unable to determine if another subject was participating in this study. In observing the students during this process, no one was interested in what a neighbor was doing. In order to insure confidentiality with the completed instruments, numerical coding was used for each subject. Issues concerning the subject's sensitivity to the open-ended questionnaire did not occur.

All parents of the subjects were mailed a consent form to participate in this study and advised of the treatment of the data. The consent form was signed and returned in order that their child participate in this study. Students were also required to sign a written consent form if they chose to participate in this study. They were advised that they could withdraw from this study at any time. The informed consent only related to the completion of the IARQ and researcher- designed questionnaire and the release of GPA data on the student by the school. Parents did not have to consent to the student participation in the Learning Style Awareness Program as this was presented as part of the ninth grade curriculum.

Subject Participation

A variety of situations affected the number of student subjects in this study. During the pretest in September, only one parent declined to sign the consent form for his child to participate. During the testing session, this child also declined to participate. Seventy-six students agreed to participate. At the posttest, two parents did not return the signed consent forms. It was not determined if they disapproved of the project or were unavailable to grant permission. These two subjects did not complete the questionnaires.

The posttest administration of the IARQ was administered by the classroom history teachers. It was reported by the teachers that seven subjects declined to participate and did not complete the packet. Three subjects no longer attended the school. Two subjects did not complete all the answers, thereby invalidating their scores. Four subjects were absent from school on the date of the posttest. One subject did not have an equivalent GPA on the prescribed courses for inclusion in the data. Nineteen subjects were eliminated from this study, resulting in a total of 57 subjects who completed both the pre and posttest packets, were exposed to all interventions, and had signed student and parent consent forms.

An LSP workshop for parents was scheduled during the evening. Three weeks in advance, the ninth grade class parent representative was contacted. She included an announcement of the workshop in the regular parent newsletter. She also established a telephone tree to remind parents of the date. Only 25 parents signed up and attended the workshop. Several parents called within the next week to express their regrets at missing the workshop and inquired if it would be scheduled at a future date. Unfortunately, room availability and this researcher's time schedule did not accommodate to a repeat workshop.

Scoring Procedures

The IARQ was scored by hand by the researcher, utilizing the directions designed by the developers of the instrument. The GPAs for both eighth and ninth grades were obtained from the school site after permission was obtained from the parents. Grade point averages were calculated by the researcher using scores only from the core areas of science, history, English and mathematics. This procedure was determined after the discovery that some students took different language or elective classes that were not equivalent across the subject population. However, all subjects did take these four core courses whether they were in public or private school. Grades for science, history, English and mathematics were operationally defined as follows:

A +	4.25
A	4.00
A-	3.75
B+	3.25
B	3.00
B-	2.75
C+	2.25
C	2.00
C-	1.75
D+	1.25
D	1.00

A database was set-up utilizing the Statpro II program for the Macintosh which performs data analysis and graphic presentations. Entries for each student included ID, pretest and posttest scores on the IARQ, and eighth grade and ninth grade GPAs. Subjects were also categorized as having a high GPA if they had scores above 3.75 and a low GPA with scores below 3.0. Students with IARQ scores above 25 were categorized as internal locus of control, and students with scores below 25 were categorized as external locus of control. The last data categories were added so that specific hypotheses

could be addressed in the data analysis. The research hypotheses were tested utilizing the correlated t-test program for questions related to pretest-posttest performance on the IARQ and GPAs, and analysis of variance programs were used to test the hypotheses related to gender, internal or external locus of control classification and high or low GPA.

The researcher-designed questionnaire was hand scored and interpreted by the researcher. Individual responses were tabulated for each question and categorized according to the focus of the question. The questions were designed to elicit the subjective perceptions of each subject in four areas: the areas of locus of control, learning styles awareness, parental conflict, and willingness to seek out help for learning difficulties.

CHAPTER FOUR

ANALYSIS OF DATA

Purpose of the Study

The purpose of this study was to determine the effects of the implementation of a comprehensive Learning Style Awareness Program on academic achievement in a ninth grade population. Relationships between locus of control and learning style awareness were examined. It was hypothesized that the program would improve academic performance during the ninth grade, and promote change in individual locus of control from external to internal, resulting in an increase in academic achievement as measured by grade point average (GPA). Additional qualitative data were collected regarding the effects of the program on student, teacher and parent behaviors.

Subject Participation

Fifty-seven students completed the Learning Style Profile (LSP), the hm Study Skills Program, the Intellectual Achievement Responsibility Questionnaire (IARQ), an open-ended questionnaire, viewed the "How Difficult Can This Be?"--F.A.T. (Frustration, Anxiety, Tension) City video, attended all workshops, and had GPAs available for data input. Nineteen subjects were dismissed from this study for absence, voluntary withdrawal, and/or insufficient grade point average data.

All students participated in the initial pretesting except one. This may have been due to their entrance into the upper school and their willingness to be compliant. At posttesting some students were more reluctant to participate and voluntarily withdrew from the study.

Forty teachers at the subject school, including the entire ninth grade faculty, completed the Learning Style Profile (LSP), viewed the F.A.T. City video, received a packet of current literature on the concept of learning style, received a copy of their students' LSP, and attended a learning style awareness workshop.

Twenty-five ninth grade parents attended an evening learning style awareness workshop, completed the Learning Style Profile, viewed the F.A.T. City video, and received a copy of their child's LSP. Low parent participation may have been affected by the fact that the subject school scheduled several monthly evening meetings for various activities and committees, and parents were reluctant to attend another meeting.

Results

The eleven research hypotheses for locus of control, academic achievement and learning style awareness were tested at the .05 level of significance. The results are as follows:

Locus of Control

Hypothesis 1.1

There will be no change in locus of control in a group of ninth grade students who receive a school year of learning style awareness training.

Means and standards deviations of pretraining and posttraining total scores on the Intellectual Achievement Responsibility Questionnaire (IARQ)

were computed. Differences between means were analyzed by use of a *t*-test for correlated samples. There was a significant increase from pretest to posttest, $t = 2.267$, $df = 57$, $p = .0272$. The pretraining mean on the IARQ was 23.897 and the posttraining mean was 25.069. Scores on the IARQ can reach a maximum of 34 which indicates high internal locus of control. The subjects' scores in this study ranged from 15-34. For the purposes of this study, the midpoint score of 25 and above was determined to be indicative of internal locus of control. Ninth-graders participating in the Learning Style Awareness Program moved in the direction of more internal locus of control which has been shown to result in higher academic achievement.

Hypothesis 1.2

There will be no change in locus of control scores between high-achieving and low-achieving ninth grade students who receive a school year of learning style awareness training.

Hypothesis 1.3

There will be no change in locus of control scores between male and female ninth grade students who receive a school year of learning style awareness training.

A two-factor analysis of variance was performed using the change in locus of control scores to investigate hypotheses 1.2 and 1.3. It was hypothesized that change in locus of control might be affected by level of academic performance as measured by GPA before the learning style awareness training was implemented. For the purpose of this study, high GPA was defined as 3.75 and above, and low GPA was defined as below 3.0. It was also hypothesized that locus of control might show a differential change by gender. The analysis of variance allowed the researcher also to check for

an interaction effect between achievement and gender. The factorial analysis of variance indicated no significant results.

Kopera-Fry (1991) demonstrated that students with a high internal locus of control score have higher GPAs than those with an external locus of control score. If the research is reliable, it would follow that students in the subject school would have high internal locus of control scores due to the fact that high academic achievement was a criterion for admission. The subject school only accepted students who were expecting to attend a four-year college or university program. Individuals who were unable academically to achieve the necessary grades and meet the admission requirements were denied admission. Therefore, the subject population at the subject school entered the school with average to above average GPAs.

In studying over 22,000 high school students in a national longitudinal study, Keith (1985) found that intellectual ability had the strongest impact on achievement but that locus of control also had meaningful influence. Therefore, intellectually capable students in this study would also score high on internality on the locus of control scale. This researcher found that the majority of subjects in this study scored higher on internality.

During the transition from eighth to ninth grade, students face a number of changes. Not only do they physically and emotionally experience developmental changes, they must also adapt to changes in the scheduling of classes and content of curriculum. In the eighth grade, students in the subject school routinely attend the same classes at the same times each day. Their curriculum was designed to increase critical abstract thinking and more independent study toward the end of the school year. Therefore, students were being prepared to transition into ninth grade where they would meet with new class scheduling and the expectation that they would be more

mature, independent thinkers. These students were keenly aware that parents and teachers had high expectations of academic achievement and success.

In the ninth grade, students are expected to do approximately three or more hours of independent homework each evening. Most students were able to accomplish this task without parental involvement or the need for outside tutoring; however, there was a significant number of students who had difficulty organizing and completing their homework. In personal interviews, those students who were academically struggling reported that they did not always turn in their homework assignments. They reported that they knew what was assigned, but when it came time to sit down and do the work, they did not know where to begin. They reported time management was not the problem, but it was difficult for them to understand how the assignment was to be done. Many students said that they would sit and stare at their books, appearing to be studying to their parents. In fact, many parents reported that their children were spending three hours or more each evening studying, and could not understand why they were not doing better academically.

In private discussions, parents revealed that they would organize study areas for their children with the expectation that this would lead to improved study habits; however, they designed these areas according to their own perceived personal study needs. If parents were successful sitting in a formal posture at a desk that was equipped with all the necessary study tools, they assumed their child would be successful in the same environment. Many students can sit in front of a noisy television or loud radio, turn out the noise, and successfully do their homework. Several parents, however, were unable to accept that posture and environment.

The literature revealed that females usually score higher on internality than males. Wisniewski (1990) administered a questionnaire to seventh grade students to assess causal attributions of loss when students fail in school, sports and social relationships. Females scored significantly higher in internal attributions than males who attributed their losses to external reasons.

The subject school adhered to a policy that each grade level would consist of an equal number of male and female students. This researcher found that gender differences were never an issue in any social, athletic or academic area. Males and females were afforded equal opportunities in all areas of study and academic growth.

Academic Achievement

Hypothesis 2.1

There will be no change in GPA in a group of ninth grade students at an independent school who receive a school year of learning style awareness training.

Means and standards deviations of pretraining and posttraining grade point averages (GPA) were calculated. Pretraining GPA was determined from fall and spring eighth grade performance in the academic subjects of English, mathematics, science and history. Posttraining scores were similarly calculated using fall and spring ninth grade performance in the same subject areas. Differences between means were analyzed by use of a *t*-test for correlated samples. There was no significant increase from pretest to posttest, $t = -.094$, $df = 56$, $p = .0863$. The pretraining mean for GPA was 3.201 and the posttraining GPA was 3.106. Several reasons may have affected the slight drop in the GPA. Stress of transitioning into the high school program, new

curriculum requirements, increased demands for critical, abstract thinking and more independent time on homework could be contributing factors.

Hypothesis 2.2

There will be no change in GPA between high-achieving and low-achieving ninth grade students who receive a school year of learning style awareness training.

Hypothesis 2.3

There will be no change in GPA between male and female ninth grade students who receive a school year of learning style awareness training.

Hypothesis 2.4

There will be no change in GPA among students with different locus of control classifications who receive a school year of learning style awareness training.

A three-way factor analysis of variance was performed using the change in grade point average to investigate hypotheses 2.2, 2.3 and 2.4. It was hypothesized that change in GPA might be affected by ability level as measured by GPA before the learning style awareness training was implemented. For the purpose of this study, high GPA was defined as 3.75 and above, and low GPA was defined as below 3.0. It was also hypothesized that GPA, as a measure of academic performance, might be different for male and female ninth graders. This researcher also tested the hypothesis that students with more internal locus of control would show higher academic achievement. Internal locus of control was awarded to subjects with pretraining IARQ scores of 25 or above and more external control scores being those below 25. The analysis of variance also allowed this researcher to check

for any interaction effects. The factor analysis of variance indicated no significant results.

The literature suggested that an increase in internal locus of control scores is directly correlated with an increase in grade point average. In this study, however, there was a significant increase in internal locus of control scores, yet grade point averages decreased from eighth to ninth grade. This decrease may have been influenced by the increased demands in ninth grade for critical abstract thinking and independent study skills. In addition to these academic demands, the students may have experienced difficulty adapting to the new class schedules, new teachers, new classrooms, and teacher changes in midyear. Therefore, the Learning Style Awareness Program may have effectively contributed to increasing internality and prevented greater decreases in GPAs.

Learning Style Awareness

Hypothesis 3.1

There will be no change in learning style awareness in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

Academic Behavior

Hypothesis 4.1

There will be no change in help-seeking behaviors in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

Hypothesis 4.2

There will be no change in responsibility-taking behaviors in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

Hypothesis 4.3

There will be no change in student reported parent-child conflict over homework in a group of ninth grade students at an independent school before and after they receive a school year of learning style awareness treatment.

A researcher-designed questionnaire was utilized to collect subjective data addressing hypotheses 3.1, 4.1, 4.2, and 4.3. These questions provided insight and information as to the effectiveness of the Learning Style Awareness Program on locus of control, identification of learning style, parent/child conflict, and problem-solving behaviors when learning problems occur. This questionnaire was attached to the IARQ. Subjects were instructed to answer all questions as honestly and truthfully as possible. In tallying the answers, it was noted that some subjects did not respond to all the questions; therefore, total scores are varied.

Analysis of Responses

Question 1: When you have difficulty with school work, what do you do?

(Hypothesis 4.1)

On the pretest, 43 subjects responded that they seek outside help from teachers, peers or parents when they do not understand the school work.

Fourteen subjects responded that they prefer to work on their homework alone, and if a problem, arises they do not ask for help.

Posttest scores revealed similar results. Forty-four students would seek out help and 13 subjects would not.

At pretesting, most students responded that they would seek out help immediately if they had a problem. At posttesting, more students responded that they needed to try "harder" first and then, if they had difficulties, would ask for help. They did not explain what "trying harder" meant.

It appeared that some students continued to refrain from asking for help even when they were failing. It was anticipated that by reframing the term, learning difficulties, into learning style preferences, students would increase their approach behaviors when asking for help. If students believed that preferences were not qualifying or judgmental, then they might be more willing to ask for assistance from teachers, parents or peers. However, if preferences included a quantitative value, then those students who were academically unsuccessful would continue to avoid seeking help.

Question 2: How do you learn best?

(Hypothesis 3.1)

This question was designed to assess students' understanding of their learning style preferences. It was anticipated they would be able accurately to describe their strengths and weaknesses after participating in the Learning Style Awareness Program. Criterion for this understanding were based on the 23 preferences of the Learning Style Profile.

On the pretest, 26 students explained that they learned best by describing either auditory or visual modes. Twenty-nine students did not

answer with statements that indicated knowledge of learning style preferences. Two students did not respond to this question.

Posttest scores revealed that 42 students were able to identify their individual learning style, using terminology consistent with the concepts in the LSP. Thirteen students did not answer with any statements that indicated a knowledge of their learning style according to the LSP. Two students did not answer this question.

This question did not adequately ask for specific information, relating to the LSP, that might have lead to more concise responses. It did reveal, however, an increase in subjects who could make some statement regarding a preference for their environmental, affective or physiological study needs.

This researcher took the initiative in contacting those students whom the school identified as failing. In private interviews, these students were very good at explaining how they processed information and describing their preferences. When this researcher used the terminology from the LSP and the workshop, these students were more willing to explore the methods and pathways they used to learn, and to share their embarrassment and fear when they failed.

The intention of this researcher was to encourage those students who were having academic difficulties to feel safe and comfortable enough to seek out help from teachers, parents, peers and professionals to address their learning needs. It was anticipated that, by providing a simple language for them to describe their problems, they would be more willing to ask for help. There still remained, however, many students who were reluctant to seek out help unless someone intervened.

Question 3: Do you argue with your parents over homework? If you do, what is the argument about?

(Hypothesis 4.3)

On the pretest, 32 subjects stated they did not argue with their parents over homework. Twenty-four subjects stated they did argue with their parents over homework. One student did not respond to this question. Posttest scores revealed that 26 subjects reported no arguing and 31 subjects reported arguing.

Most subjects reported that arguments with parents centered on the amount of time subjects spent on homework. Parents were advised by the administration that, on average, students should spend three hours per night on homework. If students are not academically achieving, the first prescription is to spend more time on homework. It was assumed that quantity would insure quality.

Data analysis on the posttest revealed that there was an increase in parent-child conflict. There may be several explanations for this result. Only 25 parents attended the Learning Style Awareness Workshop which was designed to increase parental awareness of the different ways to learn. This researcher anticipated that a decrease in parent/child conflict would result when parents were taught the concept of learning style difference. Parents would be able to guide and support their children in avenues that would meet their individual learning strengths, and refrain from imposing unrealistic expectations on performance. The absence of over 50% of the parent population from the workshop reduced the dissemination of this information. Therefore, parent/child conflict over homework, study habits, and achievement would probably continue.

One developmental task of adolescence is separating and individuating from parents. This period of transition is beset with parent/child conflict as the child tries to demonstrate his or her independence and the parents continue to assert their parental authority over the child. Therefore, normal developmental issues may explain the increase in parent/child conflict.

Another explanation for the increase in conflict may be due to parental expectations that grades and GPAs were now important in the college application process. When ninth grade students begin to fail, parents put more pressure on their children to work harder as the solution to the problem. This is translated into the children's spending more time on homework. Unfortunately, telling students to work harder and longer is not the only answer to the problem. This researcher observed that teachers, parents and students described academic failure as being directly attributable to not working hard enough. Learning style preferences were not considered as contributing factors in the failing process.

When students are unable to meet the curriculum demands in the ninth grade and begin to fail, teachers and parents are quick to place the burden of responsibility for their failures on them. This is a time when many students become increasingly frustrated with the expectations of both parents and teachers. However, the problem may only be a matter of difference between learning and teaching style. Increased conflict between students and parents, therefore, may be a direct result of the misperception that their failures are willful acts.

Question 4: When you get a grade you don't like, how do you explain it?

(Hypothesis 4.2)

This question was designed to elicit information on locus of control and self responsibility for academic performance. On the pretest, 39 students responded with statements consistent with an internal locus of control; that is, they appeared to be taking responsibility for their successes and/or failures. Eight students reported that "the teacher did not teach well," "the teacher hates me," "the teacher made a miscalculation," or "the test was too hard," thus demonstrating an external locus of control. Ownership of failure was again defined by the students as "not trying hard enough." Only a few attributed poor grades to their personal inability to understand the material. There were six students who stated they had no idea why they did not receive better grades. Four students did not respond to this question.

On the posttest, 44 students reported statements consistent with an internal locus of control, again describing their difficulties as not studying hard enough. Five students made statements consistent with an external locus of control and six students again did not have an explanation as to the problems. One student did not respond to this question.

The information received from the open-ended questionnaire provided new insight into student perceptions of academic failure; however, students continued to attribute poor grades to their lack of working harder. At posttesting, even though students had a better working knowledge of their learning style preferences, they did not attribute their grades to the differences in learning styles.

In reevaluating the strength of this questionnaire, it appeared that using an open-ended design was not especially effective with this age group. Some students did not answer the questions and some provided silly comments. However, the students' responses did provide information that

could be used to redesign it in a multiple-choice format allowing them to select answers from a list of items.

In addition to the results obtained on the eleven research hypotheses, information and impressions were collected from the delivery of the hm Study Skills Program, the F.A.T. City video, and the student, parent and teacher workshops.

hm Study Skills Program

The hm Study Skills Program was intended to complement the Learning Style Awareness Program by providing study skills instruction. Areas covered in this program included exercises on active listening, note taking, study habits, preparing for tests, reading textbooks, solving problems, paragraph organization, taking tests, vocabulary, and use of time. Due to scheduling issues, the subject school administration determined that the two history teachers would incorporate this program into their classes. It was expected that this would require approximately 15 minutes each week for 12 weeks. Both teachers expressed enthusiasm about this program.

During the time the hm Study Skills Program was administered, the teachers reported that several students lost or misplaced their workbooks. It was their opinion that the students were not interested in attending or completing another assignment that took time away from those activities that affected their GPAs. They also reported that, in their opinion, the hm Study Skills Program, even though it was designed for eighth to tenth graders, was intellectually and academically beneath the students in the subject school. It appeared that those subjects who attended the subject school in eighth grade were better prepared for independent study; therefore, the study skills program was of little value.

Another explanation for the lack of student enthusiasm toward the hm Study Skills Program may have been that the two history teachers were new to the school. They were both enthusiastic about implementing the program and were willing to do whatever was asked of them. However, they may have been overwhelmed with teaching at a new school and did not deliver the program with confidence and an expectation that it would be a valuable exercise for the student.

Teachers and parents sometimes assume that children are endowed with an innate ability to learn. Some teachers presume that instructional style has little bearing on academic achievement. As previously noted in Chapter Two, there is a direct correlation between teacher instructional style and student learning style (Guild, 1989). When there is a complementary match between the two, the student learns. When there is a mismatch, the student has difficulty learning. It is at this time that teachers must take into consideration their students' learning style strengths. Unfortunately, many teachers are unable to accommodate their needs due to their own inability to change their teaching style.

In the summer, before the start of this study, the principal specifically discussed with the faculty that classroom instruction was to assume a "coach" role as opposed to a "front of the class" lecture format. Many teachers were very anxious about changing their style of teaching and reported to the principal that they did not know what to do. Unfortunately, the subject school did not have funding to provide additional instruction to meet that need. However, those teachers were most interested in the teacher workshop where they took their own LSP and viewed the F.A.T City video.

"How Difficult Can This Be?"--F.A.T. (Frustration, Anxiety, Tension)
City Videotape

This video was presented to the students, faculty and parents during separate workshops. It was selected by this researcher over other similar videos for its powerful impact and interactive quality on the subject of learning problems. The title, "How Difficult Can This Be?" was intended to create an opening for students to express the frustration, tension and/or anxiety that they experience each day in a classroom where they have difficulty learning. This researcher took a risk by introducing a video that used the term *learning disability* to explain academic problems, but it was felt that this was a term all students, teachers and parents had heard before. It was also known by this researcher, from past interviews with teachers and parents, that when students experience academic difficulties, they were quickly labeled *learning disabled*. Students were then categorized, labeled and referred to throughout their academic career as being disabled. In an environment that expects its students to be academic achievers, the pressure to achieve is enormous. If a student is struggling with the work, labeling them as *learning disabled* is a fate worse than death. Using negative terms to label adolescents can drive them into hiding and compensatory behaviors that interfere with successful learning and achievement, especially in a college preparatory environment where expectations are high.

All ninth graders watched this video during their science classes. Approximately 10 students were in attendance during each viewing, along with this researcher and the ninth grade science teacher. The purpose of presenting this particular video was to increase awareness of learning style differences and provide a forum to discuss the concept and terminology of learning style, and the implications of the term *learning disabilities*.

Immediately following the video presentation, a class discussion was scheduled. Students were asked to make comments on what they saw, and how it might apply to themselves, their peers or their siblings. Most students were eager to respond with a personal story about someone they knew who had learning disabilities. They were reluctant to discuss their own learning experiences. They did, however, talk about their frustration with parents and teachers. They said school was very difficult and they felt that parents and teachers were insensitive to their anxiety over academic performance. The students were adamant that their parents and their teachers should see this video as they thought it would be an excellent tool for creating awareness and understanding of their struggles.

Fifty percent of the total population of subjects, who had already completed their Learning Style Profile, attended a 45 minute workshop during class time to explain their individual profile results before viewing the F.A.T City video. The remaining students attended the workshop after the video. The responses to the workshops will be discussed next.

Student Learning Style Workshop

The workshop to discuss the implications of the LSP scores was scheduled during the Health and Fitness classes. Again, approximately 10 to 15 students were in attendance each time. During the first workshop which included approximately 50% of the subjects, the students had not seen the video. They were given a printout of their individual profile scores, a handout explaining each score on the profile, and a presentation on the interpretation of the scores. The students were very interested in the meaning of the scores. Some were concerned that the scores were an indication of academic achievement but they were assured that this was only

a tool they could use to understand how they process information. They were also told their teachers and parents would be receiving a copy of their profiles. It was anticipated that the LSP results would increase communication between students, parents and teachers by providing a concrete piece of information on which to base their discussions. Students would have a vocabulary to use when they needed to talk with teachers and parents about their academic performance. It was expected that students would increase their approach behaviors, as well as take responsibility for making contact with teachers when they were having difficulties.

Many students, who are in desperate need of additional after school time and tutoring from their classroom teachers, will not seek out help due to embarrassment. They do not want their peers to see them asking for help. Occasionally, when students do go after school to see their teachers for help, the information or instruction they receive continues to confuse and frustrate them. Some teachers continue to deliver instruction in a manner or style that students still cannot grasp. When this occurs, students will refrain from asking for assistance because their original needs are not met.

The second group of students to attend the LSP workshop had the benefit of viewing the F.A.T. City video beforehand. During this class, students were more interactive, asking many questions, and risked telling their classmates that they were academically struggling. Many students were able to give concrete examples of how they learn using the terminology from the LSP. It appeared that when they were able to grasp the concept of their individual style, they were more eager to participate in the classroom discussion.

Response to this video was different for each group. The first group quietly listened to the information regarding their LSP scores while the

second group participated by asking questions and sharing results. They also referenced the video and the examples used by the moderator to help explain how they processed information. Comments from the students indicated that presenting the video before the workshop rather than after, increased their awareness of the concept of learning style differences.

Teacher Learning Style Workshop

Approximately forty upper school teachers took the Learning Style Profile during a mandatory teacher workshop. The principal mandated that all teachers attend the day-long workshop to introduce the Learning Style Profile and reinforce the concept of learning style differences. The prior year, many of the upper school staff members had attended a half-day workshop introducing the concept of learning style.

The workshop was delayed one hour due to the late arrival of the first speaker. Starting behind schedule, the teachers were given a short talk on the concept of learning style, followed by the administration of the Learning Style Profile. When everyone completed the inventory, the F.A.T. City video was shown. In keeping with a tight time schedule, the principal determined that the video presentation would have to be cut short for lunch; therefore, the teachers did not receive the full impact of the video. During the lunch hour, the LSPs were machine scored producing an individual profile for each teacher. When the workshop reconvened, the teachers were presented their individual profiles along with a packet of current literature on learning styles. The teachers expressed interest in receiving the results of the LSP and were willing to share them with their colleagues. An informal poll revealed that 70% of the teachers scored in the visual range as their primary response to new information, but they reported that they prefer to teach in a lecture or

auditory format. The teachers were quite surprised at this revelation; however, teachers were reluctant to discuss this difference any further. This may be due to the absence of information and instructional materials to accommodate these differences.

The afternoon workshop included presentations by a clinical educational psychologist and an educational therapist. Both presenters had previous experience testing and tutoring students from the subject school. The psychologist discussed the implications and benefits of comprehensive testing for students who have significant learning problems. The educational therapist presented examples of the various strategies she uses to help students who have learning difficulties. The two speakers, however, had to reduce their presentations significantly due to the late arrival of the first speaker. More time was needed fully to explain the concept of learning and teaching style differences. The presenters voiced the opinion that they were disappointed that their original allotted time was reduced without advance notice. They explained it was difficult for them to eliminate pertinent information from their presentations at the last minute since this may have affected the response of the teachers to their presentations.

Responses from the teachers were mixed. The older, established teachers appeared bored with the video presentation but were attentive when they received the results of their individual profiles. The younger, most recently hired teachers were very interested in the concept of learning style and how to implement this knowledge within their classrooms. They requested more workshop presentations on teaching methods and style, but unfortunately, funding for such workshops was not available.

Parent Learning Style Workshop

The ninth grade parents' workshop was similar in design to the teachers' workshop with the exception of the presentations by the clinical psychologist and educational therapist who were excluded due to time limitations. Only 25 parents from the entire ninth grade class attended the evening meeting.

The parents were initially introduced to the concept of learning style with a short presentation by this researcher, followed by administration of the Learning Style Profile. Most parents were able to complete it in approximately 60 minutes. They were then shown the F.A.T. City video while their profiles were scored. Upon conclusion of the video, parents received their individual profile as well as their child's profile. They were very interested in the interpretation and comparison of the scores. This stimulated many questions regarding the implications and applications of learning style. Parents wanted to know how this information was being utilized in the classroom and how they could help their child at home.

This workshop perhaps provided the most effective change in the awareness of learning style differences. Parents were very interested in the interpretation and application of this concept. For those parents whose children had previously been assessed as above average, and were presently unsuccessful, this was the first time someone had provided an explanation of the problem. This concept not only explained the progress or lack of progress of students, but it enabled parents to become more supportive and understanding of their child's academic experience. Unfortunately, only 25 parents were able to attend. Those parents who did not attend called later to inquire if it would be again presented. Due to time restraints and scheduling

problems with this researcher and space availability, this workshop was not repeated.

During the implementation of this project, teachers, parents and the principal were most interested in ideas and strategies to help not only those students having problems, but providing support and guidance to all students in the upper school. When parents were referred to this researcher for help, they expressed tremendous gratitude for taking an interest in their child. Personal interviews with both parents and child seemed to provide direction and hope that the academic and family problems were treatable. Teachers would often contact this researcher to discuss concerns they had with students in their classes. Their concerns included what to do about academic decline, how to handle disruptive behaviors, and personal crisis counseling. These contacts usually resulted in the teacher's making a student or parent referral to this researcher to evaluate and assess the problem. Teachers reported that they appreciated having a resource on campus where they could consult with and/or refer students.

The principal was consulted often by this researcher regarding the impact of the program, not only on the students, but also on their parents. Individualized attention and out-reach support to students and their families resulted in providing the necessary interventions to those students who were at risk for dismissal from the school. Communication among the parents resulted in increased referrals to this researcher to assess their child for learning problems. The principal supported and encouraged this researcher to attend parent-teacher conferences to provide information on learning styles and direction for treatment. Students responded positively to the identification of their learning problems and the presentation of a treatment plan to help them with their academic problems. Therefore, while the

Learning Style Awareness Program did not result in an increase in grade point average, it did provide teachers, parents and students with a new way to explain academic successes and/or failures by reframing a *learning disability* as a learning style.

The principal reported to this researcher that, in his estimation, the Learning Style Awareness Program was a success. He requested that the program be reinstated in the next school year to the entire upper school student population and the new faculty members. Additional information and materials will be developed to support the workshops, as well as hiring outside experts to train the faculty on new teaching strategies. The development of a more suitable study skills program and the procurement of improved lesson plans applicable to the learning style philosophy will also be implemented.

CHAPTER FIVE

Summary, Observations and Suggestions

Introduction

Why do some bright students in independent schools continue to fail academically when the quality of the curriculum is designed to educate talented students? Not all children are candidates for independent school placement; however, after careful screening for admission, only the best and brightest are accepted, with the expectation that they will be academically successful and go on to higher education.

Most students in independent schools are capable of accomplishing the curriculum requirements without any difficulties. This includes average students who work hard and make decent grades, and above average students who work hard and make superior grades. There are also students who, no matter what their intellectual capacities, work hard and do not make passing grades. This population, after a series of academic failures, is dismissed from school.

The impetus for this study began when the principal of the subject school determined that the upper school was not meeting the academic needs of many bright students. Under his leadership, an extensive year-long Learning Style Awareness Program was designed to help students identify their individual learning styles, provide parents with new tools to support their children with homework, and support for teachers to respond to the diversity of learning styles in their classrooms. A new approach was created

whereby all students would be educated according to their individual learning styles. All ninth grade parents and teachers were consulted by the principal to solicit ways to implement this program. Together, they determined that educating students according to their individual learning styles would not only address the problems of students currently academically unsuccessful, but also provide a tool for later use in college.

To begin this project, the principal purchased the NASSP Learning Style Profile, the necessary scoring equipment, a study skills program, a videotape, and enlisted the services of this researcher to implement this program. During the next school year, with the support of the parents, faculty and administration, the Learning Style Awareness Program was implemented in the entire ninth grade population.

Eleven hypotheses were tested to assess the effectiveness of this Learning Style Awareness Program. Both quantitative and qualitative methodologies were used to analyze data from the Intellectual Achievement Responsibility Questionnaire, GPA scores, and a researcher-designed questionnaire.

Population

The entire ninth grade class attending an independent school, their parents, and teachers were selected for this study. The total number of students who participated in this study was 57. The limitations of delivering an intervention to the entire ninth grade class did not provide for a solid quantitative research design. The principal wanted all ninth grade students to take the LSP; therefore, two equivalent groups could not be established. Observing a ninth grade population was desirable since ninth grade students experienced more academic difficulties than those in the tenth through

twelfth grades. The transition from eighth to ninth grade represented a major environmental, psychological, physiological and general change of atmosphere.

After obtaining parent permission, the students made the final decision regarding participation in this study. Confidentiality and anonymity, according to the mandates of the Protection of Human Subjects Committee of the University of San Diego requirements, were maintained throughout this research study. There is recognition that the student population may have been skewed in terms of background, financial status, intellectual abilities, family involvement, and motivation to succeed.

Site Selection

This study took place at an independent college preparatory school in a large California city. This site was chosen because the school principal was eager to design and implement a new program that would address the learning needs of the students, as well as demonstrate to its consumers that the subject school was providing a unique quality education to its students. No other independent schools in this city were involved in assessing their students' learning styles.

Instrumentation

Three instruments were administered in this study to gather the necessary data to test the hypotheses.

The first was the Intellectual Achievement Responsibility Questionnaire (IARQ) which measured the extent to which the student felt in control of the school environment or whether the student felt controlled by external forces.

The second instrument used for data collection was an open-ended questionnaire designed by this researcher to assess students' willingness to ask for help, to report self-perceptions of learning style, to identify conflict at home over homework, and to assess perceptions of causal factors in academic performance.

The third instrument was the National Association of Secondary School Principals Learning Style Profile (LSP). This was a multiple choice inventory consisting of 126 items designed to assess the cognitive, affective and environmental factors of learning.

Classroom Materials

The "How Difficult Can This Be?"--F.A.T. (Frustration, Anxiety, Tension) City video was a 70 minute presentation providing information on learning disabilities and the emotional consequences of academic struggling and failure.

The hm Study Skills Program was designed to increase study skills by delivering exercises that were coordinated with the curriculum and delivered during class time. This program was selected due to its complementary relationship with the LSP.

Administering the Instruments and Interventions

The instruments and interventions were administered during the school year 1994-1995. Completed materials were collected, scored and coded by this researcher. In addition, the workshops and discussions for the student, parent and teacher groups were also administered by this researcher during the school year.

Fifty-seven students, out of 76 ninth grade class members, were administered the LSP, the IARQ, and the researcher-designed questionnaire at the beginning of the school year. Treatment interventions included classroom workshops on the results of the LSP, viewing the F.A.T. City video, and delivery of the hm Study Skills Program.

Forty teachers, including the entire ninth grade faculty, attended a scheduled workshop on learning style awareness, viewed the F.A.T. City video, were administered the LSP, and received their scored profiles along with those of their students. In addition, an educational psychologist and educational therapist presented a lecture on testing, assessment and treatment strategies, to use with students who are experiencing academic difficulties.

All parents of the ninth grade students were invited to attend an evening workshop similar to the teacher workshop. Twenty-five parents attended and completed the LSP, viewed the video and received a copy of their child's LSP.

Review of the Literature

In order to prepare adequately for the interventions to occur, an in-depth literature review was undertaken. The Educational Resources Information Center (ERIC) and *Psychology Abstracts* computer searches were performed using the descriptors: learning style, locus of control, independent schools, private schools, cognitive learning, cognitive style, learning style counseling, teaching methods, and learning style assessment and profile.

The literature revealed that the concept of learning style preference was not a new idea. Historically, the traditional understanding of intelligence assumed that all people learned in the same manner. Cognitive and educational psychologists extensively studied how people learn, then

designed school curricula to accommodate these biological-neurological functions. Testing and assessment instruments were then created to measure individual achievement and ability.

The literature also revealed there was a problem with a clear-cut definition of learning style. Several definitions were examined in an attempt to define how the concept of learning style related to students with learning problems.

To respond to this problem, the National Association of Secondary School Principals (NASSP) created a task force to investigate and define the concept of learning style. This definition had to be simply and clearly set forth so that students would not be timid about a new approach to learning. It also had to be clearly outlined so that teachers did not get the impression that they would have to re-learn how to teach, or, that they would have to teach each student individually, or even that they would have to spend a great deal of time with students who had learning problems. This definition also had to have a clear meaning for administrators, who did not want to envision more teaching staff or additional teaching time.

Parents had to understand clearly that their children could meet expectations if they would join with the teachers in learning that individuals have different approaches to learning and that each person has control over his or her achievements.

NASSP then developed the Learning Style Profile (LSP) to assess students for their learning strengths and weaknesses with the hope that this information would enhance academic achievement and provide a basis for curriculum design. If students, teachers and parents understood the individual strengths and weaknesses of the students, then they would be in a

better position to deliver information to students' strengths instead of their weaknesses.

Educational researchers also studied learning style differences and student-teacher learning style matches for more than a decade. They found that when teachers and students matched in learning style, students were more academically successful.

The literature review then refocused on the concept of locus of control and academic achievement. To understand these concepts fully, it was necessary to review the literature from educational, psychological, and sociological references.

The concept of locus of control was developed by James Rotter. He recognized that a given behavior depended on an expectancy. The behavior would then lead to a reinforcement that had personal value. On the basis of early experiences, an individual comes to believe that reinforcements can be controlled by either personal actions or external forces. Individuals adopt one of these two basic beliefs.

In 1965, Vaughn Crandall developed the Intellectual Achievement Responsibility Questionnaire (IARQ), a tool designed for use in education that measured students' beliefs in their control over and responsibility for academic success and failure. Studies were found that demonstrated a direct relationship between locus of control and grade point averages (Tomlinson, 1987). Researchers who studied this relationship found that students who had an internal locus of control, that is, accepted personal responsibility for their successes and failures, had higher GPAs. Those students who attributed their successes and failures to others had an external locus of control and lower GPAs.

The early research of both Rotter and Crandall contributed to the understanding of the problem presented in the opening section of this dissertation--why did students, believed to be intelligent, not do as well as those responsible felt they should?

Therefore, a variety of literature, such as *Dissertation Abstracts*, was examined to ascertain if anyone else had answered or responded to this question. Numerous articles and studies which addressed the concept of learning style were found, but none that discussed the implementation or creation of a comprehensive Learning Style Awareness Program.

Consultations with professors at public and other private institutions, who had firsthand knowledge of the current learning style instruments, computer scoring, and a historical overview of the development of the NASSP Learning Style Profile, helped lay the foundations of how to approach this study. There was a conspicuous absence of any research on the utilization of these instruments and profiles on curriculum development or application.

The spiral began, therefore, a decade earlier, as each person who wrote about student learning problems built upon other studies. Studies spanned the range from looking at Attention Deficit Disorders in children and adults, learning disabilities, self-esteem issues, behavior management problems, depression, oppositional behaviors, to mental disorders as the causes of academic failure.

The significant benefit from the literature was the indication that there is a direct relationship between a student's sense of personal control and learning outcomes. An internal locus of control produces more positive attitudes, thus leading to a sense of mastery and competence. If students are taught according to their learning style strengths, they will succeed.

Data Analysis

Eleven hypotheses were formulated and tested with respect to the effects of the Learning Style Awareness Program on locus of control, academic achievement, and learning style awareness. Achievement was measured from GPAs which were calculated using scores only from the core areas of science, history, English and mathematics for eighth and ninth grade. Responses from the open-ended questionnaire were collected, calculated and interpreted. The questions were designed to elicit the subjective perceptions of each subject in four areas: the areas of locus of control, learning style awareness, parental conflict, and willingness to seek out help for learning difficulties. The IARQ produced individual locus of control scores on a continuum from internal to external.

Results

The results of the Learning Style Awareness Program on locus of control, academic achievement, and learning style awareness are as follows:

Locus of Control

While a significant increase in internal locus of control scores resulted from pretesting to posttesting, grade point averages dropped slightly. Most students at the subject school were successful academic achievers and scored in the internal range at pretesting. From pretest to posttest, 33 students moved toward increased internality, 20 students moved toward externality, and four students had no change. The move toward externality averaged one point, with the exception of one student who dropped nine points. This student was experiencing excessive personal problems at home. Therefore, it can be assumed that the Learning Style Awareness Program was effective in increasing internal locus of control scores.

The data also revealed no change between male and female locus of control scores. This may be a result of the nondiscrimination practices at the subject school where there are no classrooms, clubs, or sports programs that exclude students by gender.

Academic Achievement

The mean difference in grade point averages between pretesting and posttesting dropped from 3.201 to 3.106. Ninth grade is a difficult transition year when students are exposed to increased demands for abstract thinking and independent study skills. Many students are able to accomplish these tasks with ease while others struggle with organizing their school work. This may be due to unrealistic expectations that students accepted into the subject school, based on past performances, are fully capable of accomplishing the curriculum requirements upon entering ninth grade.

There are also some students who are developmentally delayed in the area of cognitive abstract-thinking skills. This may not be an abnormal developmental disability but only a maturational issue that time and additional resources could alleviate. In the interim, these students should not be labeled as *learning disabled*. Redefining this problem as a learning style preference allows students to continue with normal ego development, aids teachers in designing appropriate learning tasks, allows parents an alternative explanation for their child's failures, and allows the school to retain those students in the classroom. The above factors may have contributed to a decrease in GPAs and masked any positive effects of the Learning Style Awareness Program. At the same time, it is possible that the introduction of the Learning Style Awareness Program may have counterbalanced these issues to stabilize the GPAs from further decline.

Learning Style Awareness

While GPAs decreased from pretest to posttest, locus of control scores increased in internality. At the end of the Learning Style Awareness Program, the data demonstrated an increase in the number of students who could identify their individual learning style. Students were able to describe briefly some aspect of their cognitive or environmental learning preferences despite the fact that the questionnaire was open-ended and students had to recall specific terminology from their memory. Answers were usually in short-sentence or one-word format, using descriptors such as, auditory, visual, tactile, small group, cool room, dim lighting, etc., consistent with terminology from the LSP. This may have contributed to the increase in internal locus of control scores by providing students with concrete ideas or descriptions which increased their sense of control over their learning processes.

Not all subjects increased their awareness of learning style. This may indicate that some students did not retain or understand the information from the LSP workshop. In the future, exposing students to role-playing activities, more classroom discussion on learning style, teaching study skills techniques more in line with the ability of the students, and delivering instruction in a diversified format, would reinforce the initial introduction of the LSP throughout the school year.

Observations

In addition to the data received from the IARQ and questionnaire pertaining to the hypotheses, the following observations were collected:

1. Parents favored the new terminology *learning style preference* to define their child's learning difficulties. During the parent workshop, many

participants expressed interest and relief that their child's unsuccessful academic performance could be explained in a faultless manner that preserved their child's academic image, or their image of their child. Parents were able to reframe the concept of learning disabilities to learning style differences. At the same time, they were able to appreciate the difference between their own learning style and their child's. Some parents expressed sadness and remorse that they had unduly imposed unrealistic expectations on their child for academic achievement.

Throughout the school year, many parents contacted this researcher to discuss their child's academic difficulties. By redefining the problem from a learning style perspective, these parents were in a better position to provide more effective support at home. At the same time, they were able to approach the teachers with a concept and terminology on which to discuss their child's performance and progress.

Low parent attendance at the evening workshop, however, resulted in the fact that not all parents received information on the concept of learning style and information on their child's profile. Low turnout rates were attributed, by the Parents' Association president, to an inordinate number of parent evening meetings and to the reluctance of parents to attend another meeting. Approximately 75% of those parents in attendance had children who were struggling with their academics. This may be an indication that parents are seeking explanations for their child's current academic difficulties, and that the subject school is not adequately addressing the academic problems of their students.

2. Students preferred the new terminology because it was nonthreatening to their self-esteem and increased their willingness to discuss their academic struggles. The most effective results came when struggling

students were individually contacted by this researcher. These students were identified by a quarterly eligibility list distributed to all faculty members. While this was not an intended intervention for this study, this researcher found that private conversations with these students yielded more information. Using the LSP as a communication tool, students were better able to analyze their learning style, and expressed great relief when they were simply told they were bright students but needed to learn in a different way. Students requested that this researcher initiate contact with their parents to discuss their learning problems and to help them find the necessary resources to improve their academic performance.

3. The diagnosis of *learning disabled* in a public school system describes a child who cannot complete the standardized requirements for each grade level. Academic expectations in an independent school, however, are different. In the subject school, the term *learning disability* was used to describe bright students who could not accomplish accelerated grade level tasks. At the conclusion of this study, these students were no longer referred to as *learning disabled* by their parents, teachers, peers, and most importantly, by themselves. The principal was also very supportive of using learning style terminology when discussing learning problems with teachers, students and parents. This helped to reinforce, particularly among the faculty, the focus and intention of this study.

4. The most difficult group to work with was the teachers. The older, well-established teachers were less willing to accommodate learning style differences in the classroom than the newer teachers. To the more experienced teachers, changing the teaching methodologies and strategies, to which they had long been accustomed, was hardly appealing. All teachers at the subject school were required to participate in leading extracurricular

activities after school. They were overworked and underpaid according to public school standards; however, they stayed at the subject school because they believed in private education and were dedicated to that cause.

The subject school was not required to hire teachers with teaching credentials; therefore, many teachers lacked formal instruction in teaching methods and/or strategies. This may have contributed to the anxiety and confusion on the part of some faculty members who did not know how to change their teaching strategies to accommodate various learning styles. Several teachers contacted the principal for direction on how to implement the new concept in their classrooms. The principal, however, did not provide the necessary training and classroom material to accomplish this, and, the subject school did not allocate any funding to meet these needs.

The principal neglected to take a leadership role in implementing the desired changes by not meeting with the faculty to assess their level of change or commitment to the process. In addition, he did not demonstrate any initiative in procuring training programs for the faculty to enhance their teaching strategies or lesson planning around the new concept. This researcher, while consulted often by the teachers for advice on how to handle various student emotional and academic problems, was not a resource for helping teachers design specific interventions for the classroom. Introducing the concept of learning style to the faculty, without specific plans and ideas on how to implement it, contributed to the confusion first begun when the principal recommended that teachers alter their teaching styles.

While the principal expressed verbal support of the Learning Style Awareness Program, he did not play an active role with the faculty after having directed them to adopt the concept of learning style. Teachers had to find their own ways to implement the program.

5. The F.A.T. City video, while designed to be viewed by parents, teachers and resource workers, was most effective in providing a forum for students to view learning from different perspectives. This video was an excellent tool to stimulate thinking in a direction away from the concept of *learning disabilities* to explain academic problems. Those students who benefited from seeing the F.A.T. City video before attending the students' learning style workshop were better able to identify their individual style of processing than those who viewed the video after the workshop. It appeared that the combination of the video and this researcher's reframing of academic problems as learning style differences allowed the students to view academic struggles in face-saving terms.

6. The LSP was helpful in providing an initial introduction to the concept of learning style. Students, teachers and parents were eager to take the test and interpret their individual results. The computerized scoring package was easy to use, and reading the profile printout was simple. The development of material to explain the implications of the scores, however, was greatly needed. This researcher created a handout that not only explained the LSP scores but also provided information on the concept of learning style. Articles from teachers and administrators who discussed the value of the concept were selected further to complement the workshop program.

7. During the school year the principal routinely scheduled parent-teacher conferences to discuss the progress of students who were at risk for failure and dismissal from the school. Under his leadership and support, the teachers, parents, and counselor would assess the problem and make recommendations to help the student. These recommendations usually included tutoring, counseling, more afterschool teacher contact, and closer

parental supervision with completion of homework assignments. During these meetings, teachers would ask for specific ideas or plans on how to teach these students according to their learning style, but no direction or practical suggestions were provided.

8. During the period that this study took place, one challenge lay in the fact that at least nine unexpected school changes, serious enough to affect the project, occurred within the school year.

a. An interim headmaster was hired until a search committee could recommend a permanent replacement. This did not interfere with this study as the position of upper school principal remained constant and school policy did not change.

b. The admissions director was replaced with an experienced lower school administrator who did not institute any major changes in the position. Selection and enrollment requirements remained constant.

c. The school anticipated an increase in enrollment and built several new classrooms. Construction was completed over the summer and students did not experience any disruptions.

d. An on-site learning center, experiencing financial difficulties, was disbanded due to the fact that many students in need of tutoring refused to attend. This program was financially independent of the school but was housed on the campus. The upper school students in need of academic support complained that the director did not deliver effective service. In addition, they reported that it was embarrassing to walk into the learning center in front of their peers. The school responded by hiring a new learning specialist who created a similar

learning center in the same building. Upper school students continued to avoid the learning center and opted for outside tutoring.

e. The hiring of nine new teachers may have affected the climate of the campus. While students transitioning into the upper school would be meeting all the teachers for the first time, they did not know which teachers were new. There may have been some tension, however, as new teachers were settling into their positions. However, one problem occurred when a ninth grade teacher was absent from the classroom for 60% of the school year and various substitute teachers were called in. Parents and students complained that the inconsistency of instruction in that classroom contributed to students' being confused and frustrated. This may have affected overall classroom grades. In addition, during midyear, another teacher resigned unexpectedly and a substitute teacher was hired.

f. One very important change occurred during the year of this study. The subject school decided to change class scheduling to resemble college class scheduling. This was very confusing to teachers and students as some of their classes overlapped. Parents were also very frustrated with the change as they perceived that their children would be having too much free time between classes and might get into trouble. Independent study areas were created so that students could use their free time to complete homework or work with peers on special projects. Students did not appear disturbed by the changes and the school did not observe any negative behaviors from the students. In fact, the introduction of the Learning Style Awareness Program may have stabilized this group in what might have been an academic disruption.

9. The loss of subjects (19) during this study occurred for several reasons. Apart from normal attrition rates within any school population, a larger than expected number of students at posttesting did not participate in the study. This may be due to the fact that the classroom teacher administered the posttest, and that may have posed a threat to the student. Teacher noninvolvement in this project may also have negatively influenced subject participation in the posttest.

10. The hm Study Skills Program was not well received by the students. The intention of this program was to provide students with better study skills tips; however, the teachers reported that many students lost or misplaced their workbooks, leading one to believe that the program held little value for many students. The classroom teachers who delivered this program also believed that most students already possessed the skills being taught in the exercises.

The hypotheses for this study suggested that teachers could better serve the academic diversities of their students if they would identify individual learning style strengths and weaknesses, and then organize more efficient and effective instruction to meet those needs. The ideal assumption, held by this researcher, was that teachers in independent schools would be willing to accommodate themselves to benefit different learning styles for students--that the initiative and desire were there to carry out such a plan.

Suggestions for Implementing the Learning Style Awareness Program

This research project was undertaken in order to help not only bright and talented students, but also to assist all students to receive a quality education according to their abilities. Often the adults who are in control of the education process become frustrated when students are not academically

achieving. As a result, students respond by avoiding learning tasks that do not accommodate their learning strengths.

The subject school has decided to integrate the Learning Style Awareness Program on a permanent basis. In addition to the above interventions, a computer database will be created to provide quick access to student progress, thus enabling teachers, parents and students to identify and analyze trends on which to deliver academic aid. While this study was an attempt to provide a comprehensive approach to the concept of learning style awareness, several suggestions to increase the effectiveness of this program will follow.

The term *learning style preference* has more positive attributes, when describing how children learn, than negative labels such as *learning disabled* or *learning handicapped*. Students can be very sensitive to how parents and teachers describe academic performance, especially academic failures. New terminology can create an environment where there are no negative disabilities, just positive styles. Helping teachers, parents and administrators reframe learning problems into more positive terms can open doors for dialogue with anguished students.

At the same time, independent schools are constantly faced with enrollment numbers and budget demands. Comments from parents in this study confirmed that they are eager to invest in any program or service that will increase the success of their child. For those parents who had invested thousands of dollars to have their child successfully educated at a college preparatory school, the concept of learning style was an added benefit. They felt that the school was more attentive and understanding of their child's education and emotional growth.

Initially, the concept of learning style needs to be incorporated into the philosophy of an entire school. Under the leadership of the headmaster, all faculty members and administrators would be trained in this new concept and provided with lesson plans and classroom materials that would implement this program. Expert trainers and curriculum specialists, who incorporate the learning style concept into their presentations, could be scheduled at the end of the school year so that teachers would have the summer to utilize the information when preparing their fall class schedules. All faculty, administrators, and clerical support staff would be required to take the Learning Style Profile and attend a workshop to explain the results. This is a relatively simple procedure, requiring three hours or less, that could be scheduled at the end of the school year and before the trainers arrive. It is important that school employees understand the concept of learning style and can incorporate it into their daily conversations with and about students.

Once the school has accepted and incorporated the concept of learning style into its philosophy, students would then be administered the LSP. Ideally, middle school students would be in a developmental stage where the identification of learning style strengths and weaknesses would better prepare them for the cognitive challenges and changes of transitioning into upper school. During their training, role-playing exercises, study skills building, videotapes, and other media tools would be introduced in a multimode format, demonstrating, firsthand, teaching according to different learning styles. This information would then be translated into the classroom where teachers would be prepared to meet the diversity of styles.

Many students would also benefit from attending a summer school program designed to enhance study skills. There are several organized programs outside the subject school, however, creating an on-site summer

school class, which incorporate the concept of learning style. These programs could help teachers identify those students who might need closer attention during the school year.

Parents would also benefit from taking the LSP and participating in an awareness workshop. Knowledge of differences between teacher-student styles and parent-student styles could help parents and teachers work more effectively with the students.

Implementing a treatment team approach is another facet of providing support to students. Many students in public and independent schools are referred to educational psychologists for evaluation of intelligence and academic ability. More often than not, the generated report does not reach the classroom teacher or the counselor. Parents may receive the results of the evaluation with little direction for its application. A treatment team consisting of the student, parents, psychologist, educational therapist and classroom teachers could meet to discuss the implications of the report, and then meet periodically to discuss the progress and needs of the student. Designing an individual treatment plan to establish realistic goals and objectives could provide a focus for the teachers, parents, and students. Tracking students and providing information to their teachers throughout their academic career would help students stay on course. At the same time, the school counselor could meet individually with the students to discuss any problems with the classroom work, and provide coaching and support to continue in their efforts.

Incorporating the concept of learning style into any school philosophy would serve well any and all students in their academic careers. Not all schools have the resources to implement such a comprehensive program or to redesign the curriculum to meet more specific needs of some students.

The subject school in this study was able to utilize the energy and resources of this researcher to design and implement this program. In the future, however, in the absence of this researcher, the energy to institute a learning style program must come from all faculty members under the leadership of the principal and/or headmaster.

Suggestions for Future Research

The Learning Style Profile was an excellent instrument to use for the initial assessment of learning style. It was also a useful tool to organize communication with teachers, parents, and especially students. There are no workshop materials, however, that teach this concept. Development of a formalized workshop for parents, students, and educators would enhance the information provided by the profile.

NASSP also intended that educators and curriculum designers use the profile information in designing the curriculum. To date, there are no resources to meet this need. Teachers might be more effective in diversifying their teaching strategies if specific plans were delivered which accommodated different learning styles.

Development of a new video, similar to the F.A.T. City video, to explain the concept of learning style preference, and its relationship to academic performance, would be more effective in working with average to above-average students. The students in this study were more responsive to information from a videotape than to a lecture format workshop.

A longitudinal study, investigating the effects of introducing the concept of learning style preference, could provide valuable information for designing curricula to meet the needs of all students.

Replicating this study in a larger heterogeneous public school population might provide counselors and teachers with the means to assess and identify at-risk students on a larger scale.

A study on the developmental changes in locus of control could provide information for educators to consider when designing the curriculum for at-risk students.

Summary

Most teachers, parents and students in this study had never thought or heard about *learning style*. The only term they used to describe bright students who were struggling was *learning disabled*. Some tried to minimize the term by using *learning difference*; however, neither term really explained what was happening with the students.

The results of this study stressed that students, teachers, parents and administrators must understand the role of educating students according to their learning strengths, and work together to provide a quality education for all our children.

There are many roads to academic
excellence. Maybe we need to recognize
that we all don't walk along the same
path. (Schroeder, p. 26)

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APPENDIX A

PLEASE CIRCLE ONLY ONE ANSWER.

Name _____

Choose either A or B and circle your answer. REMEMBER, choose only one answer from each question.

1. If a teacher passes you to the next grade, would it probably be
 - A. because she or he liked you, or
 - B. because of the work you did?
2. When you do well on a test at school, is it more likely to be
 - A. because you studied for it, or
 - B. because the test was especially easy?
3. When you have trouble understanding something in school, is it usually
 - A. because the teacher didn't explain it clearly, or
 - B. because you didn't listen carefully?
4. When you read a story and can't remember much of it, is it usually
 - A. because the story wasn't well written, or
 - B. because you weren't interested in the story?
5. Suppose your parents say you are doing well in school. Is this likely to happen
 - A. because your school work is good, or
 - B. because they are in a good mood?
6. Suppose you did better than usual in a subject in school. Would it probably happen
 - A. because you tried harder, or
 - B. because someone helped you?
7. When you lose at a game, does it usually happen
 - A. because the other player is good at the game, or
 - B. because you don't play well?
8. Suppose a person doesn't think you are very bright or clever
 - A. can you make him change his mind if you try to, or
 - B. are there some people who will think you're not very bright no matter what you do?
9. If you solve a puzzle quickly, is it
 - A. because it wasn't a very hard puzzle, or
 - B. because you worked on it carefully?

10. If a peer tells you that you are dumb, is it more likely that they say that
 - A. because they are angry at you, or
 - B. because what you did really wasn't very bright.
11. Suppose you study to become a scientist, doctor, or lawyer and fail. Do you think this would happen
 - A. because you didn't work hard enough, or
 - B. because you needed some help, and other people didn't give it to you?
12. When you learn something quickly in school, is it usually
 - A. because you paid close attention, or
 - B. because the teacher explained it clearly?
13. If a teacher says to you, "Your work is fine," is it
 - A. something teachers usually say to encourage students, or
 - B. because you did a good job?
14. When you find it hard to work math problems at school, is it
 - A. because you didn't study well enough before you tried them, or
 - B. because the teacher gave problems that were too hard?
15. When you forget something that was presented in class, is it
 - A. because the teacher didn't explain it very well, or
 - B. because you didn't try very hard to remember?
16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen
 - A. because she wasn't as particular as usual, or
 - B. because you gave the best answer you could think of?
17. When you read a story and remember most of it, is it usually
 - A. because you were interested in the story, or
 - B. because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be
 - A. because of something you have done, or
 - B. because they happen to be in a bad mood?
19. When you don't do well on a test at school, is it
 - A. because the test was especially difficult, or
 - B. because you didn't study for it?
20. When you win at a game, does it happen
 - A. because you play really well, or
 - B. because your opponent doesn't play well?
21. If people think you're bright or clever, is it
 - A. because they happen to like you, or
 - B. because you usually act bright or clever?

22. If a teacher didn't pass you to the next grade, would it probably be
 - A. because he or she "had it in for you." or
 - B. because your school work wasn't good enough?
23. Suppose you don't do as well as usual in a subject at school. Would this probably happen
 - A. because you weren't as careful as usual, or
 - B. because somebody bothered you and kept you from working?
24. If a peer tells you that you are bright, is it usually
 - A. because you thought up a good idea, or
 - B. because they like you?
25. Suppose you became a famous actor, scientist, or doctor. Do you think this would happen
 - A. because other people helped you when you needed it, or
 - B. because you worked very hard?
26. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more
 - A. because your work isn't very good, or
 - B. because they are in a bad mood?
27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
 - A. because he wasn't able to understand how to play, or
 - B. because you couldn't explain it very well?
28. When you find it easy to work math problems at school, is it usually
 - A. because the teacher gave you especially easy problems, or
 - B. because you studied your book well before you tried them?
29. When you remember something you heard in class, is it usually
 - A. because you tried hard to remember, or
 - B. because the teacher explained it well?
30. If you can't work a puzzle, is it more likely to happen
 - A. because you are not especially good at working puzzles, or
 - B. because the instructions weren't written clearly enough?
31. If your parents tell you that you are bright or clever, is it more likely
 - A. because they are feeling good, or
 - B. because of something you did?
32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen more often
 - A. because you explained it well, or
 - B. because he was able to understand it?
33. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to happen
 - A. because she was more particular than usual, or
 - B. because you answered too quickly?

APPENDIX B

Learning Style Profile ScalesCognitive Skills General Approach to Processing Information

1. Analytic - measures the ability to identify simple figures hidden in a complex field;
2. Spatial - measures the ability to identify a geometric shape, remember it, and discriminate it from other similar patterns;
3. Discrimination - measures the ability to visualize the important elements of a task;
4. Categorization - measures the ability to take some risk in classifying information, using reasonable criteria to form accurate, complete, and organized categories;
5. Sequential processing - measures the ability to process information sequentially taking items one step at a time;
6. Simultaneous processing - measures the ability to respond to new information visually and spatially;
7. Memory - measures the ability to remember discrete bits of information.

Perceptual Responses - Initial Response to Information

8. Visual - measures preference for processing information initially by seeing it;
9. Auditory - measures preference for processing information initially by hearing it;
10. Emotive - measures preference for processing information initially by reacting with feeling.

Study and Instructional Preferences - Personal Preferences for the Motivational or Environmental Elements of Style

11. Persistence - measures willingness to work at a task beyond the required time;
12. Verbal risk - measures willingness to verbalize, to state opinions even if other disagree;
13. Manipulative - measures preference for learning or instruction through hands-on activities;
14. Study time - measures preference for studying and learning;
15. Verbal-spatial - measures preference for learning or instruction through verbal or spatial activities;
16. Grouping - measures preference for learning or instruction in whole class, small group, or with one other student;
17. Mobility - measures preference for moving about and taking breaks while studying vs. studying in one place until the task is finished;
18. Sound - measures preference for a quiet study area vs. one with background sound;

19. Lighting - measures preference for a bright vs. lower lighted study area;
20. Temperature - measures preference for studying in a warm vs. a cool room;
21. Posture - measures preference for formal vs. informal study arrangements.

APPENDIX C

August 12, 1994

Dear Parent/s:

I am currently a doctoral student at the University of San Diego completing my dissertation on the relationship between learning style awareness and academic attitude. For the past two years I have also been the counselor at Francis Parker in the middle and upper schools.

In September, the Upper School will be administering the National Association of Secondary School Principals Learning Style Profile to all students and faculty. This profile will identify thinking, feeling, and environmental factors that contribute to effective learning. It will also provide valuable information to teachers and students regarding individual learning style preferences and aid teachers in curriculum design. A major focus of Parker's restructuring plan includes teachers delivering information in a style that all students can understand. In my review of the literature, research has demonstrated that GPA increases when there is a match between student preferences and teacher instructional style.

For the purposes of this study, I am focusing on the ninth grade students, parents and teachers. I will administer a 30 minute group questionnaire to only the ninth grade students at the beginning and end of the school year. At any time you may choose to have your child withdrawn from this study. I will also be administering the Learning Style Profile to ninth grade parents with a follow-up workshop explaining the results. I believe that by providing information on learning styles our students will be able to integrate a valuable concept into their academic careers.

All data collected that is not a part of the Parker curriculum will be held in strict confidence. No names will appear in any published information on this study. Because your child is a minor I need your signed consent. Enclosed you will find a copy of this letter for your files and a self-addressed stamped envelope. I would like to begin my study August 30th, and need your signed consent as soon as possible. If you have any questions regarding this study please call me at 569-7900X137. Thank you.

Sincerely,

Dorene C. McLaughlin, MFCC

You have permission for my child _____
to participate in your study. All names and information not part of the Francis Parker
curriculum will be held in strict confidence.

Parent Signature

Date

APPENDIX D

June 6, 1995

Dear Student:

At the beginning of this year I gave you the Intellectual Achievement Responsibility Questionnaire along with four additional questions. This is part of a research study that I am conducting as a doctoral student at the University of San Diego concerning the relationships between learning styles, attitude and grade point average.

It is now time for me to administer the follow-up questionnaires which should take about 45 minutes. Your answers will be held strictly confidential. No one will see them but me. I will also answer any questions you might have before you sign this form. If you have any problems as a result of these questionnaires I will be available to answer your questions or refer you to another counselor.

You are free to not participate in this study. If you do choose to participate, you are free to withdraw at any time. Just don't fill out the following questionnaire and return it to the stack at the end of this meeting. If you do choose to continue please sign below and then fill out the attached questionnaire. I will be happy to share your individual results with you personally at any time. My office is located in the Upper School Office.

Thank you,

Dorene McLaughlin

I hereby consent to voluntarily participate in this study and I can freely withdraw at anytime.

Name of Student

Date

Dorene C. McLaughlin, Researcher

Date

APPENDIX E

May 10, 1995

Dear Parent/s:

This letter is a follow up to my original request for permission for your son or daughter to participate in my dissertation research on learning styles and student attitudes. If you remember, in September your ninth grader was administered the Learning Style Profile by the school. Each student received a printed profile and attended a workshop to analyze and understand their personal learning style. In addition, they viewed a video entitled "How Difficult Can This Be?", and received a skills building program through their history class. Parents were also offered the opportunity to take the Learning Style Profile and view the same video.

As part of my research, in the Fall, I administered the Intellectual Achievement Responsibility Questionnaire and a researcher-designed questionnaire. These measured a student's attitude toward school and homework responsibility and required approximately 45 minutes to complete. It is now time for me to re-administer them, collect the individual GPAs for both eighth and ninth grade and then compare them to the pre and post-test questionnaire scores. It is my hypothesis that if a student is aware of their individual learning style there will be an increase in self-responsibility toward academic achievement and homework resulting in an increase in GPAs.

In order to continue I will also need your permission, again, to collect GPA's, re-administer the questionnaires and analyze the data. All data and subject identity will be held strictly confidential. It is important to note that participation is strictly voluntary and parents or students may withdraw their consent at any time. There is no agreement, written or verbal beyond that expressed in this consent form.

If you have questions prior to signing this consent form please call me at 569-7900. If you would like to review the questionnaires, I am available to make appointments to meet with you and answer any questions prior to signing this form. Your cooperation is greatly appreciated.

Sincerely,

Dorene McLaughlin, MFCC

I, the undersigned, understand the above explanations and on that basis, I give my voluntary consent for my child _____ to participate in this research.

 Signature of Parent/Guardian

Date

 Dorene McLaughlin, Researcher

Date

APPENDIX F

BIBLIOGRAPHY OF LITERATURE PACKET
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APPENDIX G

BIBLIOGRAPHY OF LITERATURE PACKET
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