SUCCESS FACTORS AMONG EARLY COLLEGE ENTRANTS

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This study explored how various intrapersonal, familial, and life-goal characteristics related to the academic and personal success of first semester early college entrants attending the Texas Academy of Mathematics and Science (TAMS) at the University of North Texas. The study sought to identify which intrapersonal factors and external factors affected grades, behavioral markers, and life satisfaction during the students’ first semester at TAMS. Baseline data from TAMS entrance material such as standardized achievement test scores, previous grade point averages (GPA’s), advanced courses taken, and other academic activities and awards were collected. Data were also collected from the students prior to their entry to the start of TAMS related to family cohesiveness, motivation, and career goals. Data from parents were gathered prior to the start of TAMS regarding parenting styles, demographics, parents’ educational levels, careers, and income levels, as well as the child’s homework, extracurricular activities, and other time demands. First semester grades, a measure of life satisfaction since the program began, and behavior reports from staff members were used as outcome/success indicators. These additional data were used to examine the relationship between success and familial/interpersonal/life goal factors.
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DEDICATION AND ACKNOWLEDGEMENTS

Dedication

This dissertation is dedicated to my husband, Kerry, for your unparalleled patience, love, understanding, and support.

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CHAPTER I

INTRODUCTION

Introduction

The study examines the various innate, intrapersonal, and familial characteristics and beliefs related to success of early college entrants after one semester at the Texas Academy of Mathematics and Science (TAMS). TAMS is a state-sponsored, early-college entrance program at the University of North Texas. Participants complete their last two years of high school by enrolling in the first two years of college courses emphasizing science, mathematics, and engineering fields.

TAMS students come from a variety of income levels, ethnicities, communities, and educational settings. Some are from several foreign countries although they all reside in Texas at the point of admission. They have had a wide range of educational experiences, although they have all demonstrated advanced achievement and ability through high grades, high Scholastic Aptitude Test (SAT) scores, participation in science and mathematics activities, and the completion of advanced or accelerated courses prior to attending TAMS.

Differences in the quality and quantity of advanced or accelerated experiences in schools have a profound impact on the academic, personal, and career success of the gifted (Gross, 2006). Students who have the opportunity to learn at their own pace and to be challenged with the levels of depth and complexity that matches their cognitive abilities have a higher likelihood of continuing their education, as the interest level is maintained through appropriate pace and level of curricular delivery (Davidson & Davidson, 2004; Feldhusen, 2002). Students who are spared the boredom and frustration of spending hours, days, months, and even years in classrooms where intellectual challenge is lacking, and instead are exposed to subject matter that
is consistent with their level of understanding, generally results in better adjusted, satisfied students (Gross, 2000).

Gifted students need more than academic and career success. Personal thriving or flourishing is a desirable life-long outcome for these individuals (Sayler, 2008). Flourishing includes both talent development and the development of good friendships that acquire positive dispositions and habits leading to honorable character and personal integrity. The dispositions, habits, and consistency in intrapersonal aspects of a gifted individual act as catalysts or as detriments to learning (Gottfried, Gottfried, Bathurst, & Guerin, 1994). Negative catalysts retard or arrest development, which effects personal flourishing and satisfaction with their lives (Sayler, 2008). When gifted individuals’ intellectual needs are met through appropriate learning environments, their positive emotional responses improve, increasing the likelihood that the person will do well and enjoy the activity (Csinkszentmihalyi, 1990). The combination of talent and intrapersonal development increase flourishing, the attainment of happiness and the “good life” for the gifted (Sayler, 2008).

Statement of the Problem

Inadequate research exists that examines the first semester early college entry phenomenon. Furthermore, much is to be learned about the successful early college entry student in terms of their grades and their satisfaction with their lives in their residential program. Researchers have found the need for acceleration of highly gifted students as an educational intervention due to its positive academic, social, and emotional impact on children (Gross, 2003). The psychosocial and cognitive effects of acceleration in the form of grade-skipping have been examined since the 1920’s by Dr. Leta Stetter Hollingworth, who had initially studied mentally
challenged students whose curriculum was adjusted to fit their abilities and needs (Hollingworth, 1926). She found that the gifted benefited from curricular adjustments as well, and examined the social and emotional benefits of grouping highly gifted children together and offering them a much more advanced and accelerated curriculum. She found that they flourished socially and experienced a more positive well-being when given the opportunity to socialize with others of similar cognitive ability. Current research confirms earlier findings on the overall benefits of academic acceleration. Gross & van Vliet (2003) examined the effects of acceleration and non-acceleration of highly gifted children and found that students had generally positive outcomes from grade skipping and negative social, emotional, and even physical outcomes from remaining on grade level in school. Rogers and Kimpston (1992) studied various accelerative options, including grade skipping, early entry to kindergarten, and curriculum compacting (moving a student through the curriculum more quickly while minimizing repetition) and their overall social, emotional, and intellectual impact. They found overwhelming evidence of the positive effect on the social and emotional well-being of children of acceleration for high-potential students.

Another body of research has focused on the social, psychological, and intellectual effects of early college entry. Stanley, instrumental in establishing TAMS, and his colleague, Brody stated,

The research clearly shows that as a group, young entrants to college have been extremely successful academically and professionally and have not experienced significant social or emotional problems. There is no justification for assuming that academic difficulties or social and emotional adjustment problems are likely to accompany early entrance to college. (p. 1, 1991)

Janos and Robinson (1985) compared early entry student achievement and satisfaction with normal-aged university students and found that the younger accelerated students reported greater
satisfaction with their academic achievement and with their overall university experience than the older regular college students.

Studies exploring the qualities that contribute to academic success in early entry college programs have also shed light on students who attend such programs. Sayler (1995) compared successful and unsuccessful early college entrants, defined as their GPA of 2.5 or more. He found that successful early college entrants came from larger families, had higher SAT scores, and engaged in extracurricular activities such as band or church. Their families were larger, they received higher recommendations from their high school teachers, and focused less on athletics. They generally score higher on ability tests and earn higher grades than traditional college students (Janos, Robinson, & Lunnegborg, 1989).

Researchers of the gifted are also engaged in examining the psychosocial, economic, and affective results of early college entry in the years after graduation from early college entry programs and have found that former students have greater overall personal well-being than the normal population. Boazman and Sayler (2007) found that individuals who graduated from one to five years prior to the study experienced greater satisfaction with their current lives in all categories of the study. The study’s graduates reported much higher satisfaction than traditional graduates in the way they view their future security, their standard of living, and their overall personal well-being (Hoggan & Sayler, 2007).

What is lacking in the examination of early college entry is determining significant factors that help the first semester early college student achieve high grades and feel personally satisfied with the early college entry experience. A qualitative study of 10 early college entry students at the National Academy of Arts, Science, and Engineering (NAASE) focused on student perceptions, social and family relationships, adjustment to residence hall and the
different level of academic expectations (Muratori, 2003). This study continues the focus on the first semester experience, although it is largely quantitative. Its purpose is to seek relationships between previous family parenting styles and environments, intrapersonal qualities, and academic indicators prior to entry and first semester success. Both Muratori’s and this writer’s study recognize that the first semester of early college entry is highly transitional, and success in such an environment is dependent on factors established by the research community and yet to be established by current and future researchers.

Purpose of the Study

TAMS is a programmatic intervention for highly-gifted and successful high-school students. The purpose of the study is to determine which intrapersonal and familial characteristics and beliefs contribute to students’ academic, social, and life satisfaction as measured after their first semester in college.

Significance of the Study

This project is part of a larger research effort which is following TAMS participants across the next 10-20 years of their lives. Graduates of TAMS reported enhanced satisfaction in several areas of their lives, including their perception of their accomplishments and their future security (Boazman & Sayler, 2007). In comparison to their age peers, they have higher levels of self-efficacy and personal thriving. Together the current study and the study of TAMS graduates will help the gifted, their parents, and their teachers better understand what helps gifted and talented students flourish; to be successful, satisfied with their lives, and happy; especially if they are thinking about early entry into college in a program like TAMS.
This study is important and timely because it contributes to the body of research that addresses the academic and non-academic dimensions in accelerants’ lives and the impact of an early college entry intervention. The study seeks to understand which dimensions of an accelerant’s life and performances contributes to their flourishing in the critical first semester.

It is important for parents and educators to identify and better understand the conditions that support student well-being and success in college and across their life spans. In gifted education, a large gap remains between many educators’ and parents’ opinions and practices and researchers’ findings and recommendations regarding the benefits and concerns over gifted education practices (Davidson & Davidson, 2004). While parents are generally responsive to various educational interventions for their gifted children, McCoach and Siegle (2007) found teachers’ attitudes toward gifted education to vary greatly. Strong attitudes exist positively and negatively among teachers regardless of the amount of gifted education training they have received. Negative attitudes exist among special education teachers, even though they are the most highly trained in adjusting for individual intellectual needs (2007).

A major area of disagreement is in the issue of academic acceleration (Gross, 2003). A majority of high-school counselors and administrators oppose the practices of acceleration especially its more involved forms such as grade skipping and attending college early. Specifically, the concern is often on the basis that such students will have social or emotional disadvantages (Benbow, 1992). High academic achievers, however, often benefit intellectually as well as socially and emotionally from skipping one, two, or more years of school at various intervals. When the cumulative years of grade skipping equates to two or more years, it is considered radical acceleration (Gross, 2003).
Radical acceleration is not successful with every gifted child, but the highly-gifted students often benefit from multiple grade skipping (Gross & van Vliet, 2005). As students are radically accelerated, they often experience increased academic success and improved personal well being. Interest in the well-being and success of academically advanced children is not a recent phenomenon. For eighty years, theorists and researchers have devoted substantial attention to the academic as well as the social and emotional needs of children with high potential. Terman’s longitudinal study of gifted children, in an effort to bring light to the psychological and social health of children of high potential, began with a grant in 1921 (1925). Terman (1959) led a study of intelligence in children, which followed them into adulthood and their mature years. He focused, in part, on their social development and leadership abilities.

Hollingworth (1926), a contemporary of Terman’s, began to study and teach the gifted in 1918, emphasizing the children’s interests and pace of learning (Klein, 2002). Dr. Hollingworth developed and taught the first university course in gifted education in 1918. She researched and wrote about acceleration and its successful use among the highly gifted. She advocated for counselors to assist in understanding the emotional needs of this population, as she understood from personal experience as well as thorough research that the social and affective difficulties highly gifted children experience (Klein, 2002).

In 1951, the Ford Foundation initiated the first early entry college scholarship program at four major universities as an answer to redundancies in the high school curriculum and the resulting waste of students’ time. Early entry opportunities offered a more challenging intellectual environment which increased students’ interest in pursuing their education (Ford Foundation, n.d.). It initially provided for 420 adolescent boys ages 16.5 or younger to attend college. Ford Foundation’s Fund for the Advancement of Education was an answer to the need
for an educated military in fewer years at the time of the Korean war (Muratori, 2007). The School and College Study of Admission with Advanced Standing was also established to raise the standard of high school curriculum to that of freshman college courses. The result of this initiative which involved 12 colleges and 12 high schools became known as the Advanced Placement (AP) Program (Ford Foundation, n.d.). The long-term effects of the Ford Foundation projects are the widespread opportunities for students to accelerate their secondary coursework through AP classes or early entry to college, preventing underachievement and wasted years unnecessarily repeating coursework.

A major concern voiced by educators, administrators, and parents is that children placed in learning environments with older students may not be able to make friends or develop socially (Rogers & Kimpston, 1992). If there are emotional problems among the highly gifted, they are often the result of a poor match between students’ academic needs and their non-accelerative school placement (Gross, 2003). The strong advocacy for a well-matched curriculum including academic acceleration is, in part, based on the assumption that problems dissipate if appropriate curricular pacing occurs schools (Gross, 2003). With careful selection, therefore, radical acceleration to schools like TAMS accommodates the accelerated students’ need for intense intellectual stimulation and allows them to socialize in a setting with their age peers (Sayler, 2008).

Theoretical Underpinning

Students selected to attend the Texas Academy of Mathematics and Science (TAMS) must demonstrate a high level of academic achievement by meeting rigorous, competitive
acceptance standards. All of these high-school aged students have the ability and past performance to attain high levels of achievement in the first semester of the college program.

Newly selected TAMS students, however, face numerous challenges during the first semester that they may not have encountered in their previous school experiences. One challenge is that they no longer live in their own homes and most, if not all, will not know the other students in their entering class. For them, TAMS is a new school, often far from home, where most have no established friendships. Early entrants must adjust to the transition from high-school classes and curriculum to college formats and courses and from home and siblings to the dormitory and roommates. While many students coming to college for the first time struggle with these issues (Keup, 2007), the TAMS students entering college at least two years earlier than traditional college freshmen encounter additional challenges due to their younger age and level of experiences in life.

Success Factors

The ultimate goal of parents and educators is for their children and students to achieve success in life (Ford, 2004). Success, as defined in this study, is flourishing; a combination of academic achievement and relationships leading to happiness, or an overall satisfaction with life. Happiness is the result of successful intellectual, emotional, physical, and spiritual fulfillment (Dyer, 2001).

Maslow (1943) refers to personal fulfillment as being reached by achieving one’s potential as self-actualization. According to Maslow’s Hierarchy of Needs, all people have basic needs which, if unmet, prevent them from meeting their higher needs. Physical need is the most basic need and if a person has a great and immediate need for air, food, or rest, higher needs
cannot be addressed, such as the need to feel secure and safe. If safety is gratified, the child’s next higher level of need is to feel a part of a social group and to be loved. Once the social need is met, ego needs, such as the need to achieve and be recognized for one’s contributions in society, can be attained (Maslow, 1943). Finally, through the individual’s need for self-esteem, the quest for self-actualization can occur. Maslow links self-actualization with satisfaction and happiness. Maslow provides the theoretical underpinnings for achieving one’s potential. As one progresses to a higher level in his hierarchy of needs, one is more fully equipped to develop personally at a higher level. This ultimately leads to his highest level of development, self-actualization. Self-actualization is the need to fulfill one’s potential, or a constant thriving to become all one can become (Maslow, 1943).

The Differentiated Model of Giftedness and Talent

Gagné’s concept of self-actualization through the talent component is embodied in his differentiated model of giftedness and talent (DMGT, 1985) (Figure 1). The model explains that children have innate, natural gifts that, under optimal conditions brought about by intrapersonal and environmental catalysts, can develop fully into talents (Gagné, 1985, 2003). In order for an individual to achieve his potential, described in Gagné’s model as his talent, catalysts such as a supportive, cohesive family, good educational opportunities, and strong personal motivation to succeed aid in the process of talent development.

The differentiated model of giftedness and talent (Gagné, 2004) is used as the primary theoretical framework to understand the academic success of students attending the Texas Academy of Mathematics and Science (TAMS). Students come with high levels of natural abilities and high performance in academics and mathematics and science talent domains.
Their talent development is affected by various environmental and intrapersonal catalysts. These catalysts increase or decrease the chances that a student will succeed or fail in that first critical semester. Environmental catalysts are those events and surroundings that exert influence in an individual’s life. Geographic, social, and political effects are larger environmental catalysts. The family unit in general, the parents’ parenting styles, siblings, friends, teachers, and others who impact the child’s life, as well as defining, meaningful events such as a death in the family or winning an award, are all considered environmental catalysts. Intrapersonal catalysts include coping skills and motivation. At the end of the first college semester, grades, behavior reports, and personal well-being give an indication of success.

Beyond talent development, personal flourishing is the essential outcome for the gifted in Sayler’s model of gifted and thriving (2007). The intrapersonal catalysts of an individual developing dispositions and habits that lead either to personal flourishing or its opposite, wasting
begin with character. The strengthening of character leads to integrity, and the successful exercise of integrity leads to wisdom. The attainment of such intrapersonal qualities leads to lifelong happiness and satisfaction, or a state of flourishing. Gifted individuals whose dispositions and virtues or habits are unworthy of character attainment develop into a state of wasting. This study will assess well-being prior to admission to TAMS and then again at the end of one semester of attendance at TAMS.

TAMS students are adolescents who have already demonstrated high levels of academic talent in the science and mathematics domains. Indicators of the students’ talent prior to attending TAMS are assessed at admissions and include the students’ previous schools’ grade-point averages, their SAT scores, and participation in science and mathematics related activities or awards or advanced science or mathematics courses or experiences.

Environmental Catalysts

*Family demographics and characteristics.* There is evidence in McDaniel’s study (1997) of a connection between gifted students who are successfully radically accelerated into college and their parents’ educational level, income, and amount of reading in the home. McDaniel also found that cohesive family units and families that have sufficient financial means to provide enriched educational experiences and opportunities were better equipped to support children’s developmental needs. The amount of time a child spent reading or being read to was also a significant factor in student achievement. Finally, parental support and involvement in the child’s interests and school activities was a positive contributor to the achievement of gifted students (McDaniel, 1997). Sayler (1995) found that church activity has a positive impact on achievement.
on successful early college entry males, while McDaniel’s study concurs for both genders (1997).

Family support is an important contributor to first semester adjustment. Caplan, Henderson, Henderson, and Fleming (2002) looked at predictors of how gifted students adjusted to the early college setting by examining their family environment on the Family Environment Scale (FES; Moos, 2002), and their self-concept as measured by the Tennessee Self-Concept Scale (TSCS; Fitts, 1965). They found that having a supportive family that values personal expression which includes conflict in combination with a healthy self-concept had a significantly positive effect on success as measured by the Student Adjustment to College Questionnaire (SACQ; Baker & Siryk, 1989). The close, warm family relationships, even from a distance, is a significant contributor to enhancing and contributing to early college entrants’ abilities to cope well in their new social, geographical, and intellectual environment.

Parenting style. Other aspects of family life that may act as environmental catalysts are the parents’ approach to parenting: the social and organizational structure of the home such as routine family activities, the amount and kind of guidance provided to the children, how much choice children are allowed in the family, and the parent’s approach to discipline. The way a parent approaches the job and lifestyle of parenting, or parenting style, positively influences the child’s achievement (Steinberg & Others, 1989), self-esteem, and self-efficacy (Smith, 2007).

Baumrind (1968, 1989, 1993), a developmental researcher, describes three parenting styles: permissive, authoritarian, and authoritative. Permissive parents tend to be accepting of the child’s behavior and actions, are under-involved in the child’s life, and often does not enforce high expectations and standards according to the child’s level of understanding and maturity. Authoritarian parents do not tend to be warm and nurturing and are often controlling without
reasoning with the child and allowing for open communication. Authoritative parents are warm and nurturing, allow open communication with their children, and are nurturing and responsive to their emotional needs.

These styles are often characterized in terms of levels of responsiveness and demandingness (Villar et al., 2006). Demandingness can be expressed as physical or verbal exercise of parental will over the child. It is measured in terms of the degree of control the parent has toward the child. Optimal levels of control facilitate social responsibility within the family unit. The parent requires the child to conform to the family unit’s needs, and attends to corrective action when the child is not in conformance. Responsiveness can be described as the parental transfer of acceptance, warmth, and attentiveness (Villar et al., 2006). The parent shows supportiveness and encourages the child to learn how to control mental and emotional impulses while attending to the child’s individual needs (Darling, 1999). These modes of parenting behavior do not include negative parenting that involves high levels of neglect and physical or mental harm (Darling, 1999).

Permissive parents exert low levels of demandingness (control) and high levels of responsiveness (acceptance). These parents indulge their children by not imposing social limits and not requiring behavior expected of a child similar in age (Darling, 1999). They are lenient and impose less disciplinary correction than the other two styles of parenting. Permissive, under-involved parents leave the child with little adult-directed intellectual stimulation and other academic direction. Children, neglected by permissive parents, believe they do not deserve their parent’s time and efforts, and suffer from low self-esteem as a result (Ferrari, 1993).

The authoritarian parent is the authority in the home and allows little freedom of expression, which limits the child’s ability to share and exchange thoughts. Those who employ
an authoritarian style of parenting exhibit high levels of control and low levels of acceptance (Baumrind, 2005). Children in authoritarian homes experience control through threats and excess criticism, which hinders cognitive growth. These children also “have poorer social skills, lower self-esteem, and higher levels of depression” (Darling, 1999).

The optimal mode of parenting, according to Baumrind (1968), is authoritative, which is high in both control and acceptance. It is characterized by firm but reasonable standards that set expectations and limits on behavior, a structured home environment where there are routine family activities such as family dinner time and chores, and a level of age appropriate independence that fosters a sense of autonomy and confidence in the child (Villar et al., 2006). The authoritative style of parenting has been found to facilitate positive adjustment in children such as emotional well being, positive attitudes, and positive school performance among adolescents (Hickman, Bartholomae, McKenry, 2000).

When a parent exerts control paired with reasoning (authoritative style), the result is generally an increase in social responsibility on the part of the child. Firm control in the absence of reason (authoritarian style) generally results in child compliance without the social growth that usually accompanies demandingness in tandem with reason (Baumrind, 1983). Baumrind considers authoritative parenting the optimal parenting style for fostering academic achievement and social skills in children of European American descent. In general, parenting from an authoritative approach contributes to overall mental health, achievement, and well-being of European American adolescents (Glasgow & Others, 1997).

Studies considering the link between parenting style and adolescent school achievement in minority populations have presented mixed results. Boveja (1998) found a positive association between authoritative parenting of minority and majority urban adolescents and academic
achievement. Bean et al. (2003) studied the two main components of authoritative parenting, behavioral and psychological monitoring and nurturing support, among African-American adolescents. The research team found that supportive African-American mothers positively impact adolescent self-esteem and academic achievement, while psychologically controlling African-American mothers and fathers affect adolescent social resistance to adult direction and controlling with their peers. Baumrind (1972) found that female African-American adolescents raised by authoritarian parents were more likely to exhibit assertive, autonomous behavior. Chao (1993) investigated two Chinese cultural approaches to parenting. “Chiao shun,” or training, which is related to the control element in Baumrind’s (1968) authoritarian parenting styles, and “guan,” related to parental nurture and support of the authoritative style. The Chinese parents scored higher than American parents of European descent in authoritarian parenting, due to their emphasis on training, or “chiao shun.” Xu (2007) found that although the rural Chinese families are led by authoritarian parents, modern Chinese and Chinese-American parents are predominately authoritative in parenting style. Middle-eastern families from authoritarian cultures are more likely to have authoritarian parents, although general well-being and adjustment was linked to authoritative parenting (Dwairy & Menshar, 2005). Bean, Bush, McKenry, Patrick, & Wilson found no relationship between authoritative parenting and African-American parenting, but dimensions within the parenting styles were found to be significant, such as maternal support (2003). Enhanced academic achievement, self-esteem, and hope were more common in adolescents attending college whose parents practiced authoritative parenting (Beyers & Goossens, 2003).
Intrapersonal Catalysts

Motivation. Of the intrapersonal catalysts in Gagné’s model of talent development (1998), a significant catalyst in regard to student achievement is motivation (Rotter, 1990). Historically, motivation has been viewed as internal drives or needs (Maslow, 1943) which are arranged in a hierarchy of most required to least. In his published work, *A Theory of Human Motivation* (1943), concluded that ‘practically all organismic states are to be understood as motivated and as motivating’ (p. 370), and a subsequent state is not achieved without satisfying the foundational state that precedes it.

Maslow’s theory explained internal drives related to motivation. Rotter contends that behavior is affected by internal and external explanations for individual outcomes (1990). Rotter’s concept of locus of control (1966) explains that motivation to achieve is greater when the person takes responsibility for accomplishing the task. When a student does well on a math test, for example, a student’s motivation to continue to do well is tied to where he places the credit for his success and his locus of control. If the credit for the achievement rests with the student, the individual’s motivation to succeed on the next exams increases. Individuals who credit an external source, such as a great teacher or good luck with their achievement experiences have lower motivation to continue to strive to succeed.

Attribution theory (Weiner, 1974) adds the dimension of stability to Rotter’s model of motivation (Battle & Rotter, 1963). Stability relates to the degree of change that the attribution will have over time. Attribution theory postulates that students attribute their successes or failures to one of four explanations, depending on the dimensions of stability and locus of control. These four explanations are personal ability, the difficulty of the task being undertaken, the amount of effort needed for success, and luck. Of the four explanations, attributions to ability
change the least and are the most stable attribute. Luck is the least stable. Effort’s stability is a function of the individual’s locus of control. Task difficulty varies with the specific task, so it is considered not stable (Weiner, 1974).

An individual who attributes his performance to ability credits his good grades or high achievement primarily to his natural ability to understand and do well in that particular subject or task. An individual who explains low grades with natural inability to master that particular subject or task also demonstrates ability attribution. His conception of his performance is stable, meaning it does not change over time. He also demonstrates an internal locus of control, as he attributes his success and failure consistently to forces within himself.

In academic settings, tasks are assigned by teachers, not the students. Task difficulty varies with the teacher and the assignment, which is outside the student’s locus of control. The attribute of task difficulty, therefore, provides an unstable dimension for assessment of motivation. The student does not control the level of difficulty of a task, such as a test, and the degree of challenge changes from one test to another, making it an unstable dimension within attribution theory. When a task-oriented individual performs well on a task, he credits the easy task as the reason for his success. On the other hand, when the individual performs poorly, he explains low achievement on the high level of difficulty of that particular task. The control over the difficulty of the task is outside of the participant’s control, which explains why it carries the dimension of external locus of control. Some tasks are easier than others, so the level of difficulty is rarely ever the same, making the attribute unstable.

Attributions of effort are also related to locus of control. An individual who attributes success to his own effort believes that his high achievement is a result of hard work and extra effort, and when he experiences low achievement it is explained by insufficient effort. The
attrition to effort is stable, as the individual tends to consistently explain the levels of achievement attained in terms of his own level of effort (Weiner, 1983).

Gender differences affect attribution as well (Kerr & Cohn, 2001). Boys’ concepts of success are more directly tied to achievement. Girls’ concepts of success tend to shift in the adolescent years from academic and creative accomplishments to image and attractiveness (Reis, 2002). Boys tend to attribute their successes and failures to their intelligence or level of their natural abilities. Girls are more likely to attribute their failures to lower intelligence, and their successes to greater effort (Kerr, 1997). In a contrasting Finnish study, gender influences on mathematical attribution was dependent on level of giftedness in the discipline (Nokelainen, Tirri, & Merenti-Välimäki). Gifted females of all levels of mathematical ability attributed their successes and failures to effort, whereas only mildly mathematically-gifted males attributed their levels of success to effort. Moderately to highly-gifted males credited their intelligence or ability in mathematics to their varying degrees of success.

Luck is an unstable attribution that reflects an external locus of control. Whether an individual does well or poorly academically or with a task, the result is attributed to luck. Luck that produces positive or negative results are seen as a random occurrences, outside the individual’s control. The individual does not control when or how the luck occurs, or whether it results in positive or negative achievement.

Social science has adjusted its view of motivation from a purely psychological and personality perspective to include the way a person thinks about their intellect and cognitive abilities. More current theoretical thought (Dweck & Leggett, 1988) has shifted to a social-cognitive understanding, in that motivation links to the individual’s self-views and perceived ability to succeed. Dweck (2000) took the concept of locus-of-control and linked it to the child’s
view of his intelligence. If a child believes his level of intelligence is fixed, then he feels trapped and without recourse when he does poorly in school. He therefore lacks the motivation to expend increased effort and time into learning tasks because he does not see himself capable of those intellectual pursuits that challenge him. If he believes that he has the power to improve his intellectual capacities, he assumes the malleable view of intelligence. The malleable view promotes motivational behaviors that result in improved performance and greater levels of learning (Ironsmith, Marva, Harju, & Eppler, 2003).

If students of high potential hold as a goal to preserve their views of themselves as top achievers, their response to entering a highly competitive school may not be positive. When sufficiently challenged, all highly gifted do not perform at the same levels. According to Dweck (2000), some may fear that they will be unable to perform at the highest level, and may give up rather than risk exposing their weaknesses academically.

*Resilience.* Resilience is the ability to adjust well and to return to a state of normalcy when faced with hardship, change, or other stressors (Sinclair & Wallston, 2004). Coping refers to the ability to overcome problems with success (Woolf, 1973). As highly-gifted individuals face challenges in their lives, such as early entrance to college, the ability to positively adjust and adapt is an important factor in their academic and psychological successes. They are no longer living with parents or other family members who are present to help the adolescent solve problems or overcome emotional trials. They are no longer in close proximity to friends and members of the school, religious, or neighborhood communities that may offer a sense of belonging, identity, mentors, and friendships. Therefore, in the new college environment, they will be coping with various stressors in their lives while new ties and relationships have yet to be built.
Adjusting to living away from home and entering a major university is a challenge for many college freshman (Larose, Bernier, & Tarabulsy, 2005). They are expected to make more decisions independently, take more initiative in their schooling, such as registering for courses, and take on other adult responsibilities, such as paying bills or buying groceries. The emotional transition can be a challenge, as well, if the freshman leaves a romantic tie or other very close relationships behind (Larose et al., 2005). Academically, the new and unfamiliar course expectations can contribute to the transitional stressors, as well.

When that student is at least two years younger than the average college freshman living on their own it takes on greater significance (Muratori, Colangelo, & Assouline, 2003). Most students in their mid-teens have less dating experience, have not earned a driver’s license, or had other socially maturing experiences common among older adolescents. Their transitions are greater because in addition to the changes they face in common with traditional first semester college students, they are still coping with early adolescent growth experiences. Students in their first semester at an early entry program who showed greater ability to adjust focused more on forming new relationships on campus than connecting with close friends, significant romantic partners, and family in their home towns (Muratori, Colangelo, & Assouline, 2003). Such students had a less emotionally stressful transitional period in their new college environment.

Definition of Terms

Success within this study is twofold. Success is defined as TAMS students’ academic achievement in terms of first semester college grades, few behavioral write-ups from their residence hall advisors, and their self-reporting of overall satisfaction with life. Life satisfaction
is measured by the composite score from the Personal Wellbeing Index-Adult scale (PWI-A) of the International Wellbeing Group (2005).

Early entry refers to students who enter college two or more years before the traditional twelve years of EC-12 schooling. TAMS is an early college entry program. An academic accelerant is a student who has skipped one grade level or more during the course of his/her elementary and high-school years. TAMS students academically accelerate at least 2 years upon entry to the program.

Gifted indicates high levels of natural ability. Giftedness is not measured directly in this study, but can be inferred from talent scores such as Scholastic Achievement Test (SAT) scores. It is not possible to earn a high score on the SAT two or more years before traditional test-taking ages without strong underlying abilities. Entrants to the program from the fall of 2005 have scored an average of 619 on the SAT-V, 666 on the SAT-M, and 1285 on SAT-Total (TAMS, 2006). The 2005 state average scores of high-school students who took the college entrance exams for SAT-Total is 995, while the national average is 1028 (Fact Book, 2006). The difference between an SAT-Total score of 1285 taken two years earlier than a youth who scores an SAT-Total score of 1028 is substantial, and strongly implies a high degree of giftedness.

Environmental catalysts are defined as those factors that are not part of a student’s personality, internal dispositions, or character, but have a positive or negative effect on his achievement. This study includes these environmental catalysts: family relationships, personal growth within the family, and the structure of the family. The adolescent student participant’s parents’ parenting styles are external catalysts as well.

Intrapersonal catalysts are those factors that are an integral part of the individual student’s personality, internal dispositions, or character. In this study the intrapersonal catalysts
assess individual students’ views of their control over life situations, concept of their intelligences, and coping skills.

Assumptions

All TAMS students are gifted students who are high academic achievers. The scores they receive on the early SAT examinations suggest their ability lies in the highly-gifted range (three or more standard deviations above the mean in measures of intelligence). Although TAMS students all take a similar set of classes they will produce varying degrees of achievement in those college courses after only one semester. Responses to the instruments used in the study from the parents and the students will accurately represent their thoughts, feelings, and opinions. Success factors after the first-semester of college are measurable with outcome indicators of grades, lack of behavior reports, and satisfaction with life.

Limitations

There are several limitations in this study. The greatest limitation is the size of the population in relation to the number of predictor variables in the data set; there were about 200 TAMS students who participated in the fall of 2006. Most, but not all agreed to participate and provide the preprogram data. Fewer parents completed preprogram data, and a smaller number still completed the post first semester data. Analysis was undertaken to assess the representativeness of the samples when compared to the group on all relevant variables available for all. A second limitation is that the study gathered data after only the first semester at TAMS. When a student agreed to participate but neither parent agreed, the student was dropped from the predictive analysis.
Another limitation is that the study does not include every possible predictor of student academic achievement and success. A noted exclusion is peer influence. This factor was not considered significant to first semester early entrants because they generally entered TAMS with few intact friendships. Predictors were chosen for their relevance to Gagné’s theoretical model (Gagné, 2003).

Delimitations

The study occurred before and after one semester in the students’ two-year, four semester, TAMS experience. Indicators of success, in this context, are limited. The total time span of the study is from June 2006 to January 2007. Current anecdotal data from TAMS staff suggests that most of the variance in academics and intrapersonal behavior is accounted for in the first semester at TAMS.

The study looks only at students attending the TAMS program at the University of North Texas. The results from other early entrance programs would be assumed to be similar, but there is no collaborative data on this correspondence from this study.

Research Questions

1. What is the relationship between measures of talent prior to entry at TAMS (initial achievement factors indicated by SAT and high school GPA) and TAMS first-semester grades, behavioral markers, and personal well-being?

2. What is the relationship between intrapersonal catalytic factors present in the individual prior to TAMS entry (coping skills, motivation, intellectual self-perception) and TAMS first-semester grades, behavioral markers, and personal well-being?

3. What is the relationship between environmental catalytic factors (family characteristics and parenting style) and TAMS first-semester grades, behavioral markers, and personal well-being?
4. What is the multivariate relationship between talent, intrapersonal, and external factors and TAMS first-semester grades, behavioral markers, and personal well-being?
CHAPTER II
LITERATURE REVIEW
Success Factors among Early College Entrants

Over the past 75 years, researchers in the field of gifted education have produced a large volume of studies related to the academic performance of high achieving youth (Betts, 2003; Cross, 2005; Gagné, 1985, 2003; Walters & Gardner, 1984; Gross, 1993, 2000; Guilford, 1959; Hollingworth, 1926; Renzulli, 1977, 1984; Renzulli & Reis, 1997; Sayler, 1995; Stanley, 1978; Sternberg, 1985, 2004; Taylor, 1967; & Terman, 1925). Substantial works have contributed to our knowledge about acceleration and special programs for the highly gifted. Several authors have selected TAMS as the object of their research, and have produced a modest volume of work about students in that environment (Jones, Fleming, Henderson, & Henderson, 2002; Sayler, 1995). This chapter will review the literature concerning gifted adolescents, early entrants, parent styles and their effects on their children’s achievement, and other intrapersonal and environmental factors that affect achievement in gifted youth, and the theoretical model that frames this study.

Giftedness

Research question 1 asks what the relationship is between measures of talent prior to entry at TAMS and TAMS first-semester grades, behavioral markers, and personal well-being. Measures of talent prior to entry is associated with giftedness or innate talent. The study time frame is limited to one semester. Therefore, measures of intellect prior to the first semester is related to the student’s giftedness, or innate talent.

No single definitive description of giftedness guides researchers, policy makers, and practitioners. Terman (1925) conducted the first long-term study of gifted children. He defined
genius or high ability as children who scored in the top one percent of intellectual ability as measured by the Stanford-Binet test. His longitudinal research showed that intellectually advanced children were not social outcasts (1959), and lived mostly healthy and productive lives. Hollingworth (1926), a contemporary of Terman’s, agreed that the top one percent of children of like ages were gifted. The narrow definition based on one test of intellectual capacity has been challenged and consequently more broadly defined through the years to include Guilford’s (1946) theory of intelligence which became known as structure-of-intellect abilities (1981), a three-dimensional representation which was the first to included divergent, or creative thinking as an indicator of intelligence. Other thinking processes within Guilford’s model include cognition, memory, convergent production, and evaluation (1981). Sternberg’s triarchic theory of human intelligence (1985) has three components: analytical, creative, and practical, and is based on the way a person processes information. Sternberg added the dimension of wisdom to his construct of the development of the gifted individual (2004). He recommends the development of wisdom in tandem with scholarly knowledge. Wisdom is the sound judgment of what is right, based on knowledge and available evidence. Sternberg asserts that wisdom is the quality that eludes evil geniuses such as Hitler or Saddam Hussein, yet has embraced such eminent individuals such as Martin Luther King, Jr. and Mahatma Gandhi.

Maker and Nielson (1995) detail the multiple talent model, developed by Taylor (1967), who defines giftedness in the broadest terms. In fact, he contends that almost all children are gifted and talented. If taught well, their gifts and talents will become apparent (Maker & Nielson, 1995). Taylor’s Multiple Talent Model concludes that almost all children possess talent in at least one of these talent areas: academic, productive thinking, communicating, forecasting, decision making, planning, implementing, human relations, or discerning opportunities (Taylor,
Gardner’s seven intelligences is based on preferred learning styles (Walters & Gardner, 1984) such as linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal intelligences. The model suggests individuals have many kinds of abilities and that development may include one or more of these areas.

The federal definition of the term gifted and talented by the U.S. Office of Education (Marland, 1971) stated that a gifted child shows high ability or potential for high achievement in intellectual, creative, or artistic areas, leadership, or in at least one academic area. The report recognizes that not all children’s gifts receive service in the traditional school setting, so modifications need to be made in order to function more fully in society.

Renzulli’s Enrichment Triad Model (Renzulli, 1984) asserts that giftedness occurs when three components: above average ability, high levels of task commitment, and high levels of creativity come together at one time on some activity. Those three components were found among eminent adults in his research. Above average ability is defined by Renzulli (1978) as those who possess the top 25% – 30% of intellectual capacity. The range is liberal and inclusive in order for creative children to be considered in Renzulli’s conception of giftedness. Task commitment is in many ways synonymous with motivation. Creativity is a key component to the model, as the creative and productive adults studied by Renzulli indicated strengths in creativity and commitment to task, but would not necessarily score in the superior level on intelligence tests. Renzulli also developed the schoolwide enrichment model (SEM) to provide learning opportunities in the students’ fields of interest (1977). The model addresses the top 10% - 15% of students, providing a talent pool for students to more deeply pursue their academic interests (Olenschak & Renzulli, 1989). Betts (2003) offered the autonomous learner model, which operates on the premise that gifted children have intense interests which give rise to a
determination to explore and learn. In order to understand their own giftedness, they engage in and seek experiences that will promote and direct their own learning. The model provides guidance for students to gain the skills needed to conduct independent learning and apply them in enrichment learning experiences, in-depth studies, and small group investigations. The “ultimate goal of the model is to facilitate lifelong learners” (Betts, 1996, p.2).

Gagné (1985) defines giftedness as operationally distinct from talent. Giftedness denotes possession of greater abilities in learners’ areas of strength than 85% (Gagné, 1985) or 90% (Gagné, 2004) of other children of like age. These are natural or innate abilities; children are born with these strengths. Talent is the fulfillment of the promise of the natural gifts facilitated by intrapersonal and environmental catalysts such as persistence or supportive parents. The child may be gifted with one or more natural abilities, but the quality of the developmental process determines to what extent talent is achieved.

**Levels of Giftedness**

Not all gifted children exhibit the same capacities or function intellectually on the same levels (Ruff, 2005). One way of thinking about these differences in high ability is to categorize them into five levels of giftedness based on IQ score (Gross, 1993). Levels of giftedness are often labeled as mildly, moderately, highly, exceptionally, and profoundly; at times these have slightly different titles. The exact IQ ranges comprising each category may differ among researchers, although all are substantially similar (e.g., Gagné, 1998; Gross, 1993; Ruff, 2005).

Gross (1993) assigned her levels of giftedness based on the standard deviations within the normal distribution of intelligence. To understand her meanings, it is necessary to know something about this normal distribution. An IQ of 100 is by definition the average score for
individuals of a certain age (Sattler, 2001). Average intelligence spans scores from one standard deviation above the mean to one standard deviation below the mean. A standard deviation is 15 or 16 points depending on the assessment used. Approximately 68% of the population’s IQ score falls within one standard deviation of the mean IQ of 100.

**Mildly Gifted**

Gross’s definition of mildly gifted is individuals whose intelligence scores are higher than one standard deviation above the mean but less than two deviations (1993). If the intelligence assessment has a standard deviation of 15, the mildly gifted range is from 115 and 129. Intelligence test scores at or above 115 occur in 15% of all individuals, or in a ratio of gifted to non-gifted students of between 1:6 and 1:40. Mildly gifted students are sufficiently served in the regular classroom if their curriculum is modified through enrichment or compacting. A compacted curriculum is the standard curriculum without much of the practice and repetitive activities.

**Moderately Gifted**

The moderately gifted in the same scale would occur in the second standard deviation and just above the third standard deviation from the normal distribution, or would score between 130 and 144 on an intelligence test. Moderately gifted students are found in one percent of the population, in a ratio of gifted to non-gifted children of similar age from 1:40 to 1:1000. Moderately gifted students require a modified curriculum with increased rigor and pace, grouped homogeneously for academic services, and may be considered for single subject or single grade
acceleration. Mentorships in the area of the student’s interest are valuable for moderately to profoundly gifted individuals.

*Highly Gifted*

The highly gifted child scores between 145-159 on intelligence tests, and is found in only .1 to .01 percent of the population, in a ratio of gifted to non-gifted children of similar age from 1:1000 to 1:10,000. Highly gifted students require the curriculum to be challenging and fast-paced. Various forms of acceleration should be offered, such as subject and grade acceleration, individual learning contracts, or self-paced studies. Course options such as languages or technical studies may be considered in order to provide added intellectual challenge.

*Exceptionally Gifted*

Exceptionally gifted children score between 160 – 179 on intelligence tests and occur between four and five standard deviations from the normal distribution. They are found in .001 percent of the population, in a ratio of gifted to non-gifted children of similar age from between 1:10,000 to 1:1,000,000. The exceptionally gifted child requires an individualized curriculum and possibly radical acceleration, or grade skipping of three grades or more (Gross, 2000). Counseling by a professional with experience and expertise in gifted counseling is advised (Cross, 2005).

*Profoundly Gifted*

Profoundly gifted children score at or above 180 points and are extremely rare; they occur between four and five standard deviations from the normal distribution and higher. They are found to occur in fewer than one in one million gifted children per non-gifted. Profoundly
gifted children benefit from radical acceleration, individualized education plans, and national programs that attract highly gifted students for academic pursuits (Gross, 2000). Counseling by a professional with experience and expertise in gifted counseling is also advised for profoundly gifted children (Cross, 2005).

Under both definitions of the levels of giftedness, gifted children are a small portion of the entire population, or the top 10%. The highly gifted to extremely gifted children are more rare and consequently have even fewer opportunities to meet or be with ability peers their same age. The mildly and moderately gifted are not so different from others that they cannot find friends. Being in these levels of ability is optimal for being successful and forming friendships (Janos & Others, 1985). Those gifted students whose ability is above the moderate level are not as easily understood by their age peers and have much harder times finding friends (Gross, 2002). Most age peers do not share the interests of the highly gifted (Cross, 2005) and establish friendships among older children. Having access to others of the similar age and similar intellectual ability is rare, and the intellectual and interpersonal needs of the highly gifted are not easily or regularly addressed in schools (Gross, 2000). The problems presented by differing levels of giftedness presents a challenge for parents and educators as they seek for ways to meet the real intellectual and social needs of gifted children.

Talent Development

Gagné (2003) operationalizes talent development in his differentiated model of giftedness and talent (DMGT). The model (Figure 1) graphically represents six components which begin at the far left of the model with innate gifts and end on the far right as developed talents. The four components in between signify the three catalysts, intrapersonal and environmental catalysts, the
component of chance which, in combination, augment the development of gifts into talents, and the developmental process, learning and practicing (LP) (Gagné, 2003). Theoretical components of the DMGT model provide a structure to examine self-actualization in the talented and gifted learner. Individuals of high potential, who develop their natural, innate abilities into high-level performance, are considered to have developed their talents. Gagné asserts that giftedness in children denotes possession of greater abilities in their talent areas, surpassing 90% of other children of a like age. Their abilities are natural; children are born with these innate strengths. Gagné (1985) distinguishes the terms giftedness from talent. Talent is the fulfillment of the promise of the natural gift. Talent development is the gap between an individual’s potential and the full actualization of the gift. The child may be gifted with one or more natural abilities, but the quality of the developmental process determines to what extent talent emerges and in what domains (Sosniak, 1999).

The DMGT model begins with natural abilities (NAT), which at high levels (90 percentile or more), are considered gifted. Gagné categorizes natural ability as intellectual, creative, socioaffective, or sensorimotor (Gagné, 2003). Intellectual gifts refer to advanced thinking and reasoning. Creative gifts are described as thinking in novel or artistic ways. Sensitivity toward others’ feelings and leadership are socioaffective gifts, while sensorimotor gifts involve physical abilities.

In order to transform high levels of natural ability into high levels of performance, and advance from gifts to talent, the child must grow, learn, and develop. Gagné labeled the facilitators of talent development catalysts. A catalyst is the agent that enables, accelerates or slows down a chemical reaction; these talent development catalysts work the same way speeding up or slowing down the transformation of abilities into performances. Without the positive
catalysts, the reaction would either not occur or would take place slowly. Three different catalysts are influential in aiding the developmental process. In the DMGT model, talent development does not occur without at least one of three catalysts: chance, intrapersonal, and environmental.

\textit{Chance}

A significant, but unmeasured catalyst in this study is Gagné’s model is chance (2003). The myriad of factors that are inexplicable in the two other catalysts and that are not under the control of the child or his/her environment fall in the realm of chance. The child’s family income and the limits of talent development opportunities due to political or geographical reasons are chance elements that may have adverse effects on the child’s achievement. One of the more significant chance events are the formation of the child’s genetic code at conception, which may or may not endow the child with intellectual or physical advantages. Other events of chance are chance meetings between people of influence to the child or key individuals in his life that positively or negatively affect development of his potential.

When catalysts act positively on underlying gifts, the result is the transformation of high-level natural abilities (gifts) into high-level performances (talents). Talent is the achievement of the promises set forth at conception. When the process of combining gifts with catalysts does not work, the result is underachievement (Peterson, 2002), a phenomenon that affects up to 50% of gifted students (Peterson & Colangelo, 1996). The child may have suffered from spending years at schools unresponsive to his/her needs, financial hardship, or lived in a conflict-ridden home (Saunders, 2003). Talent development among gifted children is better understood by examining the effects of environmental and intrapersonal catalysts in children’s lives.
Environmental catalysts are those influences and support systems outside of the child’s control. They include members of the community, such as parents, friends, and teachers. Environmental catalysts also include educational opportunities, curricular interventions, cultural influences, and the child’s physical surroundings. The environmental and intrapersonal characteristics work together in positive and negative ways, carving out the degree to which the child self-actualizes.

Research question 3 asks what the relationship is between environmental catalytic factors such as family characteristics and parenting style and TAMS first-semester grades, behavioral markers, and personal well-being. The family plays a critical role in the talent development of the gifted individual (Bloom, 1985). With support, nurturance, and guidance, families are a powerful catalyst for academic achievement (Moon & Thomas, 2003). The homes of gifted children who highly achieve tend to be child-centered and nurture close, supportive family relationships (Moon & Hall, 1998). Parents who support educational goals and nurture their child’s abilities have more of an effect on actual achievement than the child’s actual grades or previous level of success in that area (Jacobs & Weisz, 1994). Parents of gifted boys tend to offer books, games, and toys that promote visual-spatial and mathematical abilities much more than they offer to gifted girls (Kerr, 1994). This family encouragement often results in boys’ beliefs that they are stronger in math and science than girls, even when the boys had lower grades in the subjects (Jacobs & Weisz, 1994). Families of the gifted are more likely to have children at a more advanced age than average, have earned at least a bachelor’s degree, have one or two children, are supportive of one another, and display common traits of high achievers (Bourdeau & Volker, 2003). Well-educated, mature parents with small families are able to focus on their
gifted children’s demanding developmental needs. They may be more inclined to search in libraries, on the internet, and consult others as resources to help guide their parenting. High achieving themselves, parents understand the challenges their gifted children face, and are able to empathize and show support. In general they are found to have healthy lifestyles, are creative, and have high expectations in the home (Brody & Blackburn, 1996).

Negative environmental factors can have an adverse affect on talent development, as well. A disruptive, unsupportive family life that lacks cohesion and structure has been known to have a negative affect on student achievement. For instance, gifted students coping with divorce have been found to have lower achievement than those raised in intact homes (Sears, 1995). The school environment may have a negative affect on student achievement, as well, if teachers are unable or unwilling to facilitate the student’s academic growth and instead requires the student to turn in the same assignments from the same curriculum that is required of the non-gifted students in the class. Negative peer influences may trigger disengagement from intellectual pursuits as the student seeks social approval. Other catalysts that may have a negative affect on talent development include parent behaviors, physical location, and political events. A child may live in a dangerous area, where the focus on survival takes greater priority than talent development. Whether the child lives in a neighborhood riddled by gang violence or in a home with domestic violence, attention to academic activity is often minimized.

Some environmental catalysts do not exist in a child’s life, so the lack of such catalysts serves to undermine talent development. For example, a child may live in an isolated community miles away from activities or programs that would otherwise augment the child’s gifts. A needed but nonexistent coach or mentor, or a lack of parents or other family members who otherwise would provide enriching lessons and learning experiences would have a negative effect on the
child’s achievement.

Muratori, Colangelo, and Assouline (2003) focused on the first semester experiences of early entry students and how they are affected by family factors. The students believed they had made significant progress academically, and appreciated the professors’ wealth of knowledge. Early college entry students reported either stronger and improved relationships with their parents or no change in the parent-child relationship. Those who reported improved relationships stated that they began the ece program with a positive, healthy bond with their parents, and the quality of the relationship continued. Students who perceived an improved relationship attributed it to their parents’ newfound trust in them. Parents found that the students were no longer dependent on their parents for daily activities, yet they were still able to accomplish their various responsibilities on campus independently. Students whose families showed support of their children’s participation in the early entry college experienced more success than the students whose family environments were not supportive (Muratori et al., 2003).

Hoggan & Sayler’s study (2006) confirm earlier findings that student relationships with their families either did not change or actually improved as a result of the student’s early college entry. The initial relationship in the study was generally strong and positive, but had deteriorated in the previous couple of years because the student was not allowed to operate outside strict parental oversight and limits. Once the parents saw how well the student adjusted to residential life and college and extracurricular courses, their relationship improved for two reasons. The parents gained trust and began to communicate on more of a peer level than before moving to the early entry campus. As both studies revealed, students not only enjoyed added freedom in their new environment, but they found that given the freedom, they made good and reasonable choices without their parents’ oversight. The students’ newfound autonomy raised the level of respect
from their parents and placed their relationship on a more equitable.

Negative parenting characteristics include over-involvement in the child’s life, placing undue pressure on the child to achieve beyond his/her abilities, and failing to support or understand the child (Bourdeau & Volker, 2003). Oddly, families that are undergoing strife, disturbances, or other stressors have been found to foster creativity in their gifted adolescents (Chan, 2005). The creative outlet may be a coping mechanism for children in dysfunctional family environments (Moon & Hall, 1998). In order to function well in a challenging home situation, the child creatively engages in creative activities that help the child feel more empowered or offer a respite from family stress. When a supportive and cohesive family is undergoing challenges, the child often develops emotional resilience and coping skills which then result in creative achievement (Chan, 2005).

Parenting Styles

Research consistently confirms that patterns of parenting affect the emotional and intellectual well-being of children in specific ways. Children from highly authoritarian homes, a parenting style that is considered quite harsh, or from permissive, uninvolved parenting, were found to be angry, rebellious, and undisciplined (Arnold, O’Leary, Wolff, & Acker, 1993). On the other hand, authoritative parenting, which allows for open communication from parents who monitor their children’s activities and are aware of the choices their children are making in their lives contribute to their children’s satisfaction with their relationships within the family over time (Caprara, Pastorelli, Regalia, Scabini & Bandura, 2005). Three main styles describe most patterns of parenting: authoritative, authoritarian, and permissive (Reitman, Rhode, Hupp, & Altobello, 2002). They are each described in terms of demandingness and responsiveness.
Demandingness relates to parental expectations that are made to develop the child’s maturity and behavior (Baumrind, 2005). Such social development is made under parental oversight and communicated correction when needed. Responsiveness refers to the level of attention given to the child in response to his/her needs, verbally and physically. “It includes warmth, autonomy support, and reasoned communication” (p. 61-2). Families high in control, maturity demands, responsiveness, and communication are positive catalysts which facilitate talent development (Cook, Herman, Phillips, and Settersten, 2002). Negative catalysts occur in various combinations. For example, a family high in control yet low in responsiveness does not pair warmth and reasoning with the parental demands. This is a negative catalyst to talent development because the child is left with an emotional need that is not being met, which can distract from personal and intellectual development.

**Authoritative parenting style.** Authoritative parents employ a high level of control, maturity demands, and responsiveness and communication (Baumrind, 1993). They have a high standard of behavior, and expect their children to live according to those standards (Reitman et al., 2002). In the Euro-American culture, children show greater achievement in authoritative homes (Baumrind, 1993). In an authoritative home, the parent controls the child’s activities, and expects the adolescent to engage in age-appropriate duties in the home and activities when away from home (Baumrind, 1993). The authoritative parent balances control with choice, creating an atmosphere where the child has direction and limits set by the parent, but within those parameters is the child’s power of choice (Arnold, et al., 1993). This promotes a sense of independence and autonomy in adolescents, and is known to contribute to their sense of control over their actions, self-reliance, self-esteem, and wonder (Reitman et al., 2002).
When a conflict arises, authoritative parents will take the minimum intervention needed to ensure a good resolution to the conflict (Baumrind, 1993). An authoritative parent lets the child know where the limits are, is consistent in enforcing those limits, invests time and energy in communication and responding to the child’s needs, and communicates with persuasion. Children have a heightened sense of capability, security, and connectedness with their family members (Baumrind, 1993). As a result, authoritative parents facilitate their children’s academic and social success (Reitman et al., 2002).

**Authoritarian parenting style.** An authoritarian parent is high in demandingness and low on responsiveness, or warmth (Buri, 1991). The style is high in control and maturity demands, but low in responsiveness and communication (Reitman et al., 2002). This indicates that the parents are highly directive and place great value on unquestioning obedience (Buri, 1991). Authoritarian parents allow their children little freedom of expression in that they are the source of authority, knowledge, and direction in the home. (Baumrind, 1993). Adolescents parented by authoritative adults often exhibit low self-esteem and became indecisive and developed the habit of procrastination (Ferrari, 1993).

**Permissive parenting style.** Low levels of control, maturity demands, responsiveness, and communication mark the permissive parenting style (Baumrind, 1993). There is little investment in the rearing of the child in terms of time and energy (Arnold, et al., 1993). The parent is under involved; the parent rarely intervenes in conflicts, character building opportunities, or invests time or other resources in the child’s activities and interests (Baumrind, 1993). Gifted children often show a great capacity for empathy, justice, and moral reasoning (Lovecky, 1997). Young gifted children are dependent on their parents to connect them with opportunities to further their passions, yet permissive parents are less likely to take that initiative. Parents play a key role in
facilitating the development of empathy in their children in their early years. Permissive parents of gifted young children miss that opportunity to validate and strengthen their potentially strong characters and emotional gifts because they tend to be generally inattentive, indifferent, or unresponsive to their children’s social and emotional needs and characteristics, which often results in underachievement (Hickman & McKenry, 2000). Permissive parents generally do not respond to their children’s pleas for attention, recognition, or assistance (Arnold et al, 1993). Gifted children in permissive homes have more intense needs to be listened to, as they often find a social void among their age peers, and parents give the child an avenue of expression not readily available in school or other age-similar settings. Gifted children raised in such a home who feel neglected can suffer from low self-esteem (Arnold et al, 1993). Their parents do not validate their verbal and academic expressions, so they may feel inadequate and less worthy of their company. This can have a negative affect on their academic pursuits as they encounter weak or no support for their school work at home (Cross, 2005).

Speirs-Neumeister (2006) studied the origins of perfectionism through parenting style and attachment, and researched how it affects achievement goals among highly-able students. The three achievement goals are mastery, performance-approach, and performance-avoidance (Speirs-Neumeister, 2004). Mastery goals are learning goals, as the intent is to master or become proficient at an undertaking. The intent of performance-approach goals is to show mastery in comparison to others, and performance-avoidance goals protect the individual from experiencing failure and decreasing self-worth. Authoritative and permissive parenting style are high in responsiveness, which more strongly builds secure attachments with their children. Securely attached perfectionists are more achievement oriented than insecurely attached perfectionists (Speirs-Neumeister, 2006).
Perfectionists are categorized as self-oriented, socially prescribed, and other-oriented (Hewitt, & Flett, & Harvey, 2003). Authoritative and permissive parenting styles are high in responsiveness and are more likely to develop secure attachments with their perfectionistic children. These children are more likely to be mastery or performance-approach goal oriented, while socially prescribed perfectionists are more likely to be performance-avoidance goal oriented. Teachers are encouraged to award the process of some tasks in addition to the product to encourage effort and reduce fear of failure (Speirs-Neumeister & Finch, 2006).

**Intrapersonal Catalysts**

Question number 2 asks what the relationship is between intrapersonal catalytic factors present in the individual prior to TAMS entry and TAMS first-semester grades, behavioral markers, and personal well-being. Intrapersonal catalysts are those physical and psychological traits that the child possesses. Physical catalysts may be significant factors in a child’s talent development. A pianist would benefit from long, nimble fingers. A slim, short gymnast has an advantage over a tall or heavy competitor to become a top athlete in the field. Physical height is advantageous for a potentially nationally-ranked basketball player. Overall physical health is a necessary component to achievement, as illness and physical handicaps may prevent the body and the mind from performing well. Psychological traits can facilitate self-actualization, as well, such as motivation, determination, innate personality, temperament, and self-efficacy. Individuals who persist in their efforts, are diligent, work well with people, and are able to manage their time are found to focus their energies in the areas required for fulfillment of their potential. These traits are internal to the child, and can have an affect on full talent development (Gagné, 2003).
Negative psychological and physical intrapersonal factors can have an adverse affect on talent development. A gifted person who is lacking self-motivation will not achieve to the degree he or she is capable nor as well as a motivated gifted person. An individual who has an impatient or irritable temperament may not manage stressful situations well, so is at a disadvantage that likely has a negative affect on achievement (McNabb, 2003).

_Coping Skills_

In general, adolescents are in one of the most transitional stages of their lives (Adams, 2000). They are becoming more independent, struggling with issues of autonomy and personal identity, and determining their social roles in society (Tomchin & Callahan, 1996). Gifted adolescents who deal in a healthy way with academic and peer stressors and how they define themselves as they gain a clearer sense of their identity, using optimal coping skills are healthier emotionally, academically, and socially (Tomchin & Others, 1996). Sinclair & Wallston (2004) and Preuss & Dubow (2004) found that complex intrapersonal characteristics enable children to adjust to stressful circumstances more effectively than others. Family, peers, and other supportive people in the child’s life also aid in the adolescent’s efforts to cope with adversity (Reis, Colbert, & Hebert, 2005).

Tomchin, and Callahan (1996) found coping strategies such as employing the support of family and friends, engaging in solving the problem, and having a positive attitude to aid in reducing or eliminating stressors not uncommon to gifted adolescents. On the other hand, difficult family situations and troubled peer relationships add stressors that make adolescent adjustment more challenging (Muratori et al., 2003).

In addition to stressors common to adolescents such as peer pressure to engage in unsafe behaviors such as illegal drug use and sexual activity, many gifted children experience a lack of
valuable social support due to introversion, are unrealistically demanding of themselves due to perfectionism, and have more sensitive natures (Cross, Gust-Brey, & Ball, 2002). In the school setting, many suffer from ridicule over stereotypically gifted characteristics, such as being called “nerds” and “geeks,” and not relating well socially to their age peers (Cross, 2005). Children may degrade them for showing a high interest in academics while their teachers express disappointment in them because they believe they are capable of achieving much more (Silverman, 1997). Boredom with school work is a common stressor among the gifted (Gallagher & Others, 1997). Davidson and Davidson (2004) report a seven-year-old boy who redesigns the carbon dioxide recovery system of the Apollo spacecraft, and other children with equal accomplishments, yet are expected to behave compliantly while completing repetitive, simple schoolwork for hours a day. A 13-year-old gifted girl with physical overexcitabilites stated, “Honestly, some classes are boring and I wish those who understand could go ahead and work, then maybe I wouldn’t use my energy so harmfully” (Piechowski & Colangelo, 1984, p. 81).

Gifted adolescents often consider the less demanding curriculum and lack of challenging courses as key reasons to participate in an early-college-entry program (Olszewski-Kubilius, 1998). Alsop (2003) noted that uneven physical and mental development contribute to stress among our gifted youth. As preschoolers, they may struggle with writing neatly or cutting with scissors, while their minds are engaged in thoughts well beyond their young years. Contemplating complexities of social injustice, world events, or other emotionally charged issues, they may not possess the emotional maturity required to readily resolve them (Mendaglio, 2008). Cognitively advanced children who are sensitive to the plight of starving children on the other side of the globe lack the resources and power to lessen their pain (Silverman, 1997). Heightened empathy and emotional sensitivity (Dabrowski, 1964) increase the level of stress as
the gifted child reacts to criticism or empathetically feels for a child in pain. However, because of their advanced reasoning and problem-solving abilities, gifted children are reported to be better equipped than their non-gifted peers to handle stressors (Kitano & Lewis, 2005). Higher intelligence is a positive factor when offered strategies to overcome difficulties, and gifted children tend to employ coping strategies more often than their age peers (Preuss & Dubow, 2004).

Early college-entry research has reported heightened student satisfaction academically as well as socially (Brody, Assouline, & Stanley, 1990). Such educational opportunities offer students advanced coursework, a wide array of academic choices, and a social environment among their interest and age peers (Sayler, 2006). Research on student satisfaction in early college entrance programs found that while gifted students were more likely to be introverted, they did find at least one good friend in their new environment, something that was difficult in their previous non-accelerated settings (Olszewski-Kubilius, 2002). Gross (1994) explains the social advantage of acceleration, as it gives gifted children a greater chance to find their intellectual peers, which increases social satisfaction. All early-entry students in Noble, Arndt, Nicholson, Sletten, and Zamora’s study felt accepted by the older aged college students (1998), yet previous to the early entrance, they felt emotionally alone in their high schools. Muratori, Colangelo, & Assouline (2003), in examining first semester impressions of early college entry, found that all of the students in their study at the National Academy of Arts, Sciences, and Engineering (NAASE) were satisfied with their social life even in the first months of attendance (Muratori et al., 2003).

Highly gifted children who leave home in their middle-teen years in order to attend college have unique stressors. While they rarely report boredom in the early-college environment
(Muratori, 2003), they are faced with challenges unfamiliar to most children their ages. While many early-entrance students who chose to leave high school report feeling a sense of loneliness in their schools due to the scarcity of other true peers from which to form friendships, some continue to feel alone, especially in the first months of early college entry (Muratori et al., 2003). Separation from family, close friends, and perhaps a love relationship leads to home sickness and a feeling of isolation are key factors in first semester adjustment (Muratori et al., 2003). Students who integrate into their new community, who benefit from support systems in place by the program, and who have professors who take time to connect with them more successfully overcome the first semester transition from home to school (Olszewski-Kubilius, 2002).

The few early entrants who do not find or make support systems and fail to embrace the new social milieu experience depression and in severe cases suicide (Cross, Gust-Brey, & Ball, 2002). While psychological disorders and suicide are caused by a number of factors and occur across the adolescent subgroups culturally, ethnically, socioeconomically, and intellectually, some factors that contribute to depression and suicide are unique to the first semester early college experience are loss of social supports through change in school environments and problems with peer relationships (Cross et al., 2002). Early entry programs have responded to the need for strong support systems for their students. As a result, most early entrance students adjust well socially and academically in the first semester (Janos, Robinson, & Lunneborg, 1989). Although prior scholarly thought attributed some gifted characteristics to adolescent suicide, such as overexcitabilities, perfectionism, and intellectual focus at the expense of developing social relationships, more research is needed to determine factors leading to suicide unique to the gifted child, as Cross (2006) in Cross et al. (2002) finds no clear differences between gifted versus non-gifted causes of adolescent suicide.
Motivation

The concept of motivation in education is of great interest to researchers and educators, as they have direct implication on the development of human potential. The Latin term *motive* translates ‘to move’ (Weiner, 1990). In educational pursuits, the goal is the student’s cognitive movement, or academic achievement. Motivation is also called task commitment, persistence, intrinsic interest, challenge seeking, passion to learn, or effort expenditure (McNabb, 2002). Task commitment is a third of Renzulli’s conception of giftedness (1984). Winner (1996) refers to the flow state, or a state of sustained interest, when speaking of motivated gifted children.

Not all gifted children experience sustained motivation to learn. Gifted underachievement is the result of external and internal factors that influence decreased motivation. External factors may include family strife, inappropriate level of coursework at school, or social pressure to reject intellectual pursuits (Peterson & Colangelo, 1996). Internal factors may include their views of their abilities and to what they attribute successes and failures (McNabb, 2003). Attribution theory (Weiner, 1983) states that individuals react to various achievement outcomes according to the causes they claim for the achievement: ability and effort, of which they have personal control, and task difficulty and luck, of which is outside of their control.

Most gifted students attribute their academic successes to both innate ability and to effort (Siegle & Reis, 1998). Achieving students tend to attribute their failures in academics to a lack of effort. Gifted underachievement occurs when the students attribute their successes and failures to circumstances outside of their control. Luck explains their successes, and lack of ability or misfortune explains their failures (Reis & McCoach, 2000). Underachieving students believe they will experience future failures because the nature of ability is stable or fixed. If they believe
they do not have the cognitive capacity to achieve success at the course or assignment, they do not invest more energy and time in it, as success cannot be achieved. The result is often a loss of self-confidence and a decreased perception of ability (Peterson & Schreiber, 2006).

Gender differences exist in personal attribution, especially in mathematics. Middle and high school boys, when asked to explain their academic success in mathematics (Jacobs & Weisz, 1994) or computer technology (Reis & Graham, 2005), tend to attribute similar success to their natural ability to do well in the subject, while girls who are challenged with advanced coursework in mathematics or computer technology tend to attribute their high abilities to chance, luck, or the fact that they worked hard and put in extra effort to account for success in the course. Gifted adolescent males attribute their failures to a lack of effort, while high ability females tend to attribute their failures to lack of innate ability in mathematics and science (Siegle & Reis, 1998). Gifted young men are able to maintain or increase their academic self-confidence by acknowledging that added effort would have yielded greater results (Jacobs & Weisz, 1994). However, gifted girls become less confident in their ability to achieve as they approach adolescence and receive less feedback from their teachers, peers, and parents about their ability and more praise on their effort (Reis, 2002).

Ziegler, Finsterwald, and Grassinger (2005) suggest raising young gifted girls’ academic self-esteem by helping them link their successes to effort and ability and their failures to lack of effort and poor study skills. When a gifted adolescent girl experiences failure, Ziegler et al. (2005) recommends giving specific and clear ideas about how to improve, and assure them that through applying effective learning strategies and effort, their abilities in mathematics and science will improve. When they succeed, educators should praise their efforts often while they are working toward the academic goal (Dweck, 2000; Jacob & Weisz, 1994). Girls who
restructure their thinking about the causes of their academic outcomes may experience less fear of mathematics and science challenges and will be more likely to pursue coursework in those fields (Ziegler et al., 2005).

**Achievement Goal Orientation**

In order to develop intellectual potential, intrapersonal catalysts such as motivation are helpful to support growth. Internally motivated students are better able to overcome setbacks in their efforts to achieve. Gifted students, especially highly gifted students, often have few opportunities to struggle intellectually in school. However, early college entry programs provide such challenge and offer the student almost limitless opportunities to achieve academically (Muratori, 2003). Researchers in the social-cognitive approach in motivation theory have found that students of like ability can react to intellectual challenge differently, depending on whether their goal is to show how capable they are or if their goal is to learn and improve in a specific task (Dweck, 2000). Achievement goal orientation examines the intrapersonal catalyst of motivation from the students’ approaches to performing and learning tasks (Urdan et al., 1998). Such implicit approaches to motivation focus on how the student set their goals for achievement as well as how they react to their levels of performance upon completion of tasks. These goals are influenced by the way they perceive the changeability of their own intelligence (Dweck, 2000). A student who believes that intelligence is static, unchangeable, and fixed at birth adopts the entity theory of intelligence (Dweck, 2000). If this student has come to understand that he is gifted, most learning tasks come with little effort, reinforcing his view of his intelligence (Dweck, 2000). The entity theorist who faces challenges that may result in failure is at risk of believing that his intelligence is lacking. If a task appears too difficult to master, it is too difficult because the student lacks sufficient intellectual capacity. A common strategy among gifted entity
theorists is to avoid challenges if the probable result is less than optimal in order to protect his view of his intelligence (Dweck, 2000). Those who hold an entity, or fixed view of intelligence are performance-oriented. Their intent when attempting a task is to show competence, intelligence, and other positive measurements of success (Dweck, 2000). The goal is to achieve at the task, so if the task appears to be too challenging in the individual’s mind to guarantee success, or if the student perceives that attempting the task risks failure, the performance-oriented student tends to avoid such tasks rather than to appear to others as unintelligent. (Dai, Moon & Feldhusen, 1998).

The second approach, learning goal orientation, is motivated by improving a skill or gaining knowledge. The degree of success is secondary; as the student is less concerned with how smart he looks to others and more focused on his learning. Those whose achievement goals are oriented toward learning take the incremental view of their intelligence (McNabb, 2003). Incremental theorists believe that learning is a function of effort. The process is the reward, as skills can be gained, objectives can be mastered, and improvements can be made as one engages in intellectual challenges. Those engaged in learning-oriented goals hold the incremental or malleable view of their intelligence, one that supports improvement over time under growth-promoting conditions. Students who approach challenging tasks with a learning goal orientation do not fear failure (Dweck, 2000). Should initial failure be the result of such efforts, the student does not give up. Instead, the student employs thinking and learning strategies plus time and effort in the optimistic view that eventually they will succeed at the learning task (Grant & Dweck, 2003). Learning goal-oriented students thrive on the process of improving and becoming more intelligent or competent at a task, which results in positive self-efficacy and confidence (Kennett & Keefer, 2006).
Both approaches motivate achievement and are commonly applied by individuals in different learning situations, but optimal achievement outcomes occur when the student employs both performance and learning goals while attempting a challenging task (Dweck, 2000). Learned helplessness and underachievement occurs when the student becomes highly focused on performance and copes with the fear of not meeting expectations in others by avoiding such challenges altogether. The resulting self-doubt and a loss of confidence have implications among gifted students in issues of underachievement. Gifted students are often told that they are intelligent, which promotes the fixed view of intelligence. When parents, teachers, and even peers praise them for their intelligence, their motivation to succeed decreases, as the focus is placed on performance, not ability. They are more inclined to protect the cause of the praise, the perception of intelligence, by ensuring success at tasks and avoiding challenges that might risk that positive perception.

Often teachers and parents link lack of effort with giftedness, as they might recognize that a task was easy for the child and attribute the child’s intelligence to the level of ease. The intellectually rigorous task requiring substantial effort challenges the child’s fixed belief in his cognitive capacity. In order to orient the gifted child toward an entity view of their intelligence, family members and teachers are encouraged to praise effort rather than innate ability. Often schools provide less rigor and challenge than the gifted child’s capability. In these cases, parents and teachers should not praise children for high grades and other forms of academic results when little effort was expended. Praise for accomplishing tasks that require little effort of the gifted student reinforces their fixed view of intelligence, as it rewards achievement without effort. The student holds a stronger view that he is successful due to his high intelligence, and links low effort to high intelligence. When tasks become more difficult and challenging, the student
believes that the struggle indicates his intelligence is not as high as he had previously perceived. The result may be a withdrawal from challenging coursework in order to preserve his view of his intelligence (Dweck, 2000).

Parents can affect their children’s goal orientations. Ricco, McCollum & Schuyten (2003) showed that mothers who praise the child’s efforts during the process of the task for the amount of effort involved promotes the learning goal orientation. Parents who praise their children for the positive measured results given at the end of the task, such as a grade or other feedback from authority figures, encourage performance goal orientation. Cross (2008) found that parents and teachers who praise gifted students for their intelligence instead of for their efforts become more focused on their performance in an effort to protect the image of their giftedness. Gifted adolescents’ concerns with performance in part explains why underachieving gifted choose less demanding courses in middle and high school (Dai, et al., 1998).

Achievement motivation has implications for the gifted individual. The motivation to reach to a high level of talent may be impeded by the child’s perception of his own efforts (Ziegler, Finsterwald, & Grassinger, 2005). When the child believes that his efforts are beyond his control or that his efforts must appear to others or to himself to be successful in order to determine whether or not to attempt them, his ability to achieve his potential is minimized (Siegle & Reis, 1998). Gifted experts concerned with gifted underachievement are concerned with the limiting effect of the child’s perception of his intelligence and the control he has over his own achievements through interventions such as providing continuous encouragement and positive judgments while the student is working on an intellectually challenging project (Jacobs & Weisz, 1994) and attaching the gifted adolescent’s accomplishments to high ability accomplished through hard work and effort (Dweck, 2000).
Acceleration

Research in the area of talent development has shown that students of high intellectual ability benefit from various forms of academic acceleration, such as curriculum compacting, subject skipping, grade skipping, and increasing content complexity and pace (Colangelo, Assouline, & Gross, 2004). The more highly gifted, the more radical accelerative measures needed in order for the pace and complexity to meet the child’s need for intellectual stimulation (Gross et al., 2003). Researchers, teachers, and parents have found that when there is a disconnect between instructional level and pace and the student’s ability, the child suffers socially and emotionally (Stanley, 1978). Many highly gifted children in Gross’s (2006) longitudinal study who were unable to accelerate into a level of instruction that matched their abilities were lonely because they could not find friends who had similar interests or abilities. Gross (2006) has focused on the self-esteem effects of acceleration and non-acceleration among highly gifted students, and found that, in general, students who were adequately advanced in their curriculum had greater self-esteem and were better adjusted emotionally than equally able, non-accelerated peers.

Early College Entry

The social, emotional, and cognitive effects of early entry study have found that acceleration is an effective intervention for students who would otherwise have had to continue in high school courses that would have been unchallenging and unproductive (Gross, et al., 2005). Early college entry (ECE) is a form of acceleration via grade skipping. The various early college entry programs include college entry from middle school to entry from high school. The ECE program addressed in this study generally accelerates the student from grade 10 to the
freshman year in college although some enter at younger ages. The Texas Academy of Mathematics and Science (TAMS) facilitates acceleration in content, increasing complexity and pace, and provides structured living and support for the college entrants. TAMS is a state-sponsored, early-college entrance program for high-achieving students in mathematics and science. Students accepted into the program complete their last two years of high school by enrolling in the first two years of college courses emphasizing science, mathematics, and engineering fields. The student completes Algebra II and Geometry in high school and takes Calculus I and II while at TAMS. The courses are taught at the University of North Texas (UNT) by professors. These are the same classes as taught to regular UNT undergraduates and the faculty do not differentiate for the younger TAMS students, thus rigor and expectations remain a university standard.

Early college programs for many academically advanced students have been a positive alternative to high school (Sayler, 2006). Students report few negative results from entering college early (Gross, 2003). Students who are accepted into these programs at various universities are generally high achieving, productive students. While the opportunity to enter TAMS or a similar program has been proven to be a viable option for the accelerant, and progress has been made in determining what qualities are desirable in a potential student applying for placement, there is sparse data describing the successful first semester early entry student. In this context, success is defined not only in terms of measures of academic achievement, but also of positive social, emotional, and spiritual contributions to a fulfilling life.

Related studies of high-school graduates’ freshmen experiences have shown that relationships with parents can change from parental authority and control over their adolescent, to more of a peer relationship. The parents realize that they are no longer in control to the degree
they were when their children were living at home, and they also often find that their young adult is capable of responsible behavior in the less restrictive environment (Keup, 2007)

Muratori (2003), in one of the few studies of first semester early entry students, found that strong family relationships remained strong during the separation due to school, and those families with weaker relationships found theirs to improve over the semester. Hoggan and Sayler (2006) found that in the study of an early entry student and his parents, the separation and increased freedom experienced by the student allowed him to utilize his maturity and strong moral compass to make wise choices with his life. His parents were able to confirm that their son’s independence from a highly controlling and authoritarian father actually improved their relationship in the two years he was at TAMS. Both studies reflected the high expectations that successful early college students have supportive parents who believed their children would be academically successful and expected such achievement.

DeBerard, Spielmans, and Julka (2004) concur with this study’s findings that high school GPA and SAT scores predict academic success in the first year of college. Past achievement predicts future achievement. Students who applied themselves to scholarly pursuits were more likely to continue to do so while in college. They also found that the ability to cope well and receiving support from family, friends, and others in their communities contributed to freshman year academic achievement.

Talent Identification and Service Options

Some developmentally appropriate educational interventions for highly gifted adolescents are acceleration or even radical acceleration and increased depth and complexity of instructional delivery and materials. Few schools encourage or allow acceleration, let alone radical
acceleration. Fewer schools have teachers and programs designed to move at the cognitive speed of highly gifted students (Gross et al., 2003, Colangelo, et al., 2004). Honors classes in the middle and high schools are designed for students who are a little above average, whose IQ is one standard deviation above the mean. The advanced placement (AP) and International Baccalaureate (IB) courses accommodate these able and mildly gifted learners. Both AP and IB classes offer college credit. AP courses are advanced level courses, which may be chosen according to the goals and wishes of the student. IB courses are an integral multiyear articulated curriculum, often with an interdisciplinary orientation.

Dr. Julian Stanley (1995) found IQ tests insufficient to accurately measure the mental capacities of highly gifted children for purposes of educational interventions. So beginning in 1972 he and his colleagues instigated the process of having highly-gifted middle-school students take the Scholastic Aptitude Test (SAT); taking the test six to eight years earlier than normal. Stanley realized the SAT was an appropriate vehicle by which to distinguish among the performances of the middle-school gifted. Those who scored well for their ages were placed in the Study for Mathematically Precocious Youth (SMPY) at The Johns Hopkins University. Later, the Talent Identification Program (TIP) was created to work with these gifted youngsters whose abilities were in mathematics and other domains. TIP and other regional talent searches recognize high performers and offers information for talent development opportunities to the participants’ parents and educators (Stanley, 1995).

The Stanford University’s Educational Program for Gifted Youth (EPGY) or Online Gifted High School (OHS) offers students online advanced high school courses for students who want to accelerate their learning or seek a stronger curriculum than available locally (Chamberlin, 2006). This program complements classroom instruction, so some urban and rural
students have benefited from this opportunity. As an independent high school, academically qualified students from all over the country and the world are able to enroll and receive credit from EPGY. Instructors are chosen for their advanced knowledge in their assigned subject matter and are specially trained by EPGY to provide instruction through the online medium (EPGY, n.d.). Students may communicate with instructors through electronic mail, phone, or their periodic virtual classroom sessions. Specific course credit is offered through enrollment in the Stanford Continuing Studies Program (CSP). Students may seek an EPGY-OHS high-school diploma through their three year plan, or they may take courses on a part-time basis in concert with their current high school courses. In addition, EPGY-OHS offers accelerated summer residential classes.

Early college entry students entering the new environment experience a variety of transitions in their lives. The early entry student is faced with adjusting to living away from home, family, friends, and community. New social ties are made while either continuing or severing various ties from the previous environment. One of the greatest concerns of early college entrants is social opportunities. They have left all of their friends in high-school, and are faced with building new relationships. Researchers found that once the students acclimated to their new campus, they easily found meaningful, and in many cases, lasting friendships (Sethna, Wickstrom, Boothe, and Stanley, 2001). Many found relief from student ridicule in their home schools and were grateful for interaction with their intellectual peers. (Muratori, et al., 2003). The academic curriculum was quite satisfactory to most, and their level of satisfaction with the overall programs at the various early entry programs was generally very high, reporting a renewed passion for learning as a result of increased rigor and pace (Gross et al., 2003).
Sayler (1995) noted that successful early college entrants have supportive teachers and families, are intelligent, socially mature for their age, and are confident that they can succeed in the new environment. They value their friendships, although some suffer in isolation. He found that successful males in the early years of TAMS were more active in church and music activities, and less active in sports while in high school than the unsuccessful TAMS students. Successful females at TAMS were more likely to have participated in music, academic, social, and recreational activities while in high school than TAMS women who did not.

Muratori, et al. (2003) observed in students attending the National Academy of Arts, Sciences, and Engineering (NAASE) that unsuccessful students who found themselves missing family and other significant relationships in their home towns. Others simply do not adjust to the heavy homework and study schedule, as prior to early entry, they had rarely had to apply themselves. Coleman (2002) found that students leave early-entry college programs in part because their inability to adjust to the demanding academic load. A phenomenon in many early-entry environments is the realization that study is required in order to maintain even a passing or minimally acceptable grade. This may be the first time in the life of the highly-gifted adolescent that study was necessary for academic success.

Other highly qualified students choose not to even apply to early entrance programs because of their inability to pursue their athletics or other activities not offered in the early college setting (Muratori, et al., 2003). Jones, Fleming, Henderson and Henderson (2002) add that distance from home, insufficient or nonexistent extracurricular activities in the new college setting, financial concerns, cultural issues, and not wanting to leave their home, their friends, and their high schools were additional reasons for not proceeding with the early entry application process. In general, however, students in early college entrance programs feel a sense of
belonging, were satisfied with their new social lives, and felt autonomous (Olszewski-Kubilius, 2002).
CHAPTER III

METHOD

Setting

*TAMS Life*

All TAMS students must live in McConnell Hall, the dormitory reserved for the program participants. Their life closely resembles that of their older UNT peers, although they have stricter rules and guidelines to follow because of their ages and because they are under a different system within the university (Texas Academy of Mathematics and Science, n.d.). Students are encouraged to participate in a wide variety of TAMS and UNT activities. The TAMS system attempts to provide some of the high-school activities that students of this age may enjoy, such as clubs, volunteer activities, a TAMS yearbook, and even a prom. TAMS provides a social outlet for this population, as they are, on average, two years younger than their university peers. The TAMS organization also provides a counselor, hall directors, and other assistants to facilitate the students’ academic, social and emotional needs.

*Academics*

For coursework, however, TAMS students matriculate into the university classes. There are no specific courses reserved for only TAMS students. They are required to take a rigorous core curriculum of mathematics such as calculus I and II, science, such as biology, chemistry, and physics, English, and history courses (Texas Academy of Mathematics and Science, 2005). With some restrictions, students in good standing may take additional courses of their choice (2005). Students must complete at least 57 semester credit hours in order to graduate, and they must maintain a 3.0 cumulative grade-point average although many take more courses (2005).
Subjects

The participants in this study were a sampling of student and parent volunteers from the population of approximately 200 Texas Academy of Mathematics and Science (TAMS) who enter the program in the fall of 2006, graduating in the class of 2008. TAMS is a residential state program that allows students to complete two years of college after completing their tenth grade year of high school. The demographic data of the sample of the incoming class reveals a gender distribution of approximately 52% male and 48% female. They have either completed the tenth grade or have at least completed algebra II and geometry. In addition, they are required to take a set of mathematics diagnostic tests and those who are preliminarily selected are interviewed by a committee chosen by TAMS. Typically, TAMS cohorts have represented all major ethnic groups. The average age of the sample for this study is 16 years, with a range of 15 to 17. TAMS students have lived in all major areas of the state. Their family socioeconomic status varies from low to high. The parents and students of the class of 2008 are predominantly Asian (52%), followed by 37% Anglo, seven percent Hispanic, and four percent African American (Texas Academy of Mathematics and Science, 2005). Their average composite SAT score, which includes, verbal, quantitative, and writing, is 1900. The goal at TAMS is to recruit students who are similar demographically to the general student population in Texas (Academy Profile, 2005), although a hard demographic distribution is not forced. In fact, the 2006 census reports that 82.7% of residents of Texas are Anglo, 35.7% are Hispanic, 11.9% are African American, and only 3.4% are Asian (US Census Bureau, 2008).

Information about TAMS parents indicates that they are generally well educated (McDaniel, 1997). An overwhelming majority have earned college degrees, while 42% of them
hold advanced degrees. Of the 90 TAMS parents responding, over 43% reported an income in the $112,000+ range, with almost 26% in the $80,000 - $111,999 range.

Research Design

The design of the study was a quantitative descriptive study that employed survey method for data collection. Multiple surveys containing several established research instruments were administered to students and parents at the summer orientation and again at the end of the first semester. These data were then compared to grade-point average, behavior markers, and personal well-being. A focus group was also conducted following the first semester grading period in order to gain additional information about their transition to TAMS.

All adults and minors participated voluntarily in this study. The population of the study was the junior class entering TAMS in the fall of 2006. Approximately 200 students, most of whom were rising high-school juniors, were expected to enter the program in the summer of 2006. These students and at least one parent were asked to participate in the study. One hundred eighty-nine students participated in the initial data gathering. All personally identifiable data of students and their parents or guardians were kept confidential. Each student was assigned a random numerical code. All data collected from questionnaires and surveys contained this code. The match between number and name was assigned and maintained, along with the consent forms, in a separate location from the coded questionnaire results. Signed consent forms and coded questionnaire results were maintained in separate locations. Records were kept in locked files in a predetermined office. Personal identifying data were separated from the research data and kept in separate locations from the research data. The anonymous data were presented to the dissertation committee and the TAMS staff.
The study is generalizable to early-college entrants who reside on campus. The social life of the ece is unique in that TAMS students reside together in one residence hall and form quick and lasting friendships with other ece students there. Early college entrants do not have similar environmental, social, or academic experiences as students of high school age who are taking community college classes or courses for university credit while still attending their local high school. The study is specifically generalizable due to separation from family and established social and academic communities, matriculation into the university, and the lack of sheltered courses.

Context

A request for volunteers for the study was mailed to the newly selected TAMS students and parents in May, the month before TAMS New Student Orientation. Parent/Guardian Informed Consent and Parent/Guardian Consent of Child’s Participation Forms accompanied the written request to participate in the study. Parents and their children who consented to participate had a self-addressed, stamped envelope enclosed for their convenience. Follow-up requests were made on two occasions.

Variables

The study examined the relationship between talent development factors and talent achievement, or success. Three indicators of success include academic achievement, social adaptation, and satisfaction with life at the end of the first semester at TAMS. Each of the four research questions from this study refers to the success factors as TAMS: first-semester grades, behavioral markers, and personal well-being. The relationship between measures of talent,
intrapersonal catalysts, and environmental catalysts and the indicators of success as defined above are the focus of the four research questions. Academic achievement was represented by the first semester college grades, or grade-point average (GPA). Social adaptation is indicated by behavioral markers that were collected throughout the students’ first semester by the staff at the early entry college. Satisfaction with life was measured by the Personal Well-being Index-Adult (PWI-A, International Wellbeing Group, 2005) after the first semester was completed. First semester college GPA, behavior markers, and personal well-being were chosen to represent success over the time span of one semester because they indicate intellectual, social, and psychological affect and adjustment in a university setting. Other indicators of success, such as physical, creative, or intellectual accomplishments or awards are not included in the study because the TAMS organization restricts competitive activities, especially during the first semester of the program. Core courses are required each semester of the two-year program, and electives are not allowed during the first semester (Texas Academy of Mathematics and Science, 2005).

*Academic Achievement*

*First Semester College Grade-Point Average*

The first of three indicators of success at TAMS is academic achievement as measured by their first-semester grade-point averages (GPA), which is the dependent variable on academic achievement for this study. The first semester TAMS student takes biology and chemistry with labs, English, seminar, and mathematics, which amounts to a total 16 semester hours (Texas Academy of Mathematics and Science, 2005). Grade-point averages are computed on a scale from zero to four. The total number of grade-points awarded is divided into the total number of
semester hours taken. The grade of A is awarded four points, a B is awarded three, a C is awarded two, a D is worth one point, and 0 grade-points are offered for the grade of F (TAMS, n.d.). To remain in good academic standing, students must achieve a first semester GPA of 3.0 or above, are placed on academic probation for a GPA of 2.7 – 2.99, and are withdrawn for earning a GPA of less than 2.7 (Texas Academy of Mathematics and Science, 2005). The courses taken at this university differ from the most advanced courses taken in high schools because the knowledge base from professors is much greater and the curriculum offered has greater breadth and depth. University professors do not differentiate their expectations or instruction for the TAMS students, who are held accountable to the same degree as any other student.

*Behavioral Markers*

Behavioral markers, the second dependent variable indicate behavioral adaptations to new social and academic environments. TAMS students reside in a common hall and create a unique community apart from family and former friends. Behavioral policies established by the early college program support a positive atmosphere conducive to personal and academic growth. Violation of policy occurs by degree, and points are imposed according to the severity of the infraction. TAMS students who adhere to the high standards set by the program contribute to the health and strength of the community. The accumulation of points resulting in policy violations is an indication that the student has not adapted to the new environment. The behavior mark system at TAMS is an integral part of the evaluation process. It is used as the index for the behavioral performances of students and as a criterion for continued participation at the academy.
Minor violations are considered Level 1, the most severe are Level 5. A range of points are assigned to each level, from 10 to 100 points per violation. Level 1 violations, such as minor curfew violations and keeping an untidy room, are worth 10 to 20 points, Level 2 violations, such as allowing visitors or showing affection, are given 20 to 30 points. Level 3e violations include being 30 – 44 minutes late for curfew or violating fire code, are penalized 30 to 50 points. Level 4 violations include vandalism, fighting, or harassment, and garner between 50 and 90 points. Level 5 violations are 100 point penalties, which result in expulsion. The policy violations include illegal drug or alcohol use and theft. TAMS Staff monitors student behavior as an integral part of the evaluation process. The academy includes disciplinary data when making decisions regarding student privileges and continuation in the program.

*Personal Well-being*

*Personal Wellbeing Index-A (PWI-A)*

In this study, well-being was defined by life satisfaction and positive emotional disposition toward various areas of one’s life on the Personal Wellbeing Index – Adult (PWI-A, International Wellbeing Group, 2005) was used in this study to measure life satisfaction and positive emotion. Respondents answered questions about how satisfied they were with their standard of living, personal health, achievement, personal relationships, personal safety, connectedness with their communities, and future security. An eighth domain, for the purpose of comparison with the seven individual domains, is global well-being (International Wellbeing Group, 2005). It asks the question, “How satisfied are you with life as a whole?” Respondents rate each answer in a 10-point scale from (0) very sad to (5) not happy or sad, to (10) very happy.
The participants marked a box that corresponds with the feeling that best reflects their level of satisfaction in the different domains.

Scoring was analyzed separately or together. For the purposes of this study, the composite PWI-A was analyzed in order to limit the number of variables in the analysis.

The PWI-A was administered at the end of the first semester. It was used as a criterion variable to represent one measure of student success. The data gathered from the PWI-A at the end of the study were used to determine the relationship satisfaction with life has with the intrapersonal, talent, and familial variables have in the first semester at TAMS. The PWI-A is a significant instrument because it adds the dimension of happiness to the study’s construct of success. Academic achievement is a fair measure of success, but it is not complete without the ingredient of life satisfaction. Behavioral markers will be added to the success inventory, as well. How one behaves is an indication of personal fulfillment and overall satisfaction.

The measured stability from the norm group data of the PWI-A to predict overall life satisfaction is strong. Between 30 and 60 percent of the variance between each domain and the composite domain is explained, which demonstrates both unique and shared variance among the subscales of the Personal Wellbeing Index (International Wellbeing Group, 2005). The Cronbach alpha for the composite score, or the mean of the seven domains, is between .70 and .85 for the international group studied. The data is normed for the age group of 18 to 24, which is the youngest age group in the study.

*Academic Abilities*

*Scholastic Aptitude Test*

The Scholastic Aptitude Test (SAT, College Board, n.d.) measures verbal and
mathematical reasoning and was used as part of multiple criteria for college entrance. The Test of Standard Written English (TSWE, College Board, n.d.) measures student writing ability in terms of correct English usage, and was used to determine appropriate level of rigor in their freshmen college courses (College Board, n.d.). The combination of verbal, mathematical, and writing scores were used in the study because the overall measures of cognitive ability were more meaningful to the concept of talent development than the individual indicators of mathematical, verbal, or writing ability. The SAT and TSWE range for each subscore is from 200 to 800 (College Board, n.d.).

The SAT has been extensively studied as an instrument indicating future grades in higher education. The reliability coefficient for internal consistency for the mathematical and verbal section of the test is over .90, the written section is .85. Test-retest reliability for the mathematical and verbal sections is .87, and the writing is .82. Test scores are used by college admission officials as one predictor of grades. The College Board conducted the Validity Study Service, and it has consistently documented the high correlation between SAT scores and college grades (College Board, n.d.).

Intrapersonal Catalytic Attributes

Theory of Intelligence

The Theory of Intelligence (TOI, Dweck, 2000) scale examines the psychological root of failure and success through children’s views of their intelligence (Dweck, 2000; Dweck &Leggett, 1988). Rather than taking the purely behavioral approach to explaining causes of behavior, Dweck (2000) examines personality from a social-cognitive perspective. She observes that individuals of similar intellectual and physical strengths do not always respond similarly to
challenge. Some children shrink from struggle and avoid it, while others embrace and conquer challenging tasks. Dweck and Leggett (1988) break these two responses into the maladaptive “helpless,” marked by an external locus of control, task avoidance, and failure, and the adaptive “mastery-oriented” pattern of behavior, which exemplifies conquering fear of failure as well as failure itself, striving to perform, and overcoming obstacles. These behavioral traits represent two diametrically opposed responses and outcomes to challenge by individuals with equitable abilities.

Dweck and Leggett (1988) classify their theory of intelligence into two categories: entity theory and incremental theory. Individuals who operate with an entity theory of intelligence believe that their cognitive ability cannot change; it cannot improve. Therefore, success reinforces the person’s self-view that he/she is intelligent. Failure would imply he/she is not. Rather than risk believing a less positive view of his level of his intelligence, he/she would avoid the task, thus avoiding failure. This is an example of the maladaptive “helpless” response to difficulties. Entity theory is performance-based; individuals with a fixed view of their intellectual capabilities need to perform well in order to verify their concept of their own capacity. Those who see their intelligence as incremental or malleable, recognize that challenge is only a conduit for added effort and tenacity. Therefore, the incremental viewer responds to failure and risk of failure with additional personal reserves. Regardless of the outcome: failure or success, the person’s self-view of his intelligence is not compromised, and learning is always the product.

The Theories of Intelligence Scale (TOI, Dweck, 2000) measures students’ personal attribution for success. The eight items ask at which level of agreement, on a six-point Likert scale, the individual believes he can or cannot change his intelligence. Those who believe that they can change and increase their intelligence hold an incremental view. Incrementalists
respond to challenges with extra effort and tenacity. They recognize that they may succeed or fail at the challenging undertaking, but the gain in learning is worth the risk of feeling less intelligent and a failure. Those with a fixed view see their performance as evidence of their high or low intelligence, so success at tasks is imperative to protecting their current view of their cognitive ability.

Eight questions were posed in Dweck’s TOI questionnaire (2000, p.178). Four of the questions numbered 3, 5, 7, and 8 state that one can change one’s intelligence. Question 5 in Dweck’s original questionnaire was inadvertently omitted from the student survey. The other four, numbered 1, 2, 4, and 6 were marked as essential state that one cannot change one’s intelligence. This study included those essential four questions and three out of four of the remaining questions. The remaining three questions state in future comparison studies, it is recommended that the four essential items (1, 2, 4, and 6 in the original questionnaire by Dweck, 2000) only be included, which are numbered 12, 13, 15, and 16 in the TAMS student questionnaire.

The purpose of the TOI is to examine the relationship between academic achievement and student view of intelligence. The students at TAMS are taking a risk of failure just by agreeing to enroll in university courses years before their non-TAMS peers. The purpose of the scale is to determine how much control the student takes in his learning, and if there is a relationship between their view and first-semester TAMS grades as it contributes to the block of intrapersonal catalysts. TAMS students prior to entry to college held a more incremental view of intelligence.
**Questionnaire Goal Choice Index (QGCI)**

The Questionnaire Goal Choice Index (QGCI, Dweck, 2000) results measure learning and performance goals. Students who have strong learning preferences prefer working hard to understand difficult concepts. Such students also risk not earning the highest grades when they choose a challenging class over an easier course. Students who have strong performance preferences tend to choose the less challenging classes when given the choice, if they believe taking a more advanced class would result in a lower grade. Three questions in the Questionnaire Goal Choice Index indicate learning verses performance preferences. Low scores indicate the student is motivated by the judgment of others about their performance. Higher scores indicate motivation for learning, or increasing a present level of achievement, regardless of how it is perceived or judged by others. The QGCI index uses a six-point Likert scale to indicate agreement with statements about reasons for effort that the respondents put into cognitive tasks.

**Brief Resilient Coping Scale (BRCS)**

The Brief Resilient Coping Scale (BRCS) is a four item self-report that measures how individuals handle difficult, stressful situations (Sinclair & Wallston, 2004). Specifically, it measures the ability to adapt despite personal hardship. Individuals who cope well in times of illness, pain, emotional turmoil, or other difficulties exhibit strong resilience. Resilient coping is that interpersonal quality one needs to endure and perhaps even benefit from enduring the stressful situation (Sinclair & Wallston, 2004). The items on the BRCS follow these themes, as listed by the authors: “tenacity, optimism, creativity, an aggressive approach to problem solving, and a commitment to extract positive growth from difficult situations” (Sinclair & Wallston, 2004, p. 99).
Individuals in their early teens who leave home to participate in an early-college-entrance program may require the intrapersonal strength represented by the BRCS as they transition from home to the university life. TAMS students are often faced with situations and difficulties that are uncommon at their ages. They may experience greater success in this new, challenging, somewhat foreign environment if they possess resilient coping skills.

In order to assess internal consistency, Cronbach’s alpha reliability for the BRCS for two different samples was .69. Reliability was determined by a test-retest five weeks apart. The test-retest correlation was .71 (n=87; p<.001). BRCS scores were correlated with scores from personal coping resources, pain coping behaviors, and psychological well-being. The BRCS positively correlated with those measures, and negatively correlated with opposite characteristics of resilient coping, like helplessness or fatalism (Sinclair & Wallston, 2004). Predictive validity was established as were interaction effects. Construct validity was determined by correlating the scores from the BRCS with the scores from personal coping resources and psychological well being.

*Environmental Catalytic Attributes*

Students in their early to mid teens are influenced and developmentally affected by a wide variety of environmental catalysts including, but not limited to peers, teachers, the educational milieu, family, and the religious and local community. The study focused on the family environment as the environmental catalyst due to the nature of the early entry transition. Most TAMS students leave their local communities, schools, and friends when they reside on the university campus. The one environmental catalyst that consistently remains with the early entry student is the family.
In the Parent Authority Questionnaire, (PAQ, Reitman et al., 2002), the parents described their attitudes about parenting in areas such as communication, organization, and control. The second measurement of family environment is the Family Environment Scale (FES, Moos, 2000). Students agree or disagree about statements addressing family relationships, support for their personal growth, and routine systems in place in the home.

*The Parent Authority Questionnaire-Revised (PAQ-R)*

The Parent Authority Questionnaire-Revised (PAQ-R, Reitman et al., 2002) is a parent self-report of parenting styles. The instrument contains 30 items; 3 sets of 10 items represent permissive, authoritarian, and authoritative parenting styles. Permissive parenting is described as less demanding of compliance to norms in the home and controlling, but nurturing and communicative with their children. Parents described as authoritarian are less communicative and nurturing, but are more controlling and demanding. Parents who have a predominantly authoritative style are controlling and demanding, as well as nurturing and communicative.

Parenting style has adequate reliability for the three subscales, with Alphas on three samples tested from .73 to .74 on permissive, from .72 to .76 on authoritarian, and from .56 to .77 on three samples tested on authoritative (Reitman et al., 2002). The PAQ-R was correlated with two similar parenting instruments, the Parent-Child Relationship Inventory (PCRI; Gerard, 1994), which contain Communication and Limit Setting scales, and Laxness and Overreactivity scales in the Parenting Scale (PS; Arnold, O’Leary, Wolff, & Acker, 1993). Correlations between the PAQ-R subscales and related items in the PS and the PCRI of .02 to .34 demonstrated convergent validity (Reitman et al., 2002).
The Family Environment Scale

The Family Environment Scale (FES; Moos, 2002) is a 90-item true-false questionnaire filled out by the students and measures the quality of family life. Participants determine if statements about their families are true or false. The FES contains ten subscales in three categories, or dimensions, as termed by Moos: relationship, which contains the subscales of cohesion, expressiveness, and conflict; personal growth, which contains the subscales of independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious emphasis; and system maintenance, which contains the subscales of organization and control.

The relationship dimension measures the degree to which family members interact and communicate openly (Moos, 1989). Its subscales measure the extent to which there is open expression in the home (expressiveness, ex), there are members who work together (cohesion, c), and conflicts are resolved or generated (conflict, con). The subscales within this category speak to the level of support family members receive from one another. The personal growth dimension measures the extent to which a family supports the child’s self-sufficiency (independence, ind) and achievement in school and in other contexts (achievement orientation, ao). Other personal growth subscales assess the extent to which the parent includes the child in political, social and cultural discussions (intellectual-cultural orientation, ico), involves the child in recreational activities and social events (active-recreational orientation, aro), and supports religious expression and participation (moral-religious emphasis, mre). System maintenance is the category of the FES that contains subscales related to the organization of the home and the extent to which it structures the family routines (organization, org), and “the extent to which set rules and procedures are used to run family life” (control, ctl) (Moos, 2002).
The Family Environment Scale has been used and studied for over 25 years (Villar et al., 2006; Vostanis & Nicholls, 1995; and Sines, 1984). It is used to identify and treat a wide variety of family conditions including families with alcoholism or substance abuse, families with a depressed member, and families with weak organizational systems (Mancini, 1994). Alphas demonstrating internal consistency in all subscales ranged from .61 to .78 for a large sample size of 1,067. Test-retest reliability of a small sample size of 47 for two months resulted in alphas from .68 to .86 and a smaller sample size of 35 for four months resulted in alphas of .54 to .86. In longitudinal studies, subscale stability decreased over the 10 years, but Moral-Religious Orientation and Organization were the most stable of the 10 subscales (Mancini, 1994).

In the present study, the psychometric properties of FES in terms of the internal consistency reliability and the internal construct validity for the 10-factor structure were assessed first by computing Cronbach alphas. Based on the marginally acceptable results, then, the 3-factor structure as recommended (Moos, 2002) was used in the regression analyses to reduce the number of the predictor variables due to the small sample size. Due to the unequal numbers of the items in these three factors, the factor mean in unweighted average was used. As conflict was on the opposite direction of cohesion and expressiveness as originally designed and demonstrated in the current sample, conflict was reversely coded to derive the factor mean for family relationships.

Additional Data Gathered

Parent Questionnaire

The parent questionnaire includes the following: birth order, educational level, and income level. The purpose of the parent questionnaire is to provide a more complete information
of the students’ demographic information not available through other means.

**Demographic Information**

In addition to the aforementioned standardized test instruments, a self-developed TAMS demographic survey and descriptive data collected during the application process were used to obtain information about ethnicity, gender, and age for descriptive purposes. Official behavioral reports on all TAMS students and end-of-semester grades which were collected after the end of the fall semester represent the outcome measures of academic success and affective success.

**Student Packet**

The student packet of instruments distributed before their first semester began contained:

1. Student questionnaire written by the researcher,
2. Personal Wellbeing Index-Adult (PWI-A; International Wellbeing Group, 2005),
3. Theories of Intelligence Scale (TOI; Dweck, 2000),
4. Questionnaire Goal Choice Items (QGCI; Dweck, 2000),
5. Brief Resilient Coping Scale (BRCS: Sinclair & Watson, 2004),
6. Parent Authority Questionnaire (PAQ; Reitman, 2002),
7. Family Environment Scale (FES; Moos, 2002).

**Parent Packet**

The families received a packet that contained the parent and student invitation letter, the informed consent form for the parents and the student, and the student questionnaire. This packet was distributed at the TAMS New Student Orientation and mailed to their homes. The parent packet contained two published research instruments and a composite of questions posed by the researcher:

1. Personal Wellbeing Index – Adult (PWI-A; International Wellbeing Group,
(2005), (2) Parent Authority Questionnaire (PAQ; Reitman, et al., 2002), and (3) Parent Questionnaire written by the researcher.

Data Collection

In early June 2006, the incoming TAMS students and their parents attended a mandatory orientation. The purpose of the orientation was for the students and the parents to become better acquainted with the building facilities, the staff, requirements of the program, and academic and behavioral expectations. The staff was able to promote school spirit and identification while fostering student and family contacts and peer associations. During the two day period, the parents and students who agreed to participate in the study filled out a questionnaire. Out of the 212 students originally on record prior to TAMS Orientation in June, seven percent chose not to participate as indicated by signing a mailed permission form, two percent did not enroll in the fall, and two percent withdrew in the fall semester. A total of 94 parents and student pairs responded to the initial surveys, but only 60 of the students in the sample of 94 participated in the Personal Wellbeing Index (PWI-A) survey at the end of the semester. Seventy-seven parent and student pairs in all completed the PWI-A survey at the end of the first semester.

Initial student demographic data were collected from TAMS before the fall semester. The parent instruments were distributed initially by mail the month before TAMS Orientation. Parents who do not return the surveys were offered a second opportunity to participate in the study during the orientation. The study was explained in the letter that also contained the parent consent and child assent forms, and directed the students to the predetermined place and time for the actual administration of the instrument. All orientation activities, including recruiting
volunteers and administration of the study occurred during TAMS Orientation at the UNT campus.

At summer orientation for the cohort of TAMS students beginning in the fall of 2006, data were gathered from both parents and the new students. A TAMS Study table had questionnaires for the parents to complete. The students filled out their surveys during a meeting at Orientation.

Initial data came from the admission materials submitted by the students and from data gathered during the summer orientation for the new cohort of students. At the summer orientation on June 9-10, 2006, entering students were administered a questionnaire. The parents’ questionnaire, returned in person at orientation or by mail, asked about their parenting style, personal well-being, and some questions about their child’s work habits, birth order, family income, parent education, and parent occupation. The students’ questionnaire asked about family structure and stability, student coping skills, motivation, career interests, and personal well-being. These data will serve as baseline student intrapersonal and environmental information and stored as the students begin their program.

At the conclusion of the fall semester in the TAMS program outcome data including grades, TAMS behavioral reports, and end-of-semester status in the program were gathered from the TAMS office. Status levels include: (1) continuing into spring of 2007, (2) asked to leave because of academic or behavioral problems during the fall of 2006, (3) leaving due to homesickness or other reasons not related to academics or behavioral problems in fall 2006, and (4) continuing to spring 2007, but with special monitoring due to academic or behavioral concerns. Life satisfaction data was collected from a survey distributed early in the spring semester. Life satisfaction data was the students’ mean life satisfaction scores of the seven
subscales from the Personal Wellbeing Index-Adult measured after one semester of college. In addition, nine TAMS students participated in a focus group early in the spring semester, which focused on transition to college, academics, family, and social issues.

Data Analysis

Prior to data analyses, missing data were checked. The total rate of missing data was less than one percent. For variables based on the standardized instruments such as on FES, PAQ, and BRC, the factor means were obtained by ignoring the missing items if they do not exceed 20% of the total item in their respective factors. In this way, the factor means are not affected by the small portion of the missed items. If the missed items were more than 20% of the total items in any specific factor, the factor mean was not computed and excluded using the listwise deletion as for other variables not based on the standardized measurements such as GPA or SAT scores.

Question 1

The first research question was: What is the relationship between measures of talent prior to entry at TAMS and TAMS first-semester grades, behavioral markers, and personal well-being? The first research question explored the relationship between measures of ability/talent prior to entry at TAMS and the two outcome measures. Measures of pre-program ability or talent included Scholastic Achievement Test (SAT) scores and overall ninth-grade grade-point averages (GPA). For research question 1, descriptive statistics were presented to describe the different profiles of these talented students. The metric variables were also assessed on the normality of data distribution, a critical assumption for inferential statistics (Hinkle, Wiersma, & Jurs, 2003). Hair and his associates (Hair, Black, Babib, Anderson, & Tatham, 2006)
recommended to transform the skewness and kurtosis to the z-scores. Through this study, the z-scores of ±2.58 at the .01 level were used as the cutoff criteria.

As all of the variables in this study are continuous, the bivariate Pearson product-moment correlations, therefore, were used to answer research question 2 to obtain the general association strengths between these variables. However, a bivariate correlation may provide inflated estimations due to its bivariate nature which ignores the interrelationship among other variables.

To further understand the multidimensional nature among these 11 variables, a technique multivariate analysis of some kind seemed appropriate. Several advanced statistical methods such as path analysis, canonical correlational analysis, and structural equation modeling were eliminated as the requirement of a large sample size could not be met in the present study. A reasonable alternative was to address students’ academic achievement, behavior, and life satisfaction separately. Multiple regression, as a powerful and versatile multivariate statistic technique in investigating the relationship between one dependent and multiple independent variables (Hair et al., 2006), offered a viable option for this study. Hair et al. (2006) further stated “the minimum ratio of observations to variables is 5:1” (p.197) for multiple regression studies, which can be met. Thus, the multiple regression technique was used to answer research question 3 in three different ways as described below.

Multicollinearity and the model assumptions were examined in the present study. Hair et al. (2006) stated that there are four critical assumptions for multiple regression: (a) the linearity of relationships between the predictor variables and the criterion variable, that is, the regression coefficient is constant across the range of the values for each predictor; (b) homoscedasticity, or constant variance of the errors, that is, the error variance appear to be constant over the range of the predictor values; (c) independence of error terms, that is, each predicted value is independent
of other predicted values, and (d) normality of the error terms, that is, the error terms appear to be normally distributed. The first three assumptions can be examined through the studentized residual diagram whereas the last one can be detected with the normal probability plot. In addition to the possible violations to the assumptions on model specifications, multicollinearity problems could exist due to the high correlations among the independent variables, which could lead to a suppression effect. Using the variance inflation factor (VIF), the inverse of the tolerance value which is the amount of the variability not explained by other independent variables. Hair et al. (2006) recommended using 10 as the maximum threshold for the VIF value, as calculated by dividing 1.0 by the tolerance value. But the VIF should be smaller for regression models with smaller samples. For the present study, a more restrictive VIF value of 1.96, corresponding to a tolerance of .51 or a multiple correlation coefficient of .70, was used.

In addition to the $F$ value and the multiple $R^2$ and the adjusted $R^2$ was used as it is more robust. This adjustment better reflects the model by reducing errors. Cohen (1988) provided a rule of thumb on the multiple $R^2$ to determine the magnitude or effect size in multiple regression for psychoeducational studies: .01 was recommended as the minimum threshold for small effects, .09 for medium effects, and .25 for large effects. For the contribution of the individual predictors, the standardized regression coefficient (i.e., $\beta$) was used rather than the unweighted regression coefficient (i.e. $B$) due to its comparability across the predictor variables in different units of measure. Courville and Thompson (2001) observed the standardized regression weight $\beta$ is not precise enough when the predictors are correlated. They proposed to use both the $\beta$ weight and the structural coefficient (the correlation between the predictor and the dependent variable) to judge the relative importance of the predictor variables. Multicollinearity was a not threat for
all of the regression models in the present study. The independent variables, though, were not completely uncorrelated. Hence, both the $\beta$ weight and the structural coefficient were used.

In the first step, the simultaneous regression technique with all of the 11 predictors (i.e., Pre-GPA, Pre-SAT, TOI, QGCI, BRC, the three parenting styles, and the three factors of family environment) were used to predict the variances on Post-GPA, behaviors at TAMS, and personal well-being respectively. Such a technique has the advantage of assessing the overall effect on the criterion variable with simultaneous consideration of all of the predictors in a competitive manner. However, this method may face serious challenges if the predictors are correlated, resulting in large model specification errors. In addition, when the sample size is too small relative to the number of the variables in the prediction, the sampling error may be too large. Furthermore, this technique has often been criticized for its atheoretical nature (Hair et al., 2006).

**Question 2**

The second research question was: What is the relationship between intrapersonal catalytic factors present in the individual prior to TAMS entry and TAMS first-semester grades, behavioral markers, and personal well-being? The question explored the relationship is between the intrapersonal catalytic factors present in the individual prior to TAMS entry as indicated by coping skills from the Brief Resilient Coping Scale (BRCS), motivation from the Questionnaire Goal Choice Items (QGCI) and the Theory of Intelligence (TOI). The third research question explored the relationship is between these environmental catalytic factors prior to TAMS entry: family relational dynamics from the Family Environment Scale (FES) and parenting style from the Parent Authority Questionnaire (PAQ).
Question 3

The third research question was: What is the relationship between environmental catalytic factors and TAMS first-semester grades, behavioral markers, and personal well-being? The question explored the relationship is between the environmental catalytic factors present in the individual prior to TAMS entry as indicated by environmental catalysts, including the three dimensions on the Family Environment Scale (FES) and the three parenting styles on the Parent Authority Questionnaire (PAQ).

Each of the three questions is represented in blocks. Block 1 predictors, (ability/talent measures) included the Scholastic Achievement Test (SAT) and Grade 9 grade-point-average (GPA 9). Block 2 predictors, interpersonal measures, included the Brief Resilient Coping Scale (BRC), Theory of Intelligence (TOI), and Questionnaire Goal Choice Items (QGCI), and Block 3 predictors, environmental catalysts, included the three dimensions on the Family Environment Scale (FES) and the three parenting styles on the Parent Authority Questionnaire (PAQ).

Because of the sample size and large number of predictors, the ten factor scores on the FES were collapsed into three composite scales as suggested by its original authors (Moos & Moos, 1981).

Question 4

The fourth question was: What is the multivariate relationship between talent, intrapersonal, and external factors and TAMS first-semester grades, behavioral markers, and life satisfaction? In the second step, a confirmatory approach based on Gagné’s model was applied. Gagné (2003) asserts that individuals bring their innate talents at the beginning of their lives and that talent is developed through external catalysts such as family and community and intrapersonal catalysts, such as the individual’s emotional and motivational strengths. For the
purpose of this study, the period of the individual’s talent development assessed begins at TAMS Orientation and ends after the first semester at college. Therefore, the pre-GPA and pre-SAT representing the innate talent traits were entered first as the first block of predictors. Next, TOI, QGCI, and BRC representing the intrapersonal catalytic factors were entered as the second block of predictors. And finally, the three parenting styles on PAQ and the three FES factors representing the environmental influences were entered. Although this hierarchical approach could directly confirm or disconfirm a theory by assessing the relative contribution of each block to the prediction, it may not be sufficient enough in the fields with weak theoretical foundations like the topic in the present study. Some variables in the three blocks may not be related to the criterion variables. They would increase the model specification errors if included. For this reason, the backward regression technique was used to search for the most parsimonious model.

Backward regression as one of the sequential search methods in multiple regression starts with a model with all of the independent variables. Then, it eliminates the least contributor one at a time until achieving the maximum of prediction accuracy in terms of the $F$ value. This method has the advantage of producing the most parsimonious model with the smallest number of salient predictor variables. However, as other sequential search methods such as stepwise or forward regression, this technique operates largely by trial-and-error. In addition, Hair et al. (2006) cautioned the backward/forward regression should not be used if multicollinearity exists among the predictor variables. If multicollinearity is not a challenge, the backward regression may be appropriate on the research questions lacking of solid theories and/or small observation to variables ratios as in the present study.

In the present study, for the backward regression, all of the 11 predictors were entered first. From the results of the models with different number of predictors for each dependent
variable, the best model was determined primarily based on the adjusted multiple $R^2$ along with the difference between the $R^2$ and the adjusted $R^2$ and the $F$ value rather than solely based on the $F$ values as used in the SPSS program. The reason to use the adjusted $R^2$ as the primary criterion to select the best model is that it has been adjusted for different types of model errors including the model specification errors, the sampling errors, and the random errors (Yin & Fan, 2001). The prediction power is more likely to replicate in other similar samples.

Predictor variables from the category of environmental catalysts included family relationship, cohesion, expression, and conflict. Personal growth within family factors included independence, achievement orientation, intellectual orientation, active-recreational orientation, and moral-religious expressiveness. System maintenance factors within the family included organization and control. Parenting styles included authoritative, permissive, and authoritarian.

All of the questions in the study were analyzed using related statistics. Three separate groups of predictor variables will be analyzed: environmental predictor variables, intrapersonal predictor variables, and talent variables. Criterion variables signifying success included overall satisfaction with life, TAMS GPA, and behavior markers from the first semester at the Academy. The strength of the relationship between the environmental predictor variables of family factors and parenting styles and success variables of personal well-being, behavioral markers, and first semester grades were determined by multiple regression.

Predictor variables from the category of intrapersonal catalysts included coping skills, self-views of intelligence, and goal orientation. The strength of the relationship between the intrapersonal predictor variables and success outcome variables of personal well-being, behavioral markers, and first semester grades were determined by multiple regression.
Talent and ability markers included SAT scores, high-school GPA, and behavior data from the first semester at TAMS. The strength of the relationship between talent and ability markers and success criterion variables which included personal well-being, behavioral markers, and first semester grades were determined by multiple regression.

To determine the multidimensional relationship between the predictor variables of talent, intrapersonal, and environmental factors on the criterion variables included in success, as defined by TAMS first semester grades, behavioral markers, and personal well-being, multiple regression were employed. The statistical techniques that were used to analyze the data, address each question posed in the study:

Relationship of Research Questions and Variables Assigned

1. What is the relationship between measures of talent prior to entry at TAMS (initial achievement factors indicated by SAT and high school GPA) and TAMS first-semester grades and personal well-being? Two regression analyses were performed for each dependent variable: SAT and ninth-grade GPA, on the two independent variables representing talent factors: first-semester GPA and personal well-being.

2. What is the relationship between intrapersonal catalytic factors present in the individual prior to TAMS entry (coping skills, motivation, intellectual self-perception) and TAMS first- semester grades and personal well-being? Two sets of regression analyses were performed for each dependent variable: SAT and ninth-grade GPA, on the three independent variables representing intrapersonal catalysts: BRCS, representing coping skills, TOI, representing intellectual self-perception, and QGCI, representing motivation.

3. What is the relationship between environmental catalytic factors (family characteristics and parenting style) and TAMS first-semester grades and personal well-being? Two sets of regression analyses were performed for each dependent variable: SAT and ninth-grade GPA, on the six independent variables representing environmental catalysts: relationship dimension, personal growth dimension, system maintenance dimension, permissive parenting style, authoritarian parenting style, and authoritative parenting style.

4. What is the multivariate relationship between talent, intrapersonal, and external factors and TAMS first-semester grades and personal well-being? Two sets of regression analyses were performed for each dependent variable: SAT and ninth-grade GPA, on the two independent variables representing talent factors: first-semester GPA and personal well-being; on the three independent variables representing intrapersonal catalysts: BRCS, representing coping skills, TOI, representing self-views of intelligence, and QGCI, representing goal orientation; and on the six independent variables representing
Questions 1 through 3 required six different multiple regression analyses in order to assess the degree of relationship between the dependent and the independent variables. The questions involved a multidimensional correlation between three predictor variables: talent factors, intrapersonal catalytic factors, and environmental catalytic factors. They each had the same two outcome measures: first semester grades and change in life satisfaction, albeit different predictor variables. The two outcome measures were correlated separately. A method that was considered, canonical correlation, is designed to correlate the two dependent variables that represent each of the three factors (first-semester grades, behavioral markers, and change in life satisfaction) simultaneously. However, the sample size of 60 to 77 for 12 factors over three dependent variables was too small to produce reliable results (Hair et al., 2006). It became necessary to separate the analysis into three separate regressions in order to meet the minimum ratio of 5:1 of observations to variables. Multiple regression, therefore, was necessary because the study sought to predict the strength of influence of each predictor variable on the multiple outcome variables. Multiple regression allowed the researcher to correlate each dependent variable with the various factors representing the three predictor variables.

Question 4 required two separate multiple regression analyses in order to measure the correlations between multiple predictors per outcome variable. None of the following: canonical correlation analysis, factor analysis, path analysis, nor structural equation modeling (SEM) were considered as models for data analysis. Although canonical correlation analyzes data that consists of one of more metric predictor variables and two or more metric criterion variables, it is an inappropriate multivariate dependence method because the sample size was too small given the number of independent variables measured. For canonical analysis, the recommended ratio of
observations per independent variable is 15:1 to 20:1 (Hair, et al., 2006). With two dependent variables and up to 115 observations over 10 independent variables, the ratio in the current study was closer to 30:1. Structural equation modeling, factor analysis, and path analysis were inappropriate because of the small sample size and the fact that they lacked the theoretical base required to employ such approaches. Hair et al. (2006) added if stepwise estimation is used, “the recommended level increases to 50:1” (p.196). SEM requires a larger sample size, in the range of 150 to 400 (Hair, et al., 2006). In this study, there were between 93 and 110 observations, and 10-11 independent variables. The ratio was only 9:1 to 11:1. Due to the small sample size ratio, multiple regression was employed to correlate each dependent variable with a composite of all of the predictor variables.

The dependent variable, behavioral markers, was too highly skewed and kurtotic to be a valid variable to consider in this study. The mean points deducted was 3.61; Skewness: -3.80, Std. Error of Skewness: .230, Kurtosis: 17.10, Std Error of Kurtosis: .457. Further descriptive analysis of behavioral markers (Table 2) reveal a minimal number of violations per level, as 85% of the students received no behavioral marks. As a result, behavioral markers was dropped as a dependent variable due to its lack of variance.

In addition to quantitative statistical analysis, qualitative analysis was employed through findings from a focus group study. Eight TAMS juniors volunteered to join a focus group on success factors of early college entrants after their first semester was complete.

Processing of Data

Table 10 examines potential multicollinearity issues. Since the predictors are not highly correlated to each other, the use of the predictors was acceptable. The Parent Authority
Questionnaire (PAQ-R, Reitman et al., 2002) categorized parenting styles as permissive, authoritarian, and authoritative. The three subscales were used for the purpose of delineation of parenting style in data analysis.

The Family Environment Scale (FES, Moos, 2002) contained ten subscales which are divided into three categories: Personal growth-oriented families, relationship-oriented families, and system-maintenance families. The data were organized into three categories and considered as three subscales for the FES. The purpose of narrowing the 10 subscales into three was to limit the number of predictor variables, as the sample size was too small for a larger set of variables.

Assumptions

To check for normal distribution, each of the predictor variables were examined for skewness and kurtosis, as well as the z scores for skewness and kurtosis. The .01 significance level, or the range of $\pm 2.58$ was used. All of the variables examined, the students’ fall grade-point averages (First-semester college GPA), Scholastic Achievement Test results (SAT), Theory or Intelligence (TOI), Questionnaire Goal Choice Items (QGCI), Brief Resilient Coping Scale, or BRCS, Parent Authority Questionnaire (PAQ), and Family Environment Scale (FES) were within the normal range. Examination of each variable’s scatterplots revealed that the majority of the data is in the 1 standard deviation range, with no particular patterns observed. Therefore, there is no obvious prediction, so there is independence of error terms. The assumptions were made, no serious violations were found, so a multiple regression was used to analyze the data.

Missing data occurred due to failure of respondents to mark answers or unclearly marking them. Means were calculated in such a way as to average existing data up to a standard set in the formula at 20%. If the number of missing data exceeds the standard, the input was
dropped. If the number of missing data was within the standard set, the data that was present was averaged.

Summary

The focus of the study was to examine the relationship between environmental and intrapersonal catalysts and student success in the critical first semester of an early-college entrant. Behavioral indicators were not used because the variability was too small. Multiple regression examining the relationship between each of the representations of success: first-semester college GPA and personal well-being scores, and each of the catalysts may contribute to understanding what factors, when present, contribute to a personally satisfying and high-achieving experience during the critical first semester at an early college entry program.
CHAPTER IV

RESULTS

This study examined intrapersonal, familial, and innate factors that contribute to the success of early college entrants after their first semester in college. Success was measured with indicators of academic achievement and affective characteristics that reflect positive personal contribution to life. Data were collected from TAMS students, one of each student’s parents, and the TAMS administrative office. Personal well-being was assessed with the PWI-A and through a focus group after their first semester. The purpose of the study was to examine the relationship between academic talent, environmental catalysts, and intrapersonal catalysts and early entrants’ first semester grades and on their self-perceptions of well-being.

The following questions guided the research:

1. What is the relationship between measures of talent prior to entry at TAMS (initial achievement factors indicated by SAT and high school GPA) and TAMS first-semester grades, behavioral markers, and personal well-being?

2. What is the relationship between intrapersonal catalytic factors present in the individual prior to TAMS entry (coping skills, motivation, intellectual self-perception) and TAMS first-semester grades, behavioral markers, and personal well-being?

3. What is the relationship between environmental catalytic factors (family characteristics and parenting style) and TAMS first-semester grades, behavioral markers, and personal well-being?

4. What is the multivariate relationship between talent, intrapersonal, and external factors and TAMS first-semester grades, behavioral markers, and personal well-being?

Data were examined for internal consistency reliability. Cronbach alphas were run on each standardized survey and subscale (Tables 4-9) and were found to exceed the acceptable coefficient range of .60 for exploratory studies (DeVellis, 1991). Inter-factor correlations revealed no significant threat to convergent and discriminant validity (Tables 11, 13, and 15). The correlations were found to be neither too high, which would indicate that they are measuring
the same concept and that one of the two factors is redundant and should be eliminated from analysis, nor were the correlations too low, indicating that they are distinct to the point that they share no conceptual similarities (Hair et al., 2006).

Achievement and Affective Variables

*Talent and Thriving Development*

There are three main components to talent development in Gagné’s Differentiated Model of Giftedness and Talent (DMGT, Gagné, 2003): environmental catalysts, intrapersonal catalysts, and innate talent. Student success after one semester in college was assessed for this study with two measurements taken after completion of one semester of the TAMS program: first-semester GPA and personal well-being. These two criteria measures are consistent with the outcome of personal flourishing as described in the model of gifted and thriving (Sayler, 2007). This model holds that talent development is not enough, and that personal flourishing, which incorporates talent development but goes beyond it, are essential to the long-term happiness and satisfaction of gifted individuals.

*Talent Measures*

Measures of academic ability and achievement prior to TAMS included overall ninth-grade GPA and total SAT scores (critical reading, mathematics, and writing). Achievement at TAMS was measured with overall college GPA at the end of the first semester at TAMS. Two hundred four students began the TAMS program in the fall of 2006. One hundred eighty-nine agreed to complete the study’s pre-program assessments. Seventy-six TAMS students completed the second round of assessment and had a parent who completed the pre-program parent
assessment. Sixty TAMS students completed the second round of assessment, had a parent who completed the pre-program assessment, and completed the Personal Wellbeing assessment in the beginning of the following spring semester. Data on each group is reported on Table 1.

### First-Semester Grade-Point Average

The academic indicator used was the first college semester grade-point average (GPA). The first-semester of college GPA for early entrants at TAMS was 3.7 on a four-point grade scale (Table 1). The negative skewness (-3.563) and positive kurtosis (14.778) of the first semester grades imply a majority of the freshmen in TAMS had GPAs greater than the mean of 3.6. Almost half of the TAMS students had perfect first semester GPAs of 4.0. The first-semester GPA was transformed to a power of six in order to obtain a normal distribution.

Table 1

**Means and Descriptives for Academic Achievement Indices**

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
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<tr>
<td>Ninth-grade GPA (n = 189)</td>
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<td>-.52</td>
<td>.21</td>
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<td>end 1st semester&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>2.03</td>
<td>-.31</td>
<td>-.35</td>
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<td>end 1st sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>2.28</td>
<td>-.34</td>
<td>-.72</td>
<td>333.272</td>
</tr>
<tr>
<td>SAT total (n = 204)</td>
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<td>185.46</td>
<td>-.02</td>
<td>-.26</td>
<td>106.044</td>
</tr>
<tr>
<td>end 1st semester&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>185.25</td>
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<td>-.03</td>
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<td>end 1st sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>-.37</td>
<td>-.09</td>
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<tr>
<td>First-Sem GPA (n = 201)</td>
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<td>.49</td>
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<tr>
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<td>.33</td>
<td>-1.31</td>
<td>.53</td>
<td>98.088</td>
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<tr>
<td>end 1st sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>.35</td>
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<td>-.07</td>
<td>83.427</td>
</tr>
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</table>

*Note. <sup>a</sup>n = 76; <sup>b</sup>n = 60.
Ninth-grade GPA and SAT

All TAMS students entering college in the fall of 2006 had average ninth-grade GPAs of about 96% (95.6 to 96.1). The ninth-grade GPA of the group and sub groups were homogenous, with limited variability as shown by their standard deviations between 2.0 and 2.4. In fact, the sub-cohorts of 76 and 60 participants were not unlike the 204 students who entered TAMS in the fall of 2006 (See Table 2).

Table 2
Profiles of TAMS Sub-Cohorts

<table>
<thead>
<tr>
<th></th>
<th>N = 204</th>
<th>n = 76</th>
<th>n = 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>55%</td>
<td>49%</td>
<td>56%</td>
</tr>
<tr>
<td>Female</td>
<td>45%</td>
<td>51%</td>
<td>44%</td>
</tr>
<tr>
<td>Anglo</td>
<td>39%</td>
<td>36%</td>
<td>33%</td>
</tr>
<tr>
<td>Asian</td>
<td>50%</td>
<td>53%</td>
<td>54%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>African-American</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Alg 1 pre-test</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
</tr>
<tr>
<td>Alg 2 pre-test</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>US Citizenship</td>
<td>88%</td>
<td>88%</td>
<td>88%</td>
</tr>
<tr>
<td>Ninth Grade GPA</td>
<td>95.6%</td>
<td>96.2%</td>
<td>96.2%</td>
</tr>
<tr>
<td>Fall GPA TAMS (4.0)</td>
<td>3.6</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>SAT - W</td>
<td>611</td>
<td>616</td>
<td>611</td>
</tr>
<tr>
<td>SAT - M</td>
<td>678</td>
<td>679</td>
<td>675</td>
</tr>
<tr>
<td>SAT - CR</td>
<td>619</td>
<td>619</td>
<td>614</td>
</tr>
<tr>
<td>SAT – Total</td>
<td>1908</td>
<td>1915</td>
<td>1901</td>
</tr>
</tbody>
</table>
The average pre-TAMS total SAT score for the class was 1908. SAT for those completing the assessment of well-being after one semester was 1898, and of those completing the post-assessment who had parents complete the pre-program data, the SAT average was 1902. The average SAT of the TAMS students entering in fall of 2006 was much higher than the 2006 national average of 1518 for college bound seniors (College Board, n.d.). The SAT scores and the ninth-grade GPA were normally distributed.

Affective Measures

Behavior

Analysis of the behavioral marker, the number of discipline points given to the TAMS students by their resident assistants, is shown in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Points deducted</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>50</td>
<td>84.7</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>50</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>60</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>65</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>100</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

About 85% of the students received no behavioral citations. Seven students had minor behavioral
problems, and only three had serious violations. Overall, these data indicated the early college entrants at TAMS adjusted to their college lives and were well behaved. However, such a data distribution is problematic for inferential analyses due to the limited range of the data values, the majority of students having no behavior problems, and the small sample size. Even use of logistic regression, and combining all of the non-zero students into one category, has limited validity due to the small number of cases. Hence, these behavioral problems, while descriptively interesting and reported here, were excluded from the predictive regression analysis.

**Personal Well-Being**

Prior to entering into TAMS, students’ composite well-being scores were very positive, scoring more than 73 on a 100-point Likert scale (Table 4). Normative data similarly reports an average composite score of 73.5 (International Wellbeing Index, 2005). There are no data transformations necessary for composite well-being for regression analysis, as skewness and kurtosis are within acceptable ranges.

Table 4

*Composite Well-Being (PWI-A) of Early College Entrants*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants (n = 189)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior to program</td>
<td>73.8</td>
<td>1.36</td>
<td>-.74</td>
<td>.80</td>
<td>.81</td>
</tr>
<tr>
<td>Participants with pre and post data (n = 77)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior to program</td>
<td>76.0</td>
<td>1.12</td>
<td>-.44</td>
<td>-.09</td>
<td>.75</td>
</tr>
<tr>
<td>After one semester</td>
<td>73.5</td>
<td>1.39</td>
<td>-.53</td>
<td>-.20</td>
<td>.84</td>
</tr>
<tr>
<td>Participants with pre and post data and parent data (n = 60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior to program</td>
<td>76.8</td>
<td>1.10</td>
<td>-.40</td>
<td>-.51</td>
<td>.74</td>
</tr>
<tr>
<td>After one semester</td>
<td>73.5</td>
<td>1.48</td>
<td>-.53</td>
<td>-.34</td>
<td>.85</td>
</tr>
</tbody>
</table>
Within the group who had both pre-program and after-one-semester data, well-being prior to program (76.0) was slightly higher than well-being after one semester of college (73.5). All well-being scores were in the mid sixties to the mid eighties, indicating a positive outlook and generally strong satisfaction with their lives. The composite score on both samples were found to be reliable, with post-semester Cronbach alphas of .84 and .85.

In addition to the composite well-being score, the PWI-A measures the states of satisfaction in seven domains: standard of living, health, achievements, relationships, safety, community, and future security. After one semester at TAMS, the student who responded pre and post indicated a higher measure of well-being in their standard of living, safety, community, and future security than the normative sample (Table 5).

Table 5

**Personal Well-Being Index (PWI-A): TAMS and Norm Sample**

<table>
<thead>
<tr>
<th>Index Domains</th>
<th>TAMS Mean</th>
<th>Normed Sample Mean</th>
<th>t</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard of living</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>78.0</td>
<td>76.8</td>
<td>.595</td>
<td>.554</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>77.3</td>
<td>76.8</td>
<td>.217</td>
<td>.029*</td>
</tr>
<tr>
<td>Health</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>71.3</td>
<td>76.8</td>
<td>-2.168</td>
<td>.033*</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>74.2</td>
<td>76.8</td>
<td>-.986</td>
<td>.328</td>
</tr>
<tr>
<td>Achieving</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>70.3</td>
<td>72.3</td>
<td>-.882</td>
<td>.381</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>69.7</td>
<td>72.3</td>
<td>-.957</td>
<td>.342</td>
</tr>
<tr>
<td>Relationships</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>67.2</td>
<td>74.7</td>
<td>-2.981</td>
<td>.004**</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>66.8</td>
<td>74.7</td>
<td>4.245</td>
<td>.000**</td>
</tr>
<tr>
<td>Safety</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>85.1</td>
<td>77.7</td>
<td>4.103</td>
<td>.000**</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>83.7</td>
<td>77.7</td>
<td>2.825</td>
<td>.006**</td>
</tr>
<tr>
<td>Community</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>70.3</td>
<td>65.7</td>
<td>1.926</td>
<td>.058</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>69.2</td>
<td>65.7</td>
<td>1.249</td>
<td>.216</td>
</tr>
<tr>
<td>Security</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>72.2</td>
<td>70.4</td>
<td>.744</td>
<td>.459</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>73.3</td>
<td>70.4</td>
<td>1.048</td>
<td>.299</td>
</tr>
<tr>
<td>Composite Score</td>
<td>After one sem&lt;sup&gt;a&lt;/sup&gt;</td>
<td>73.5</td>
<td>73.5</td>
<td>.002</td>
<td>.998</td>
</tr>
<tr>
<td></td>
<td>After one sem &amp; parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>73.5</td>
<td>73.5</td>
<td>.025</td>
<td>.980</td>
</tr>
</tbody>
</table>

*Note: <sup>a</sup>n = 77; <sup>b</sup>n = 60; ***p ≤ .001; **p ≤ .01; *p ≤ .05*
Lower measures of well-being than the normative sample were noted from the health, achieving, and relationship domains, while the composite score of the TAMS students after their first semester of college equaled the PWI-A composite score of the normative sample. Differences between the normed sample mean scores and the TAMS mean scores were found not to be statistically significant on each item except on two items: safety and relationships. Differences between the TAMS means and the normed sample means on the two index domains were statistically significant.

Intrapersonal Measures

Theory of Intelligence Scale. To assess students’ intrapersonal catalytic factors, three scales were used: the Theory of Intelligence Scale (TOI, Dweck, 2000), Questionnaire Goal Choice Items (QGCI, Dweck, 2000), and Brief Resilient Coping Scale (BRCS, Sinclair & Wallston, 2004). The mean score on the TOI for all pre-program participants was 3.66 (SD = .42) on a scale from one to six, with six reflecting a highly malleable view of intelligence, with a reliability of .95 (Table 6). Of the eight questions in the questionnaire, the author offers the option that four of them can be used alone. Among those participants who completed both the pre-program assessment and the post semester PWI-A, the mean was 3.65 (SD = .35), with a reliability of .96. Finally, among those with pre and post data and whose parents completed the pre-program data, the average TOI score was 3.67 (SD = .34), with a reliability of .97. The samples used in the regression analysis had similar properties to the entire sample.
Table 6

Means and Descriptives for Theory of Intelligence (TOI) of Early College Entrants

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants (n = 186)</td>
<td>3.66</td>
<td>.42</td>
<td>-.16</td>
<td>.77</td>
<td>.95</td>
</tr>
<tr>
<td>After one semester (n = 76)</td>
<td>3.65</td>
<td>.35</td>
<td>-.23</td>
<td>-.60</td>
<td>.96</td>
</tr>
<tr>
<td>After one semester &amp; parent data (n = 60)</td>
<td>3.67</td>
<td>.34</td>
<td>-.21</td>
<td>-.44</td>
<td>.97</td>
</tr>
</tbody>
</table>

Questionnaire Goal Choice. The Questionnaire Goal Choice Index (QGCI, Dweck, 2000) measures learning and performance goals. The mean score on the QGCI for all pre-program participants was 3.27 (SD = 1.06), on a scale from one to six, with six reflecting a strong learning goal orientation, and with a reliability of .63 (Table 7). The post-semester QGCI mean was 4.42 (SD = 1.11) with a reliability of .69. Among the post-semester students whose parents reported pre-program data, the QGCI was 4.31 (SD = 1.15), with a reliability of .70. The QGCI scale fell above the .60 threshold for acceptable in exploratory research with respect to a reliability coefficient (Hair et al., 2006: DeVillis, 1991). The QGC showed normality in the present sample.

Table 7

Means and Descriptives for Questionnaire Goal Choice Items (QGCI) for Early College Entrants

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants (n = 186)</td>
<td>3.27</td>
<td>1.06</td>
<td>-.45</td>
<td>-.66</td>
<td>.63</td>
</tr>
<tr>
<td>After one semester (n = 76)</td>
<td>4.42</td>
<td>1.11</td>
<td>-.70</td>
<td>-.18</td>
<td>.69</td>
</tr>
<tr>
<td>After one semester &amp; parent data (n = 60)</td>
<td>4.31</td>
<td>1.15</td>
<td>-.54</td>
<td>-.39</td>
<td>.70</td>
</tr>
</tbody>
</table>
Brief Resilient Coping Scale. The final instrument used to assess the intrapersonal category was the Brief Resilient Coping Scale (BRCS, Sinclair et al., 2004). The BRCS is a four-item indicator of resilience under stress. The BRCS (Table 8) fell below the .60 threshold with respect to a reliability for use in exploratory research (Hair et al., 2006; DeVillis, 1991). However, in considering the limited number of items in these two scales, these reliabilities are considered acceptable (Hair et al., 2006; DeVillis, 1991). The mean score on the BRCS for all pre-program participants was 3.74 (SD = .63) on a scale from one to five compared to the normed means of 3.76 (Sinclair et al., 2004) and a reliability of .59. The post-program participants’ mean score was 3.75 (SD = .63), with a reliability of .55. Finally, the post-semester data with parents who participated resulted in a mean score of 3.75 (SD = .67), with a reliability of .59. The BRCS showed normality in the present sample.

Table 8

Means and Descriptives for Brief Resilient Coping Scale (BRCS) for Early College Entrants

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants</td>
<td>3.74</td>
<td>.63</td>
<td>-.79</td>
<td>-.81</td>
<td>.59</td>
</tr>
<tr>
<td>After one semester (n = 76)</td>
<td>3.74</td>
<td>.63</td>
<td>-.81</td>
<td>1.79</td>
<td>.55</td>
</tr>
<tr>
<td>After one semester &amp; parent data (n = 60)</td>
<td>3.75</td>
<td>.67</td>
<td>-.89</td>
<td>1.87</td>
<td>.59</td>
</tr>
</tbody>
</table>

Environmental Measures

Parenting style. Parenting style as assessed with the Parent Authority Questionnaire (PAQ, Reitman, Rhode, Hupp, & Altobello, 2002). Family environment was assessed with the Family Environment Scale (FES, Moos, 2002). Both are measurements of environmental catalytic effects on talent formation for these early college entrants. The three parenting styles from the PAQ are: permissive, authoritative, and authoritarian. Parents scored themselves the
highest on authoritative style (mean = 40.2 of a possible 50). The mean score from parents in both data groups on authoritarian was 30.2 (SD = .52). The post-semester participants’ permissive mean was 25.9 (SD = .59), and the post-program participant with pre-program parent group’s mean score on permissive was 26.0 (SD = .59). Reliability was between .65 to .77 (Table 9), which fell above the .60 threshold for acceptable in exploratory research in a reliability coefficient (Hair et al., 2006; DeVillis, 1991). The PAQ showed normality in the present sample.

Table 9

<table>
<thead>
<tr>
<th>Parenting style</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester(^a)</td>
<td>25.9</td>
<td>.59</td>
<td>.20</td>
<td>-1.08</td>
<td>.77</td>
</tr>
<tr>
<td>After one sem and parent data(^b)</td>
<td>26.0</td>
<td>.59</td>
<td>.20</td>
<td>-1.02</td>
<td>.75</td>
</tr>
<tr>
<td>Authoritarian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester(^a)</td>
<td>30.2</td>
<td>.52</td>
<td>-.67</td>
<td>-.21</td>
<td>.75</td>
</tr>
<tr>
<td>After one sem and parent data(^b)</td>
<td>30.2</td>
<td>.52</td>
<td>-.67</td>
<td>-.20</td>
<td>.75</td>
</tr>
<tr>
<td>Authoritative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester(^a)</td>
<td>40.2</td>
<td>.36</td>
<td>-.59</td>
<td>1.02</td>
<td>.65</td>
</tr>
<tr>
<td>After one sem and parent data(^b)</td>
<td>40.2</td>
<td>.36</td>
<td>-.59</td>
<td>1.02</td>
<td>.65</td>
</tr>
</tbody>
</table>

Note. \(^a\)n = 76; \(^b\)n = 60.

Among those with pre and post data and whose parents completed the pre-program data (Table 10), the highest correlations between parenting style and ethnicity were those of Asian descent and those of Anglo descent with authoritarian parenting style although none of these correlations were significant. Post-program Asian participants correlated to authoritarian at .19 (\(p = .109\)), while the post-program and parent group had a correlation of .22 to authoritarian (\(p = .091\)). Post-program Anglo participants had the only statistically significantly correlation at -.25 (\(p < .05\)) and that was to authoritarian parenting.
Table 10

Correlations of the Ethnicity of TAMS Families and their Parental Authority Style (PAQ)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N</th>
<th>Permissive</th>
<th>Authoritarian</th>
<th>Authoritative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>r</td>
<td>p</td>
<td>r</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester</td>
<td>37</td>
<td>.09</td>
<td>.432</td>
<td>.19</td>
</tr>
<tr>
<td>After one sem and parent data</td>
<td>27</td>
<td>.08</td>
<td>.530</td>
<td>.22</td>
</tr>
<tr>
<td>Anglo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester</td>
<td>32</td>
<td>-.07</td>
<td>.567</td>
<td>-.25</td>
</tr>
<tr>
<td>After one sem and parent data</td>
<td>27</td>
<td>-.08</td>
<td>.556</td>
<td>-.24</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester</td>
<td>4</td>
<td>-.01</td>
<td>.939</td>
<td>.12</td>
</tr>
<tr>
<td>After one sem and parent data</td>
<td>3</td>
<td>-.02</td>
<td>.904</td>
<td>.09</td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester</td>
<td>1</td>
<td>.03</td>
<td>.815</td>
<td>.11</td>
</tr>
<tr>
<td>After one sem and parent data</td>
<td>1</td>
<td>.02</td>
<td>.866</td>
<td>.12</td>
</tr>
<tr>
<td>Native American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester</td>
<td>2</td>
<td>-.07</td>
<td>.528</td>
<td>-.05</td>
</tr>
<tr>
<td>After one sem and parent data</td>
<td>2</td>
<td>-.07</td>
<td>.620</td>
<td>-.11</td>
</tr>
</tbody>
</table>

Note. *n = 76; ^n = 60; *p < .05

The correlations among the three styles showed only permissive and authoritative styles negatively correlated to each other (Table 11). Their shared variance was 7.8%. The three styles, all with correlations below 34 percent, proved to be distinct and to describe different modes of parents relating with their children.

Table 11

Inter-Factor Correlations on Parenting Attitude Questionnaire (PAQ)

<table>
<thead>
<tr>
<th>Styles</th>
<th>Permissive</th>
<th>Authoritarian</th>
<th>Authoritative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissive</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritarian</td>
<td>-.33*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Authoritative</td>
<td>-.24</td>
<td>.22</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. * p ≤ .05.
The second measure of environmental catalysts was the Family Environment Scale (FES, Moos, 2002). Student participants self-reported family dynamics and relationships with true and false responses over ten subscales (Table 12). The ten factors of the FES instrument had reliabilities of .42 to .84 among the post-semester participants. The subscales had reliabilities of .61 to .86 for the ten factors among those with pre and post data and whose parents completed the pre-program data. The mean reliabilities among both sets of participants was .65. The reliability of all factors except expressiveness, independence, achievement, and active-recreational were greater than .60 on at least one of the participant groups. Four out of ten had reliabilities over .70 and two were larger than .80. In general, FES had acceptable internal consistency reliability (Nunnally, 1978). The reliabilities in this study approximately the same range as the reported norms (Moos & Moos, 2002), which range from .42 to .86 for the ten subscales. A participant mean score of 6.27 on independence was the highest (SD = 1.76 – 1.77), with mean score of 4.59 on moral-religious emphasis was the lowest (SD = 2.84 – 2.99). All of the ten dimensions were either normally distributed or close to a normal distribution. The sample size was too small to support all 18 independent variables in regression analysis (Hair et al., 2006). As some dimension reliabilities were low and the sample size for the regression analysis was not big enough to use all 10 factors independently, the higher-order composite factors for regression analysis as suggested in Moos (2001) were used. The three higher-order composite factors include relationship dimension, personal growth dimension, and system maintenance dimension.
Table 12

*Family Environment Scale (FES) Subscale Means for Parents of Early College Entrants*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>After one semester&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesion</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.12</td>
<td>-0.73</td>
<td>-0.4</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.00</td>
<td>-0.71</td>
<td>-0.55</td>
<td>0.80</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.67</td>
<td>-0.00</td>
<td>-1.09</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.76</td>
<td>-0.20</td>
<td>-1.17</td>
<td>0.50</td>
</tr>
<tr>
<td>Conflict</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.34</td>
<td>0.36</td>
<td>-0.89</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.33</td>
<td>0.37</td>
<td>-1.02</td>
<td>0.84</td>
</tr>
<tr>
<td>Independence</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.27</td>
<td>-0.73</td>
<td>0.98</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.27</td>
<td>-0.86</td>
<td>1.59</td>
<td>0.49</td>
</tr>
<tr>
<td>Achievement orientation</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.13</td>
<td>-0.25</td>
<td>-0.51</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.22</td>
<td>-0.32</td>
<td>-0.5</td>
<td>0.56</td>
</tr>
<tr>
<td>Intellectual-cultural</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.23</td>
<td>-0.81</td>
<td>0.22</td>
<td>0.68</td>
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<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.22</td>
<td>-0.67</td>
<td>0.08</td>
<td>0.52</td>
</tr>
<tr>
<td>Active-recreational</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.30</td>
<td>-0.07</td>
<td>-0.85</td>
<td>0.59</td>
</tr>
<tr>
<td>orientation</td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>0.14</td>
<td>-0.80</td>
<td>0.55</td>
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<td>Moral-religious emphasis</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>-1.39</td>
<td>0.83</td>
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<tr>
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<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.59</td>
<td>-0.04</td>
<td>-1.54</td>
<td>0.86</td>
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<td>Organization</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>-0.25</td>
<td>-0.60</td>
<td>0.61</td>
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<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.12</td>
<td>-0.31</td>
<td>-0.56</td>
<td>0.62</td>
</tr>
<tr>
<td>Control</td>
<td>After one semester&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.71</td>
<td>-0.19</td>
<td>-0.66</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>After one sem and parent&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.80</td>
<td>-0.36</td>
<td>-0.63</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Note.  an = 76;  bn = 60.

The correlation among the 10 dimensions ranged from zero to .54 in magnitude with an average of .18 (Table 13). Fifteen out of the forty-five correlations were statistically significant. All of the correlations except for that between cohesion and expressiveness and cohesion and conflict were less than .50. These small and moderate correlations generally support the convergent and discriminant validity of the scales.
The FES is composed of three dimensions: Relationship, Personal Growth, and System Maintenance (Table 13). Relationship is composed of three subscales: Personal Growth is composed of five, and System Maintenance is composed of two. Moos’ (2001) composite scale called Relationship combines cohesion, expressiveness, and conflict. System Maintenance is created by combining organization and control. The remaining five original factors are combined to make Personal Growth. The correlations among these three factors were all positive as is expected if the scale is functioning for this sample of early entrants. The positive associations (table 13) were especially evident between the Relationship dimension and Personal Growth dimension, with \( r = .39 \) \((p \leq .01)\). These correlations further support the construct validity of the 3-factor structure of the FES in the sample.

Conflict was recoded to compute the reliability and mean for the factor of relationship dimensions. For the five factors: independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious emphasis, the inter-factor correlations fell between .01 to .47 (Table 13), supporting both the convergent and discriminant validity of the composite variable personal growth dimensions. Evidently, discriminant validity was more supported than convergent validity in this sample due to the greater number of small to large correlations. For system maintenance dimensions, the factors of organization and control significantly correlated at the \( r = .40 \), with \( p \leq .05 \). It appeared reasonable to combine them to derive the system maintenance factor. In summary, the higher-order 3-factor structure of the FES overall was supported in the current sample.
Table 13

*Inter-Factor Correlations on Family Environment Scale (FES)*

<table>
<thead>
<tr>
<th>FES Subscales</th>
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<th>9</th>
<th>10</th>
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<th>2</th>
<th>3</th>
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<td>4. Independence</td>
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<td>.18</td>
<td>.12</td>
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<tr>
<td>5. Achievement Orientation</td>
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<td>.09</td>
<td>.09</td>
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<td>6. Intellectual-Cultural Orientation</td>
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<td>.27*</td>
<td>.03</td>
<td>.14</td>
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<tr>
<td>7. Active- Recreational Orientation</td>
<td>.30*</td>
<td>.35**</td>
<td>.11</td>
<td>.15</td>
<td>-.19</td>
<td>.41***</td>
<td>-</td>
<td></td>
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<tr>
<td>8. Moral-Religious Emphasis</td>
<td>.25</td>
<td>.25</td>
<td>-.08</td>
<td>-.24</td>
<td>.11</td>
<td>.08</td>
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<td>-</td>
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<tr>
<td>9. Organization</td>
<td>.32*</td>
<td>-.19</td>
<td>.26**</td>
<td>-.15</td>
<td>.26*</td>
<td>.21</td>
<td>.21</td>
<td>-.10</td>
<td>-</td>
<td></td>
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<td>10. Control</td>
<td>.07</td>
<td>-.26*</td>
<td>-.27*</td>
<td>-.27*</td>
<td>.22</td>
<td>-.01</td>
<td>-.10</td>
<td>.02</td>
<td>.40**</td>
<td>-</td>
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<table>
<thead>
<tr>
<th>FES Dimensions</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relationship Dimensions</td>
<td>-</td>
<td></td>
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</tr>
<tr>
<td>2. Personal Growth Dimensions</td>
<td>.39**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3. System Maintenance Dimensions</td>
<td>.03</td>
<td>.10</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. *p <.05; **p ≤ .01; ***p ≤ .001.*
Reliabilities for Relationship and Personal Growth (Table 14) were between .68 and .72, considered acceptable or satisfactory (Hair et al., 2006; DeVillis, 1991). System maintenance fell below the .60 threshold for acceptable in exploratory research with respect to a reliability coefficient (Hair et al., 2006; DeVillis, 1991); however, in considering the few items in this dimension of only two subscales, these reliabilities are considered acceptable (Hair et al., 2006; DeVillis, 1991).

Table 14

Means and Descriptives for Family Environment Scale (FES) Composite Dimensions for Parents of Early College Entrants

<table>
<thead>
<tr>
<th>FES Composite dimensions</th>
<th>$M$</th>
<th>$SD$</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>$\alpha$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester$^a$</td>
<td>5.40</td>
<td>1.82</td>
<td>-.48</td>
<td>-.35</td>
<td>.72</td>
</tr>
<tr>
<td>After one sem and parent$^b$</td>
<td>5.35</td>
<td>1.97</td>
<td>-.50</td>
<td>-.62</td>
<td>.71</td>
</tr>
<tr>
<td>Personal growth dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester$^a$</td>
<td>5.70</td>
<td>1.05</td>
<td>-.68</td>
<td>1.36</td>
<td>.68</td>
</tr>
<tr>
<td>After one sem and parent$^b$</td>
<td>5.67</td>
<td>1.08</td>
<td>-.73</td>
<td>1.65</td>
<td>.71</td>
</tr>
<tr>
<td>System maintenance dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one semester$^a$</td>
<td>5.46</td>
<td>1.71</td>
<td>-.36</td>
<td>.22</td>
<td>.48</td>
</tr>
<tr>
<td>After one sem and parent$^b$</td>
<td>5.46</td>
<td>1.81</td>
<td>-.43</td>
<td>.16</td>
<td>.57</td>
</tr>
</tbody>
</table>

Note. $^a n = 76; ^b n = 60.$

On average, students perceived their families as moderately supportive on all of the three composite factors. These factors were ranked between five and six on the nine-point scale. The mean score on Personal Growth (5.67, $SD = 1.08$) was the highest, 5.67 ($SD = 1.08$) for all pre-program participants, while the mean score was 5.70 ($SD = 1.05$) for post-semester participants on a scale from zero to nine, with reliabilities of .71 and .68, respectively. The mean score on System Maintenance was 5.46 ($SD = 1.08$) for all pre-program participants and 5.46 ($SD = 1.05$) for post-semester participants, with reliabilities of .57 and .48 respectively. Finally, the mean
score of 5.35 ($SD = 1.97$) on Relationship was the lowest for all pre-program participants and 5.40 ($SD = 1.82$) for post-semester participants with reliabilities of .71 and .72 respectively. These data were normally distributed for Relationship, Personal Growth, and System Maintenance dimensions. There were no violations for the normality on the ten scales. No data transformations were necessary on the three composite factors.

**Focus Group**

A focus group discussion with nine TAMS students was conducted toward the beginning of the second semester. All students were invited to participate and those who chose to attend were assigned a number. Participants in this focus group were encouraged to express themselves in response to questions regarding their transition to the university, their family environment, their academic experiences, and their levels of satisfaction with life there at TAMS. The students represented a variety of ethnicities; one African-American, three Asians, one Hispanic, and four Anglos. Students who expressed a fairly smooth transition from home and high school to TAMS were either from families who lived lives quite independent of each other, had been to camps or had other experiences away from home, or were accustomed to moving from one home to another. A student who expressed particular closeness with his family also spoke of being homesick. Academically, those whose previous schools offered a rigorous curriculum reported a smoother transition than those whose schools did not offer such rigor. They generally expressed confidence in their abilities to make decisions for themselves and enjoyed the additional free time their college schedule offered them.
The Relationships between Talent, Intrapersonal, and Environmental Factors and the First-Semester GPA and Personal Well-Being at TAMS

Selection of Variables for Hierarchical Regression Analysis

Behavior markers after one semester in college were collected but were not used in regression analysis because the data were very restricted in range and highly skewed. Two dependent variables were used: the first-semester GPA and personal well-being (PWI-A). The first three research questions investigated the relationships between each of three broad categories of variables (i.e. ability/talent, intrapersonal catalysts, and environmental catalysts) and two outcome measures (i.e. first semester of college GPA and life satisfaction at the end of the first semester in TAMS). Table 15 shows the correlations among all factors.

Eleven predictors were used to predict the variances in first-semester college GPA and personal well-being in separate regressions. Before the hierarchical regression, the correlations between the predictors were examined to identify potential multicollinearity. First semester GPA significantly correlated with the early entrants’ ninth-grade GPA ($p \geq .05$), with a moderate correlation of ($r = .26$). The other variables did not correlate with the first semester of college GPA.

Personal well-being (PWI) measured after one semester in college (QGCI and BRCS both measured prior to TAMS) demonstrated significant correlations at the .01 level with $r = .41$ and $r = .34$, respectively. Students with stronger learning goals and higher resiliency skills tended to express more personal well-being after one semester at TAMS. This suggests that highly resilient individuals, who believe that they can face and overcome difficult situations, including those in their studies, have a positive sense of their abilities. This positive sense of self may translate to an overall optimistic view of themselves, which may have an effect of satisfaction with one’s life situations.
<table>
<thead>
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<th></th>
<th>1</th>
<th>2</th>
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<td>-.15</td>
<td>.34**</td>
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<td>-.19</td>
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<td>.19</td>
<td>-.16</td>
<td>.07</td>
<td>-.05</td>
<td>-.34**</td>
</tr>
<tr>
<td>13. System Maint Dim</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.04</td>
<td>.07</td>
<td>-.05</td>
<td>-.10</td>
<td>-.06</td>
</tr>
</tbody>
</table>

Note. * p ≤ .05; ** p ≤ .01
Simultaneous Regression

Research question 4 investigated the multidimensional relationships among innate, intrapersonal, and environmental factors and GPA after one semester in college and personal well-being. The first two regression models predicted the GPA after one semester in college for the early entrants at TAMS and their personal well-being after one semester with all of the eleven predictors simultaneously. The results are shown in Table 16. The variance inflation factor (VIF) values for all eleven predictors in Table 16 were less than 1.96, indicating no serious multicollinearity among these independent variables. For the prediction of the first semester GPA on all eleven variables, the studentized residual diagram shows normality of the dependent variable. The error variances appeared to be within the range of ±1 SD from the other ranges (SD = 0.949). The error terms also seemed to be slightly positively skewed as shown in the normal probability plot. Consistent patterns of nonlinearity and dependence of error terms were not found. As the violations of the assumptions were not serious, these assumptions of nonlinearity seemed to be met. No further remedial actions were performed. The eleven factors (Table 16) predicted about 53% of the variance on the transformed first-semester GPA with $F(11, 49) = 3.89, p < .001$. The adjusted $R^2$ was .39.

SAT scores prior to entrance and the ninth-grade GPA were the most important predictors with the largest $\beta$ weights (Table 16). SAT alone explained 37% of the variance on the first-semester GPA with the other ten predictors present. The ninth-grade GPA by itself accounted for 40% of the variance. Authoritarian parenting was the next candidate for salient predictors based on $\beta$ weights. It alone explained 32% of the variance. Personal growth None of the other eight predictors were individually significant predictors.
Of the eleven factors, ninth-grade GPA, BRCS, and permissive parenting style were statistically significant in predicting personal well-being; with $F(11, 49) = 2.09, p < .05$ (Table 16). They are all important factors, explaining between 33% and 39% of the variance. The multiple $R^2$ exceeded the minimum threshold for a large effect at a value of .38, with the adjusted $R^2$ accounting for error at 20%.

Table 16

_Simultaneous Regression on First-Semester GPA and Personal Well-Being_

<table>
<thead>
<tr>
<th>Predictors</th>
<th>VIF</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>1.23</td>
<td>.373</td>
<td>2.90</td>
<td>.006**</td>
<td>-.205</td>
<td>1.38</td>
<td>.175</td>
</tr>
<tr>
<td>Ninth grade GPA</td>
<td>1.03</td>
<td>.396</td>
<td>3.36</td>
<td>.002**</td>
<td>.363</td>
<td>2.68</td>
<td>.011*</td>
</tr>
<tr>
<td>TOI</td>
<td>1.49</td>
<td>.224</td>
<td>1.58</td>
<td>.124</td>
<td>.202</td>
<td>1.23</td>
<td>.226</td>
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<tr>
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<td>-.101</td>
<td>-.81</td>
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<td>.124</td>
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<td>-.22</td>
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<td>.026*</td>
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<td>.03</td>
<td>.980</td>
<td>.386</td>
<td>2.41</td>
<td>.021*</td>
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<td>Authoritarian</td>
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<td>.321</td>
<td>2.61</td>
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<td>1.23</td>
<td>.332</td>
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<td>.49</td>
<td>.625</td>
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<td>-.59</td>
<td>.557</td>
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<td>.002**</td>
<td>.155</td>
<td>.93</td>
<td>.357</td>
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<td>-.26</td>
<td>.796</td>
<td>.194</td>
<td>1.37</td>
<td>.179</td>
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_Model Summary_

- $F(11, 49) = 3.89, p \leq .001$, $R^2 = .53$, $R^2_{adj} = .39$
- $F(11, 49) = 2.09, p \leq .05$, $R^2 = .38$, $R^2_{adj} = .20$

_Note._ * $p < .05$; ** $p \leq .01$
**Individual Regression**

Regressions run on the eleven predictors (Table 17) individually revealed that SAT and ninth-grade GPA were important factors with the largest \( \beta \) weights, statistically significant in predicting first-semester GPA with minimal error. In the individual regression on Table 18, Permissive parenting style and Relationship dimension predicted personal well-being. Permissive parenting was found to be a much more important predictor than the relationship dimension, explaining 34% and 17% of the variance, respectively.

Table 17

**Individual Regression on First-Semester GPA**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>First semester GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta )</td>
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<tr>
<td>SAT</td>
<td>.40</td>
</tr>
<tr>
<td>Ninth-grade GPA</td>
<td>.34</td>
</tr>
<tr>
<td>TOI</td>
<td>.14</td>
</tr>
<tr>
<td>QGCI</td>
<td>.14</td>
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<tr>
<td>BRCS</td>
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<tr>
<td>Permissive</td>
<td>.13</td>
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<td>Authoritarian</td>
<td>.23</td>
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<tr>
<td>Authoritative</td>
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</tr>
<tr>
<td>Relationship</td>
<td>.02</td>
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<tr>
<td>Personal growth</td>
<td>.19</td>
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<tr>
<td>System maintenance</td>
<td>.04</td>
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</table>

*Note. * \( p < .05; ** p \leq .01\)
Table 18

*Individual Regression on Personal Well-Being*

<table>
<thead>
<tr>
<th>Predictors</th>
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<th>$t$</th>
<th>$p$</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
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</thead>
<tbody>
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<td>-.02</td>
</tr>
<tr>
<td>Ninth-grade GPA</td>
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<td>.04</td>
<td>.00</td>
<td>-.02</td>
</tr>
<tr>
<td>TOI</td>
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<td>.06</td>
<td>.26</td>
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<td>.05</td>
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<tr>
<td>QGCI</td>
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<td>.00</td>
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<td>BRCS</td>
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<td>-1.54</td>
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<td>.20</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Permissive</td>
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<td>2.70</td>
<td>.01*</td>
<td>.34</td>
<td>.11</td>
<td>.10</td>
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<tr>
<td>Authoritarian</td>
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<td>1.45</td>
<td>.15</td>
<td>.19</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Authoritative</td>
<td>.06</td>
<td>.48</td>
<td>.63</td>
<td>.06</td>
<td>.00</td>
<td>-.01</td>
</tr>
<tr>
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<td>.17</td>
<td>1.31</td>
<td>.02*</td>
<td>.17</td>
<td>.03</td>
<td>.01</td>
</tr>
<tr>
<td>Personal growth</td>
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<td>.48</td>
<td>.10</td>
<td>.01</td>
<td>-.01</td>
</tr>
<tr>
<td>System maintenance</td>
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<td>.55</td>
<td>.58</td>
<td>.07</td>
<td>.01</td>
<td>-.01</td>
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<tr>
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<td>.26</td>
<td>1.89</td>
<td>.06</td>
<td>.26</td>
<td>.07</td>
<td>.05</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; **$p$ ≤ .01

*Hierarchical Regression*

The hierarchical regression model (Table 19) is an analysis of the three blocks of predictor variables. Intrapersonal talent variables, the intrapersonal factors, the environmental variables, and their ability to predict early entrants’ first-semester GPA and personal well-being after one semester were explored through calculating correlation coefficients. As the correlations among the independent variables were not large (Table 15), multicollinearity was unlikely and was not
examined for the seven models with one or two blocks of predictors. Structural coefficients were not reported given the lack of multicollinearity. The models with all of the variables entered were the same as those in the simultaneous regression. The studentized residual diagrams and the normal probability plots for the four models are presented in Appendix B. Visual inspection of these figures suggested they had patterns similar to those found in the simultaneous regression models. No serious violations to the assumptions were found.

*First Semester College GPA: Block 1*

Table 18 shows the results for the hierarchical regression on the two criterion variables with the seven blocks of predictor variables. For the first-semester college GPA on Block 1, ninth-grade GPA and SAT significantly predicted 27% of the variance. The adjusted $R^2$ was .23, close to the $R^2$ of .27. Both predictors were important although SAT contributed slightly more to the prediction.

*First Semester College GPA: Block 2*

The set of eight factors significantly predicted first-semester GPA: $F(8, 49) = 5.04, p \leq .001$, with a strong $R^2$ of .50 with and adjusted $R^2$ of 40. When the group of environmental catalytic variables was added in Block 2, the $R^2$ increased to 50%. The adjusted $R^2$ was 40%, which was a considerable value given the presence of error. The environmental factors also significantly predicted first semester GPA. When the block of familial variables were entered, the whole model remained statistically significant, although the F value decreased. In part, this reduction in F value was due to the increased number of the predictors included in the block. Within the block of intrapersonal catalytic variables in the hierarchical regression, the talent
variables of SAT and ninth-grade GPA significantly contributed to predicting between 38% and 42% of the variance on their first-semester college GPA. Within the block of the familial variables, authoritarian parenting and personal growth were relatively more important than the other four variables: relationship, system maintenance, authoritative parenting, and permissive parenting. But none were as predictive as pre-early entrance SAT and GPA as reflected in the smaller β values. Personal growth dimension significantly predicted 37% of the variance, while authoritarian parenting style was the least important contributor to Fall GPA in terms of statistical significance. The combination of talent and environment were strong predictors of first-semester GPA.

**First Semester College GPA: Block 3**

A third block of interpersonal factors was added to the environmental and talent variables in the hierarchical regression. The intrapersonal block of eleven predictors reached statistical significance in predicting 53% of the variance on first-semester GPA, with an adjusted $R^2$ of 39%. The final block of variables revealed no additional predictors to first-semester GPA. The most important predictors remained, in order of importance, personal growth dimension, ninth-grade GPA, SAT, and authoritarian parenting style. In the presence of the intrapersonal factors BRCS, TOI, and QGCI, personal growth dimension significantly predicted 47% of the variance on first-semester GPA, while the least important significant contributor, authoritarian parenting, predicted 32%.

In summary, the hierarchical regression on the first-semester GPA suggested that the best predictors of first semester GPA for early entrants was SAT scores and ninth-grade GPA, with
some effect for certain family factors, specifically authoritarian parenting and a family
environment that supports personal growth.

*Personal Well-Being: Block 1*

The Block 1 variables for personal well-being reflecting ability and past performance
(SAT scores and ninth-grade GPA) predicted 8% of the variance. The model was not statistically
significant, with $F(2,49) = 2.03, p = .14$. The adjusted $R^2$ was .04, not dramatically less than the
$R^2$ of .08.

*Personal Well-Being: Block 2*

Block 2 combined talent and environmental variables. When the six environmental
variables in the second block were entered with the two talent variables, no prediction was found
on personal well-being. The set of eight factors significantly predicted first-semester GPA, with
$F(8, 49) = 1.70, p = .13$. Although the $R^2$ noticeably increased to .25 from .08, the adjusted $R^2$
only increased to .10. None of the predictors were significant except for ninth-grade GPA,
authoritative parenting, and permissive parenting.

*Personal Well-Being: Block 3*

All of the eleven predictors were combined in Block 3 with the addition of intrapersonal
factors: TOI, QGCI, and BRCS. When the intrapersonal variables entered as the third block to
now include all eleven predictors, the $R^2$ increased to .38, the F value increased to 2.09, and the
adjusted $R^2$ increased to .20 from .10. None of the familial variables except for permissive
parenting statistically significantly related to the dependent variable. Of the intrapersonal
variables, the BRCS, indicating resilience, statistically significantly predicted 33% of the

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variance on their first-semester GPA when combined with all other ten variables. The best predictor of self-perceptions of personal well-being after one semester in college were ninth-grade GPA, BRCS, and permissive parenting, with substantial contributions for each ranging from .33 to .39. The model significantly predicted both first-semester GPA, with $F(11, 49) = 3.89, p \leq 0.001$, and personal well-being, with $F(11, 49) = 2.09, p = .046$.

*Separate Regressions of Talent, Intrapersonal Catalysts, and Environmental Catalysts*

Regression of each of the three catalysts reflective of Gagné’s model of talent development (Gagné’, 2003) on first semester GPA and personal well-being was examined in three separate catalysts in Blocks 1, 4, and 5. Analyzed separately, only the talent catalyst block (Block 1) was statistically significant in predicting first-semester college GPA, with both SAT and ninth-grade GPA being important predictors. The intrapersonal catalyst block (Block 5) was statistically significant in predicting personal well-being with BRCS as the important predictor.

*Block 4*

The environmental block of six predictors included personal growth, system maintenance, relationship and the three parenting styles; permissive, authoritarian, and authoritative. In a separate regression analysis in Block 4 of the six environmental factors, no prediction was found to be significant on either dependent variable - first-semester GPA or personal well-being.

*Block 5*

The intrapersonal block of three predictors (BRCS, TOI, and QGCI) was not found to be
significant on first-semester college GPA. However, the same set of predictors significantly predicted personal well-being, with $F(3, 58) = 3.10, p = .03$. The adjusted $R^2$ was .10, a value reduced by error from an $R^2$ of .15. The statistically significant variable BRCS was found to be important, predicting 32% of the variance.

*Intrapersonal Catalysts with Talent and Environmental*

**Block 6**

Two of Gagné’s catalysts, talent and intrapersonal catalysts, were combined to examine the significance of Block 6 on first-semester GPA. The five predictors significantly predicted 55% of first semester GPA, with notable error as reflected by the adjusted $R^2$ of 22%. The talent factors of ninth-grade GPA and SAT were statistically significant in explaining 37% and 41% of the variance on first-semester GPA, respectively. However, once again, none of the intrapersonal variables proved to be significant. The intrapersonal and talent factors block that predict personal well-being proved not to be statistically significant, with $F(5, 51) = 2.29, p = .06$. The adjusted $R^2$ was .20, but the $R^2$ adjustment due to error was .11. Two variables within the model were statistically significant at $p < .05$ level: ninth-grade GPA and BRCS.

**Block 7**

Block 7, the combination of environmental and intrapersonal factors, proved not to be statistically significant on both first-semester GPA, with $F(9, 56) = 1.49, p = .18$, and personal well-being, with $F(9, 56) = 1.61, p = .14$.

Results (Table 19) provide some support to Gagné’s (2004) theoretical claims that talent development is in part based on natural ability as changed into performance over time and
Table 19
Hierarchical Regression with Three Sets of Variables on First-Semester GPA and Personal Well-Being

<table>
<thead>
<tr>
<th>Block 1 – Talent</th>
<th>First-Semester College GPA</th>
<th>Personal Well-Being</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>SAT</td>
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<td>3.15</td>
</tr>
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<td>Ninth-grade GPA</td>
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<td>2.76</td>
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</table>

<table>
<thead>
<tr>
<th>Block 2 – Talent &amp; Environment</th>
<th>First-Semester College GPA</th>
<th>Personal Well-Being</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
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<td>Personal Growth</td>
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<td>2.87</td>
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<td>-.32</td>
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<table>
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<tr>
<th>Block 3 – Talent, Intrapersonal &amp; Environment</th>
<th>First-Semester College GPA</th>
<th>Personal Well-Being</th>
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</thead>
<tbody>
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<td>β</td>
<td>t</td>
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<tr>
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*(table continues)*
Table 19 (continued).

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<td>.85</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Permissive</td>
<td>.22</td>
<td>1.47</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritarian</td>
<td>.29</td>
<td>2.07</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritative</td>
<td>-.10</td>
<td>-.67</td>
<td>.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal growth</td>
<td>.33</td>
<td>2.08</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System maint</td>
<td>-.07</td>
<td>-.52</td>
<td>.61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>-.02</td>
<td>-.11</td>
<td>.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRCs</td>
<td>-.13</td>
<td>-.86</td>
<td>.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOI</td>
<td>-.13</td>
<td>-.86</td>
<td>.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QGCI</td>
<td>.17</td>
<td>1.07</td>
<td>.29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * \( p < .05; ** p < .01; *** p < .001 \)
environmental catalysts – especially the personal growth dimension and authoritarian parenting. Intrapersonal factors alone did not predict success in college GPA, but it did predict positive personal well-being. The significant factor, BRCS, predicted 32% of the variance on PWI-A. However, none of the intrapersonal factors were found to be significant or important when combined with other catalysts. Therefore, backward regression technique was also employed to find the best set of the predictors, one that maximized the prediction power.

**Backward Regression**

The statistical procedure of backward regression includes all of the predictors and eliminates insignificant predictors in the model one at a time until the maximum $F$ value is obtained. Multicollinearity is a major threat for backward (and forward) regression method (Hair et al., 2006). However, Table 13 has shown that multicollinearity was not present in these data. The sequential search for the best model with the backward regression method was warranted.

*First-semester GPA.* Table 20 shows the prediction models from the backward regression analysis. First-semester GPA had eight models with the final model having the largest F value. This model includes talent, environmental, and intrapersonal variables. The 95% confidence interval for the adjusted $R^2$ ranged from 18% to 48%. Nevertheless, the adjusted $R^2$ was used as the main criterion to determine the best model. Adjusted $R^2$ is more likely to be replicable. Based on this criterion, model five was designated as the best prediction model for first-semester college GPA. Model 5 statistically significantly predicted first-semester GPA with the variables TOI, Authoritative, QGCI, Personal growth, ninth-grade GPA, and SAT.

Before interpreting the regression coefficients, the muticollinearity and the assumptions of homoscedasticity and normality of error terms were examined for the best model of the eight
models produced by the backward regression. Table 15 demonstrates there was no multicollinearity problem. The studentized residual diagrams and the normal probability showed mild violations to the assumptions of homoscedasticity and normality of error terms as in the simultaneous regression. Because multicollinearity did not exist and the assumptions were not seriously violated, no further actions such as data transformation were conducted.

Table 20

*Model Summary for Backward Regression Analyses on Personal Well-Being*

<table>
<thead>
<tr>
<th>Criterion variables / Models</th>
<th>Removed variable</th>
<th>$F$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-semester GPA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td></td>
<td>$F(11, 49) = 3.89, p ≤ .001$</td>
<td>.73</td>
<td>.53</td>
<td>.39</td>
</tr>
<tr>
<td>Model 2</td>
<td>Permissive</td>
<td>$F(10, 49) = 4.39, p ≤ .001$</td>
<td>.73</td>
<td>.53</td>
<td>.41</td>
</tr>
<tr>
<td>Model 3</td>
<td>BRCS</td>
<td>$F(9, 49) = 5.00, p ≤ .001$</td>
<td>.73</td>
<td>.53</td>
<td>.42</td>
</tr>
<tr>
<td>Model 4</td>
<td>System Maint</td>
<td>$F(8, 49) = 5.75, p ≤ .001$</td>
<td>.73</td>
<td>.53</td>
<td>.44</td>
</tr>
<tr>
<td>Model 5*</td>
<td>Relationship</td>
<td>$F(7, 49) = 6.65, p ≤ .001$</td>
<td>.73</td>
<td>.53</td>
<td>.45</td>
</tr>
<tr>
<td>Model 6</td>
<td>QGCI</td>
<td>$F(6, 49) = 7.57, p ≤ .001$</td>
<td>.72</td>
<td>.51</td>
<td>.45</td>
</tr>
<tr>
<td>Model 7</td>
<td>Authoritative</td>
<td>$F(5, 49) = 9.03, p ≤ .001$</td>
<td>.72</td>
<td>.51</td>
<td>.45</td>
</tr>
<tr>
<td>Model 8</td>
<td>TOI</td>
<td>$F(4, 49) = 10.41, p &lt; .001$</td>
<td>.70</td>
<td>.48</td>
<td>.43</td>
</tr>
<tr>
<td><strong>Personal Well-Being</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td></td>
<td>$F(11, 49) = 2.09, p ≤ .05$</td>
<td>.61</td>
<td>.38</td>
<td>.20</td>
</tr>
<tr>
<td>Model 2</td>
<td>Relationship</td>
<td>$F(10, 49) = 2.30, p = .03$</td>
<td>.61</td>
<td>.37</td>
<td>.21</td>
</tr>
<tr>
<td>Model 3*</td>
<td>Personal Grth</td>
<td>$F(9, 49) = 2.52, p = .02$</td>
<td>.60</td>
<td>.36</td>
<td>.22</td>
</tr>
<tr>
<td>Model 4</td>
<td>TOI</td>
<td>$F(8, 49) = 2.70, p = .02$</td>
<td>.59</td>
<td>.35</td>
<td>.22</td>
</tr>
<tr>
<td>Model 5</td>
<td>Authoritarian</td>
<td>$F(7, 49) = 2.92, p ≤ .01$</td>
<td>.57</td>
<td>.33</td>
<td>.22</td>
</tr>
<tr>
<td>Model 6</td>
<td>QGCI</td>
<td>$F(6, 49) = 3.24, p ≤ .01$</td>
<td>.56</td>
<td>.31</td>
<td>.22</td>
</tr>
<tr>
<td>Model 7</td>
<td>SAT</td>
<td>$F(5, 49) = 3.64, p = .008$</td>
<td>.54</td>
<td>.29</td>
<td>.21</td>
</tr>
<tr>
<td>Model 8</td>
<td>System Maint</td>
<td>$F(4, 49) = 4.19, p = .006$</td>
<td>.52</td>
<td>.27</td>
<td>.21</td>
</tr>
</tbody>
</table>

*Note.* * = the designated best prediction model.
Model 5 significantly predicted the first-semester GPA with seven predictors, with
\( F(7, 49) = 6.65, p \leq 0.001 \). About 53% of the variance on the GPA could be accounted for by the
seven predictors and the adjusted \( R^2 \) was not much less, approximately 45%. The F and adjusted
\( R^2 \) values increased noticeably in the fifth backward regression while the multiple \( R^2 \) remained
about the same as in the simultaneous regression of all eleven variables (Table 16). More
importantly, the four unimportant factors were eliminated, resulting in a more parsimonious
model.

Table 21

Results for the Best Prediction Model on First-Semester GPA and Personal Well-Being

<table>
<thead>
<tr>
<th>Criterion variable / Predictors</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
<th>( r )</th>
<th>( r^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-Semester GPA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.37</td>
<td>3.23</td>
<td>.002</td>
<td>.401**</td>
<td>.161</td>
</tr>
<tr>
<td>Ninth-grade GPA</td>
<td>.40</td>
<td>3.67</td>
<td>.001</td>
<td>.339</td>
<td>.115</td>
</tr>
<tr>
<td>Personal growth</td>
<td>.50</td>
<td>3.92</td>
<td>.000</td>
<td>.192</td>
<td>.014</td>
</tr>
<tr>
<td>Authoritarian</td>
<td>.32</td>
<td>2.86</td>
<td>.007</td>
<td>.234</td>
<td>.055</td>
</tr>
<tr>
<td>Authoritative</td>
<td>-.127</td>
<td>-1.03</td>
<td>.307</td>
<td>-.037</td>
<td>.003</td>
</tr>
<tr>
<td>TOI</td>
<td>.23</td>
<td>1.81</td>
<td>.078</td>
<td>.138</td>
<td>.032</td>
</tr>
<tr>
<td>QGCI</td>
<td>-.12</td>
<td>-1.03</td>
<td>.310</td>
<td>.139</td>
<td>.026</td>
</tr>
<tr>
<td><strong>Model summary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( F(7, 49) = 6.65, p \leq 0.001; R^2 = .53, R^2_{adj} = .44 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Personal Well-Being**        |          |       |      |     |     |
| SAT                            | -.19     | -1.28 | .208 | -.041 | .002 |
| Ninth-grade GPA                | .36      | 2.71  | .101 | .256 | .066 |
| System Maint                   | .19      | 1.34  | .187 | -.045 | .002 |
| Permissive                     | .38      | 2.42  | .020 | .187 | .032 |
| Authoritative                  | .20      | 1.43  | .161 | .170 | .029 |
| Authoritarian                  | .16      | 1.17  | .249 | .063 | .002 |
| BRCS                           | .31      | 2.28  | .028 | .335** | .112 |
| QGCI                           | -.18     | -1.35 | .184 | -.199 | .039 |
| TOI                            | .15      | 1.02  | .316 | .741 | .549 |
| **Model summary**              |          |       |      |     |     |
|                                | \( F(9, 49) = 2.52, p = .022; R^2 = .36, R^2_{adj} = .22 \) |

Note. * \( p \leq .05 \); ** \( p \leq .01 \); *** \( p \leq .001 \).
Table 21 shows that SAT, ninth-grade GPA, personal growth, and authoritarian parenting are statistically significant predictors of the first-semester college GPA for the early entrants. Both the $\beta$ weight and structural coefficient show a consistent pattern. Personal growth was the best single predictor followed by the ninth-grade GPA, SAT, and authoritarian parenting. Individually, they could predict 50%, 40%, 37%, and 32% of the variance on the GPA, respectively. The other variables, intrapersonal variables TOI and QGCI, were not predictive, but without them, the adjusted $R^2$ would be slightly decreased.

Personal well-being. For the prediction models on personal well-being after one semester of early college entrance, Table 21 lists eight models. Models three through six with six to nine predictors have the largest adjusted $R^2$. Of the four sets of predictors, model three has the smallest error measurement, or difference between $R^2$ and adjusted $R^2$; therefore, it was considered as the best model. The model chosen had nine predictors, having eliminated two of the Family Environment Scale dimensions through backward regression: relationship and personal growth. These nine predictors were ninth-grade GPA, permissive parenting style, permissive parenting, and BRCS. There were no multicollinearity changes for the nine predictors in the model as shown in Table 15. The studentized residual diagram and the normal probability plot in Appendix B also suggested no serious violations to the assumptions of regression. Therefore, model three was interpretable.

This prediction model was statistically significant, with $F(9, 49) = 2.52, p = .022$. The multiple $R^2$ was .36, close to the minimum threshold for a large prediction (Cohen, 1988). The adjusted $R^2$ was .22, in the range of .00 and .32 with the 95% confidence interval (Soper, 2007). Among the four predictors, three of them were statistically significant at the $p \leq .05$ level: ninth-grade GPA, permissive parenting style, and BRCS. All the variables corresponded to 31% to
38% prediction of the variance for the individual factors with the presences of the other six predictors.

Summary

At first glance, TAMS students appear to be a homogeneous group as evidenced by their mean descriptives. They all show high past performance as evidenced by their mean grade-point averages before entering the program (96), their SAT mean composite scores (1900), and their first semester grade-point averages (3.7). They have all chosen to leave their homes and schools to live on campus and complete a two-year university program. Upon further inspection, however, distinctions can be made among this student population that reflects success at TAMS. As stated, students with the highest academic achievement as measured by their first-semester GPAs showed high previous academic achievement. They earned higher SAT scores and higher ninth-grade grades than their peers who did not score as well their first semester at TAMS. In addition, academically successful students enjoyed encouragement and support from their families in the years prior to entry. Their families took interest in their progress and facilitated their goal achievement and personal talent development. High academic achievers in their first semester also come from homes of authoritarian parenting style. While authoritative parenting style is related to high achievement among individuals of European descent (Baumrind, 1993), authoritarian style of parenting has been found to be highly related to academic achievement among families of Asian, African-American, and Hispanic descent (Boveja, 1998; Huang & Prochner, 2004).

No statistically significant correlations existed, however, between the ethnicities in this study and parenting style, with the exception of a negative correlation of .26 with authoritarian
parenting among those of European-American descent. A noteworthy observation is that this study revealed no statistically significant correlations between Asian-Americans and authoritative parenting.

This study provides partial support for Gagné’s model. Talent factors were important and significant contributors to academic success at TAMS, but only part of the pair of talent factors, ninth-grade GPA, contributed to personal success, or personal well-being. In isolation, the other two catalysts were not found to be significant contributors to either fall-semester GPA nor PWI. However, all three of the catalysts together significantly predicted both dependent variables, indicating that the various factors representing the three main catalysts in Gagné’s model of giftedness and talent do indicate that they contribute to an individual’s talent development and overall well-being.

In a move from theory-driven data to data-driven analysis, backwards regression selected which independent variables best predicted first semester college GPA and personal well-being. All eleven predictors entered the backward regression twice - once each for first-semester college GPA and once for personal well-being. The model chosen for predicting first semester college GPA contained seven predictors and accounted for about 53% of the variance. These seven were SAT, ninth-grade GPA, theory of intelligence (TOI), questionnaire goal choice items (QGCI), authoritarian and authoritative parenting, and personal growth. Of the four predictors found to be statistically significant (SAT, ninth-grade GPA, personal growth, and authoritative parenting), personal growth and ninth-grade GPA were most predictive.

The backward regression model to predict personal well-being contained nine predictors: SAT, ninth-grade GPA, system maintenance, permissive, authoritative, and authoritarian parenting style, BRCS, QGCI, and TOI. The model significantly predicted PWI-A with $F(9, 49)$
= 2.52, \( p = .022 \), and accounted for 36% of the variance in the dependent variable. Of the nine factors, only ninth-grade GPA was significant at the \( p \leq .01 \) level, and two were significant at the \( p < .05 \) level (permissive parenting and BRCS). Students who had high resilience and coped well under stress and challenge, who made high grades in school before attending college, and who had permissive parents were more likely to exhibit student satisfaction and well-being at TAMS. The other two parenting styles also contributed to PWI, as did system maintenance (relating to structures and routines in the home) and two motivational predictors (QGCI and TOI). QGCI indicated that happier students placed learning above grades, and TOI indicated that happier students believed that they can improve their academic performance through effort.
CHAPTER V
DISCUSSION

In this chapter, the problem and the methods used in the study are restated briefly. The majority of the remainder of the chapter is dedicated to providing the reader with a summary of the results and a discussion of findings, with implications for future studies and possible contributions to the field of education.

Statement of the Problem

This study examined the various innate, intrapersonal, and familial characteristics after one semester at the Texas Academy of Mathematics and Science (TAMS) that relate to academic success, behavior, and personal well-being. The first semester is transitional in that the student moves from his/her home to a dormitory, from high school to college, and from a home environment to a larger social environment among peers and residence hall leaders. Although a large body of research exists that describes early college entrant achievement in terms of familial, innate, and intrapersonal characteristics, research focusing on success factors of the first semester student as well as research that includes satisfaction with the life experience of the first semester early college student is limited.

Specifically, the research questions were:

1. What is the relationship between measures of talent prior to entry at TAMS (initial achievement factors indicated by SAT and high school GPA) and TAMS first-semester grades, behavioral markers, and personal well-being?

2. What is the relationship between intrapersonal catalytic factors present in the individual prior to TAMS entry (coping skills, motivation, intellectual self-perception) and TAMS first-semester grades, behavioral markers, and personal well-being?

3. What is the relationship between environmental catalytic factors (family characteristics and parenting style) and TAMS first-semester grades, behavioral markers, and personal well-being?
4. What is the multivariate relationship between talent, intrapersonal, and external factors and TAMS first-semester grades, behavioral markers, and personal well-being?

Review of the Methodology

Descriptive statistics were used for all variables to determine means and percentages in relation to each sample. Univariate analysis through multiple linear regression was used to determine relationships for each of the research questions. The descriptive part of this study reports the grades, behavioral markers, and personal well-being during and immediately after the students’ first semester at TAMS. These outcomes were examined in light of student data from surveys gathered before entry into the program, such as test scores and high-school GPA. This data was examined from the standpoint of family cohesiveness, motivation, and parenting styles. Surveys gathering family data from one parent and the prospective TAMS student were collected prior to the first semester. Included were surveys gathering parenting style data collected from the parents and family environment, intrapersonal and personal well-being indicators collected from the students. In addition, prior high-school grade-point averages (GPA) and Scholastic Achievement Test (SAT) scores were obtained from the university. Student success after one semester in college was assessed for this study with two measurements taken after completion of one semester of the TAMS program: first-semester GPA and personal well-being. These two criteria measures are consistent with the outcome of personal flourishing as described in the model of gifted and thriving (Sayler, 2007). A focus group was conducted after completion of the fall semester in order to obtain additional data regarding the students’ initial impressions of their first semester at TAMS.
Summary of the Results

The study validates the three main components of talent development in Gagné’s differentiated model of giftedness and talent (DMGT, Gagné, 2004) and provides some evidence of the effects of acceleration on personal thriving (Sayler, 2007). The criteria measures for student success and thriving after one semester in college was assessed with first-semester college GPA and a measure of personal well-being. The third measure of student success, student behavior, was excluded from the predictive regression analysis due to the limited range of data values. The three main components to talent development in Gagné’s differentiated model of giftedness and talent are innate talent, intrapersonal catalysts, and environmental catalysts.

Question 1

The first research question posed sought the relationship between measures of talent prior to entry at TAMS as measured by SAT scores and their high school GPA and indicators of success as measured by TAMS first semester grades and personal well-being. By the nature of the program, evidence of previous high achievement in school is necessary in order to gain acceptance. On average, student achievement during the first semester was high, and SAT and ninth-grade GPA were salient predictors of academic achievement at TAMS across the study. However, the only measure of talent relating to student satisfaction with the experience at TAMS included only students’ initial GPA. Students with high ninth-grade GPAs were happier in their early entry environment.

Question 2

Question 2 explored the relationship between (1) intrapersonal catalytic factors as
indicated by the Theories of Intelligence Scale (TOI, Dweck, 2000), Questionnaire Goal Choice Items (QGCI, Dweck, 2000), and the Brief Resilience Coping Scale (BRCS, Sinclair & Wallston, 2004) and (2) success as measured by TAMS first semester grades and personal well-being. The Theory of Intelligence Scale (1996) measures the extent to which an individual believes his intelligence is fixed or malleable. Those who believe the former, and who have been told that they are intelligent, tend to react to difficult coursework by avoiding it, thus preserving their notion of intelligence (Dweck, 1996). To fail or be at risk of failing at an intellectual task would be interpreted by the individual as being less cognitively capable. In order to preserve his construct of his/her own mental abilities, he/she may begin to avoid such challenges. This usually results in underperformance (Dweck, 2000).

Participants in this study mostly agree that they can change their intelligence. Those who have this internal locus of control over their learning tend to relate effort to success in school. In fact, when asked whether their first semester grades were the result of effort or ability, 75% of respondents in this study replied that their grades reflected either extra effort (36.8%) or the lack thereof (38.2%). Only 25% of students surveyed in this study attributed their high or low grades to extra or lack of natural intellectual ability. This finding suggests that, when coursework becomes difficult, most participants respond to the elevated expectations by working harder. They believe that they can rise to any standard if they apply themselves sufficiently. A student explains, “I didn’t have to put any effort into my classes at all (in high school). (At TAMS) I sort of geared up,…, and I’m doing all right” (Participant 3 in the focus group). The high percentage of students who achieved a 4.0 in that first semester (47.3%) may be directly related to students’ personal views of intelligence. This finding is consistent with the malleable view of intelligence (Dweck, 1988, 2000).
The Questionnaire Goal Choice Items (QGCI; Dweck, 2000) revealed that students valued the actual learning process. The items asked the students to indicate the degree to which they agree that grades or learning is more important to them and, given the choice, would he/she choose to make good grades or to be offered learning challenges. Students whose preference is for learning and not just showing high performance may seek challenges, whereas those whose goal is to make high grades may become motivated to choose less demanding coursework and schools. Among the three sub cohorts, 69% to 77% of students replied that they preferred being challenged over receiving a good grade. These students may work hard to achieve high marks, but are more motivated by the greater gains in knowledge than the marks themselves. A focus group respondent noted, “(In my former school) I didn’t find anything particularly challenging. I do think, like, instruction, like professors, (teach) much more; I like it a lot more. It’s not just math anymore; it’s not just TAKS any more. (It’s more) like theories and concepts and why something does something (Participant 9). Another focus group respondent recognizes the practical implications of focusing on grades, while affirming that his motivation is learning. “At the fundamental level I strongly believe that it is more important to learn than to get good grades, but in order to get into college – you need good grades, so I would rather sacrifice some of my ideologies in TAMS to get good grades so that I can learn in college” (Participant 421).

While no intrapersonal catalytic factors predicted first-semester GPA, one factor predicted personal well-being: the Brief Resilience Coping Scale (BRCS, Sinclair & Wallston, 2004). The BRCS is a measure of coping effectively with adversity and other stressors. It measures the extent to which an individual believed he can overcome life challenges. The early college entry students responded that these resilience attributes represent them well, as they self-scored an average of 3.8 in a range of zero to five. These students believed that they could
overcome difficulties, which aided in their transition from home to dorm, from high-school to college, and from established friendships to new acquaintances. A student, responding to questions posed by the BRCS remarked, “I believe that I have virtually complete control over my life through hard work. I can truly do whatever I wish to do” (Participant 555). Students who expressed greater resilience in the BRCS were more satisfied with their lives.

In summary, with the exception of the BRCS predicting personal well-being, the study revealed that the intrapersonal catalysts added little to predicting first-semester GPA or PWI-A (International Wellbeing Group, 2005). While most students valued the process of overcoming challenges, gaining knowledge, and growing intellectually, and most believed that it was within their control to achieve academically, these qualities did not contribute to higher grades in the first semester. However, students who believed that they had the emotional strength to overcome adversity in their new lives at TAMS were happier, as resilience contributed to personal well-being.

**Question 3**

Question 3 explored the relationship between environmental catalytic factors (as indicated by six familial factors) and success (as measured by TAMS first semester grades and personal well-being). The permissive, authoritarian, and authoritative styles on the Parent Authority Questionnaire (PAQ; Reitman et al, 2002) and the Relationship, Personal Growth, and System Maintenance dimensions of the Family Environment Scale (FES; Moos, 2002) were used to measure environmental factors and their effect on first semester GPA and personal well-being. Parents of early entrants who completed the PAQ perceived their interactions with their children as primarily authoritative, less authoritarian, and were least likely to say they had a permissive style. Students generally rated their family environment as very positive on the FES. The three
highest rated dimensions were independence, achievement, intellectual-cultural, and cohesion - in that order. The students felt that their families valued their independent thinking and choices, their personal and academic achievement, and their intellectual development, especially in terms of exposure to various cultures and cultural activities. Overall, the students felt that their families were supportive and facilitative, as reflected by the high cohesion score.

The environmental factors that predicted Fall GPA were authoritarian parenting and the FES category of Personal Growth. Authoritarian parents are high in control and low in warmth. Students with authoritarian parents are raised with little autonomy and freedom of expression and are expected to follow parental directives without input. Families high in personal growth expose the children to a variety of influences that parents believe will help to shape children’s talents and character. The students from this study were shown to have higher first-semester grades. These findings run counter the vast body of research that indicates that authoritarian and permissive parenting correlate with lower grades among adolescents, while authoritative parenting is associated with higher school achievement (Baumrind, 1972, Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). In Dorbusch et. al’s study, adolescents with higher grades were found in authoritative homes among all of the major ethnic subgroups except Hispanic males. The results may have been different if we had looked at GPA beyond the first semester.

The environmental factor that predicted personal well-being in this study was the permissive parenting style, which is low in control and high in warmth. Permissive parents are lax in their children’s behavioral expectations and are not strong at limit-setting (Reitman et al., 2002). Students in this study who did not have parents who control various aspects of their behavior and social lives and were less involved in their activities are happier in their early
college entry setting. However, the results may have been different if we had looked at personal well-being beyond the first semester.

**Question 4**

Question 4 moves from a theoretical base for analysis to a data-driven construct. All of the factors from the three catalysts were entered to find the most salient predictors of both the Fall GPA and personal well-being. As discussed earlier for Questions One and Three, SAT, Initial GPA, authoritarian parenting style, and personal growth were the more important predictors of academic achievement as indicated by first-semester GPA. Personal well-being was predicted by ninth-grade GPA, permissive parenting style, and the interpersonal catalyst of resilience as indicated by the Brief Resilience Coping Scale (BRCS, Sinclair & Wallston, 2004).

**Discussion of the Results**

This study in part supports Gagné’s (2003) and Sayler’s (2007) theoretical claims that natural ability as well as intrapersonal and familial catalysts contribute to academic success and personal flourishing in the first semester of early college entry.

**First-Semester GPA**

**Talent Factors**

The least surprising of the results of the study is that past performance in school, as noted by ninth-grade GPA and the Scholastic Aptitude Test (SAT, College Board), was predictive of future academic success, as indicated by first-semester GPA. Students accepted into the program are required to provide strong evidence of past academic performance which includes their last
The SAT is a nationally normed, valid and reliable indicator of high student ability, has a high measured ceiling, and has proven to be predictive of school achievement (College Board, n.d.). However, grades can be a less valid and reliable indicator due to differences in course rigor taught, teacher grading standard, teacher skill, and other factors. A grade of an A in one course with one teacher at a particular school does not equate in rigor or complexity with the grade of an A in the same course with a different teacher at the same school, or especially, at a different school. Therefore, not all students possess equitable educational backgrounds. However, consistently high grades may be an indicator of student ability to learn and achieve regardless of teacher and course variables. It may also reflect the student’s ability to understand a variety of teacher expectations and willingness to accommodate those requirements, despite their relevance, interest, or challenge to the student. The early college experience was new to these individuals, and the expectations of university instructors can be dramatically different than those from the student’s former teachers. However, it seems logical to concede that the student with a history of consistently rising to the standards required of them in high school is more likely to have developed the flexibility, stamina, and determination to meet professor standards in early college entry courses.

Intrapersonal Factors

No intrapersonal factors were predictive of first-semester GPA in the quantitative data gathered. This indicates that at least after a single semester as an early college student, believing in ones’ ability to overcome challenges, appreciating the process of learning over the product of performance, and taking control over one’s learning are valued in this class of students, these attributes contributed little to high grades at TAMS.
Authoritarian parenting style and personal growth were found to be important environmental predictors of academic achievement after one semester at TAMS. The parenting style found to be important in this study conflicts with the body of research that links parenting style with academic performance. The parenting style most recognized in the research literature for encouraging scholastic achievement is authoritative, as it supports the student emotionally while setting high standards in the home (see, for example, Cohen & Rice, 1997; Steinberg & Others, 1989). However, this study found that authoritarian parenting was a statistically significant and important predictor of first-semester grades at the early-college-entry program. To achieve in the early-college-entry environment, students were more likely to come from a structured home where routine and rules were established, the child’s ambitions were fostered, and strict standards were set.

Authoritarian parenting might be expected to be the style most predictive of academic achievement by TAMS students of Asian descent. Historically, the Asian community has raised their highly productive and achieving children with a predominantly authoritarian parenting style (Xu, 2007). The Asian parenting style originated in the Confucian notion of strict obedience and respect for one’s elders.

Chao (1993) also found that the predominantly authoritarian parenting style of Asian cultures predicted strong high-school achievement. Chao studied two cultural aspects of Chinese parenting: “chiao shun,” the training portion, and “guan,” the portion dealing with parental nurture and support. Training is similar to the control portion (Baumrind, 1969) of western parenting and the guan is similar to the nurturing aspects.
Chiao shun represents a cluster of behaviors and expectations. From parents, it requires greater parental control and authority. Chiao shun also includes teaching respect of one’s elders and emphasizes the primary responsibility assumed by mothers for the child’s success in school and society. The parent seldom asks the child about their desires or feelings, but makes decisions based on what the parent believes is best for the child and the family. While this has some similarities to the authoritarian style of parenting, it encompasses a deeper warmer relationship than found in the western version of authoritarian parenting.

In contrast, the European-American authoritarian parenting style as originally proposed by Baumrind (1969) grew from a belief that children should be seen and not heard, adults know what is best for children, and parents do not believe there is a responsibility to explain their actions and decisions to their children. Chao (1993) attributes the authoritarian approach in the west to Puritan values that encouraged physical punishment in order to prevent the child from submitting to less holy influences.

One key difference between the Asian chiao shun and western authoritarian parenting is that under chiao shun mothers are sacrificially involved, dedicating their entire lives to their children, and taking personal responsibility for the child’s academic and life successes. In the west, this level of self-sacrifice and responsibility is not culturally part of authoritarian parenting.

Could the higher than expected numbers of authoritarian parents in this study be due to the higher than normal proportion of Asians in the TAMS class? In this study no statistically significant differences between Asian and other ethnic groups were found in terms of likelihood of authoritarian parenting styles.

Another possible explanation for the importance of the authoritarian style to first semester achievement is that individuals raised by strong, obedience-oriented parents tend to
follow the rules, study hard, and live by a higher set of principles. These practices are conducive to a greater outcome academically and would logically result in higher grades in their college coursework, if only for the short term such as one semester. A third possible explanation is that students from authoritarian homes are accustomed to obeying without questioning, so they may react more passively and obediently to all of the new policies and rules set forth by both the university and the TAMS organization. When students acclimate quickly and easily to the new social structure, they are available mentally and emotionally to focus on their new studies in their new environment, resulting in higher grades. Further studies of this sample may reveal that over the long term, which for TAMS students is a period of two years from first to last semester, authoritative parenting may emerge as the stronger predictor of academic success.

The personal growth dimension of the Family Environment Scale (FES; Moos, 2002) is the other environmental predictor of achievement. Personal growth-oriented families encourage and support high levels of achievement, are organized, have high standards morally, facilitate autonomy, and have a religious base (Vostanis & Nicholls, 1995). They have common family activities such as meals at home, religious observances, and outdoor activities. Children are encouraged to behave in a developmentally appropriate, mature manner. Parents encourage independent thought and expression. Family environments high in personal growth may feel that their parents valued their interests, goals, and aspirations, which may have allowed them to focus on achieving more intellectually, as indicated by their high grades.

It seems reasonable to infer that students from families that support their children’s goals and aspirations would have the same support to achieve once they leave home and enter the early-college program. Even though the student is no longer living with family members, the support remains, albeit from a distance. The child’s need to self-actualize is accepted and
recognized by the family, who show their support by facilitating growth. The students’ academic aspirations and goals are encouraged by family members, and the result is often higher achievement and grades.

The predictor of high grades from the personal growth dimension may also indicate that students whose parents recognize and facilitate strengths in their children tend to achieve more in school. Students new to the early college environment have few, if any, established friendships within close proximity. The major social ties they arrive with are their families. It appears that students whose parents continue to show support for their children’s growth are better able to succeed in a potentially intimidating and intellectually threatening environment.

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**Personal Well-Being**

The affective indicator used to measure flourishing was the Personal Wellbeing Index-Adult (PWI-A, International Wellbeing Group), which measures personal well-being in several contexts. In general, students’ satisfaction with life were positive, 73.5, out of 100, which was the same norm (73.5) for the normative sample among young adults (International Wellbeing Group, 2005). Boazman & Sayler (2007) surveyed TAMS graduates who had graduated from one to five years prior to the survey. These TAMS graduates had an overall higher feeling of well-being after graduation than first semester students from this study and the normative sample among young adults from the Personal Wellbeing Group. This may be due to the fact that the graduates have had the opportunity to experience some of the benefits of their advanced and accelerated education, causing them to feel confident, optimistic, and pleased with their accomplishments and trajectories in life.

In this study, by the beginning of the second semester, the TAMS freshmen had experienced living a more independent life on campus, taking courses from university faculty,
and making more decisions about their everyday lives. They scored higher than the normative sample on various achievement measures as a result. One post-test survey respondent remarked, “I’m really getting along with everyone here” (survey participant #190). This focus group participant comment is not totally consistent with the PWI-A score results on TAMS students’ first semester satisfaction with their relationships after one semester in college. TAMS students scored slightly lower on overall satisfaction than the normative sample of young adults from the Personal Wellbeing Group. The TAMS students from this study also scored lower than the TAMS graduates (Boazman & Sayler, 2007), indicating this TAMS student group was less satisfied with their lives at the end of their first semester than both the TAMS graduates and the young adults from the normative sample. TAMS graduates have had two full years in the program, which is long enough to forge strong ties, many of which continue in subsequent years. However, first semester students are facing the challenge of beginning new relationships, which may leave them with a hopeful, yet lonely feeling until these relationships are solidified.

First semester entrants may have also experienced homesickness and regret about leaving high school, all of their friends, easier courses. Some may regret not staying in their previous school where they had a much greater possibility of graduating at or near the top of their class. One student ambivalently commented, “Well, now I’m less carefree and less naive. It isn’t always a good thing, though” (Participant 257). Leaving the comfort and sense of security of home was a concern to one participant, who mentioned, “Denton is unsafe and scary at night” (Participant 265). There is also a general incongruence between the life they perceived and reality, as related by a student, “It isn’t what I thought” (Participant 265), which may also explain a small drop in student overall satisfaction from before to after their first semester. The timing might not have been good, as one student mused, “This was a bad week to follow up.
We’re not quite into the groove of things yet, and thus rather stressed – next week I’d have given all tens” (Participant 950). Note that the researcher sent this student another ‘optional response’ survey a couple of weeks later. This second survey’s composite scores were actually lower.

If a follow-up is conducted at the end of students’ tenure at TAMS, which will be at the end of their senior year, different results may be revealed. They will have accomplished a great feat and will know where they will be continuing their university degrees. In fact, a cohort of adults who had graduated from TAMS five years prior reported an increase of overall satisfaction with their lives, scoring between 80 and 85, well above the normative means (Boazman & Sayler, 2007). Further study needs to be made in this area, as TAMS graduating student satisfaction findings may look quite different than end-of-first-semester satisfaction reflects.

Talent Factors

Ninth-grade GPA predicted personal well-being, indicating that those who excel at school and are able to meet teacher expectations have less trouble excelling in the new educational environment. They were generally successful in meeting the faculty’s expectations, having greater satisfaction with their level of achievement and with their perception of their ability to do well in subsequent semesters. This suggests that students who are accustomed to performing well in various classes in elementary or secondary classes by teachers who set a variety of expectations are satisfied in the new scholastic environment as well. The expectations at a university are inevitably higher than those set in the students’ high schools, but these students learned to work harder to ensure that standards in the new school are successfully met. The students acclimated to the level of effort needed and were satisfied not only with the higher
standards, but the process by which they accomplish the new set of goals. The transfer of successful attributes in high school to the university facilitated greater satisfaction with their new set of expectations.

**Intrapersonal Factors**

Personal resilience contributed to personal well-being. The Brief Resilient Coping Scale (BRCS; Sinclair & Wallston, 2004) was the only intrapersonal catalyst to predict overall satisfaction with life in the TAMS environment. The BRCS indicates the degree to which an individual overcomes adversity and challenge while remaining emotionally healthy. Students who are resilient are happier, indicating they adapt well to the new social order, the greater academic demands, and the loss of frequent access to close personal ties. Students who believe they have the coping skills necessary to adjust to the various changes, losses, and difficulties associated with their new life at TAMS report that they are happier. Their emotional strengths during the critical transitional period result in a greater overall sense of satisfaction in their new environment. They meet challenges with confidence and difficulties with positive affects. These self-beliefs mitigate the stressors of being away from home at a relatively young age; faced with new responsibilities and challenges, these students maintained a positive attitude. The resilient TAMS students believe that they can make new friends, meet the deadlines for their papers, and adjust to the living arrangements in the residence halls. The result is that students who cope well under such transitional pressures are less emotionally torn about the changes and more satisfied with their new lives on campus. During the focus group, a discussant revealed, “I strongly believe that what situations we get through on a personal level affect how well we do
academically… “(Participant 704). Students who believed they have the coping skills necessary to adjust to the various changes in their new lives at TAMS were happier.

Environmental Factors

According to this study, in the first semester of early-college entry, permissive parenting predicted greater personal well-being. This finding contradicts the body of literature that correlates authoritative parenting, especially in the European-American families, with enhanced self-esteem (Smith, 2007), social and emotional maturity (Steinberg & Others, 1989), and satisfaction with family life (Caprara, Pastorelli, Regalia, Scabini, & Bandura, 2005).

The results may imply that students who feel nurtured and appreciated in a family, but have great latitude and autonomy, may transition to the college campus without the stronger ties and dependence on their parents that students have with parents who are high in control. Permissive parents allow their children to control more of their own time, money, and activities than more controlling parents, such as authoritative and authoritarian parents. The less controlling parenting found in permissive families may mimic the level of control the students receive from the residence hall staff and others in authority over them. Students accustomed to the lower level of involvement from the parent may feel happier in the college setting because the social structure related to oversight and obeying the rules is similar to their previous experiences at home. When the students move to the university campus, they are required to make many choices and have greater responsibilities than they normally would have at home. In a permissive home, many of those responsibilities may already be practiced by the child, so moving into an environment requiring more autonomy from the student is not very different from the students’ previous environments.
In summary, students who were academically successful after their first semester at TAMS showed evidence of high academic achievement in the years prior to entry and came from families that supported talent development while demanding obedience but less feedback from the children. Students who were habitually obedient and did not challenge parental guidance but have families that encourage and facilitate personal growth are able to focus on learning and doing well in the new educational environment. They accepted new authority figures and new rules readily and were able to focus on academics instead.

Students who were affectively successful in their first semester of college consistently earned high grades prior to entry, believe they could handle changes and difficulties that arose in their new environment, and had parents who were less involved in their children’s lives. Happier students were more independent and less attached to the home and parental direction. They were confident they could handle their new environment without depending on their parents for guidance as they had while living at home. They understood how to make high grades in their prior years and are confident that they can succeed in the new classroom, as well. These happier students may not make the highest grades in their courses, but they do well enough to feel satisfied with their decision to pursue this two-year early college journey.

Implications

Implications for Prospective Students

Students who are concerned about achieving high grades and are reasonably satisfied with the decision to spend two years at an early-entry college would primarily need to prepare well academically. Students who take the most challenging courses in the sciences and liberal arts may make higher scores on the standardized achievement tests such as the SAT than those
students who take a less rigorous course load while in their elementary and secondary school years. Students interested in doing well academically at TAMS would also be advised to do all within their abilities to achieve the highest grades in all of their classes, as the SAT scores and previous grades have been found to be salient predictors of academic success.

Prospective early college entrants from nurturing, involved families may experience greater homesickness. This discomfort may make the transition from home to the university, at least in the first semester, more challenging for these students than for those who come from less nurturing, involved homes such as those with authoritarian or permissive parents. Students with authoritarian parents, or parents who are strict without being particularly nurturing or open in their communication, may find the transition easier. Since these students tend to have fewer separation issues and their home lives incline them obedience to authority figures such as professors and program staff, they have more time and energy for their school work. Students from permissive families may experience similar oversight in their new environment, and find the separation from warm, but less controlling and involved parents to be less stressful. However, they may also lack the self-discipline that students from more controlling homes have had, possibly resulting in fewer adherences to healthy and rigorous work and study habits. These students may find it challenging to make the high grades they were accustomed to earning in their previous schools.

Students confident in their abilities to cope despite challenges, loss, or change were shown in this study to feel more personally satisfied with their first semester in their early entry program. Adolescents who are more resilient will likely find more satisfaction in their lives in their transitional first semester of college. Individuals who live in financially challenging circumstances or compete in challenging physical activities are naturally exposed to resilience-
building opportunities. Those who do not have life opportunities to build resilience may be encouraged to participate in physically or intellectually challenging competitive activities. Through the development of resilience, such students may not only overcome difficult events, but may also gain a greater appreciation of their accomplishments and find greater contentment while in their first semester of school.

**Implications for Parents**

In this study, students of authoritarian parents achieved greater academic success than those of the other two parenting styles. Authoritative and permissive parents could be advised to prepare their children for greater early-college academic success by encouraging them to focus less on challenging the many new rules and policies they are expected to behave and to focus more on obeying them without question, at least for the first semester. They could also communicate confidence that they can handle independence and forming new and satisfying relationships. That will allow them to be less distracted from their schoolwork, and the product may be enhanced semester grades.

Students from permissive homes were found to be more personally satisfied with their first semester experience. Permissive parenting is high in warmth and low in control. Parents from authoritarian and authoritative homes may more effectively prepare their children for the transition from home to dormitory by allowing them greater freedom of choice in their final year or two prior to beginning their college lives. Parents could take on a more facilitative role when faced with course choices and moral and character concerns and a less direct, controlling role in their children’s lives when determining how they allocate their time, efforts, and responsibilities. Permissive and authoritative parents provide the warmth and nurturance that their students need
in order to feel secure in the unknown new environment. Authoritarian parents could be advised to increase their expressions of affection and positive emotion to their adolescent children, especially in the years prior to their exit from the home.

**Implications for Counselors and Educators**

Counselors and educators form the prospective early-college-entry student may advise parents to provide opportunities for their children to exercise more independence by paying bills, handling money, making decisions about their courses, and scheduling their time. Educational professionals may also encourage the parents to be demonstrably supportive of their children’s stresses, challenges, and goals in the present and immediate future.

Homesickness may be less common among students from authoritarian homes, where warmth and support are low, and in permissive homes, where engagement and involvement is limited. Attachment due to a low degree of warmth is minimal in the authoritarian home, while attachment due to limited time and involvement with the child is minimal in the permissive home. Therefore, feelings of sadness and loss over being away from parents, siblings, and their familiar environment may be less evident in authoritarian and permissive homes. Homesickness may be a predominantly first-semester phenomenon (Smith, J., 2007), and authoritative parenting is traditionally linked to positive affective and achievement results in children. Authoritarian and permissive parents can be encouraged to become more authoritative in their style of parenting after the first semester by increasing their involvement and relationships with their children through supporting their children’s individual interests, activities, and associations. The students of authoritarian and permissive parents, while they may achieve well and be more...
satisfied in their first semester, may benefit in the long run from parents who are high in both warmth and control (authoritative).

TAMS students have many new policies and expectations to obey from higher authorities, and those who are accustomed to obeying rules without offering feedback have been shown in this study to achieve higher grades in their first semester. Those raised in authoritative homes are permitted greater discourse with their parents than those raised in permissive or authoritarian homes. Challenging rules and authority is permitted in an atmosphere of high standards and control. Since TAMS students from authoritarian homes, who are trained to follow rules without argument, appear to achieve more academically in their first semester, counselors may advise students to reserve time and energy analyzing authority for after the first semester in order to earn higher grades.

*Implications for Early College Entry Staff and Administrators*

Careful consideration is taken to choose the students who will not only do well academically, but who will also contribute positively to early entry college life. This study reinforces early-entry selection criteria that require a high academic standards as indicated by their SAT scores and ninth-grade GPAs. Both of these indicators confirm that previous academic success predicts future success in school. While early college entry staff are not able to identify parenting style or family environment, they may be able to discern those parents who show an inclination towards authoritarian parenting and support their children’s personal growth, which are the other two predictors of academic success, through interviews with the students and their application essays.
Early entry staff interested in first semester well-being may ask for indicators of resilience in the student’s application essay or include the topic in the student’s personal interview. Since permissive parenting style correlates with well-being as well, interviewers may ask questions about family involvement, support, warmth, and control. Students with uninvolved parents may have less difficulty acclimating to being away from home. Those who have parents who are more controlling may need additional support systems from the senior class or from the TAMS organization in the first few months as they transition to life away from home.

Future Research Recommendations

While this study concludes that SAT and previous GPA are the most salient predictors of academic achievement at an early college entry college and that previous grades are the most important predictors of satisfaction with life there, a more probing look into the effects of authoritarian parenting and familial support of individual personal growth on the first semester early-college-entry students is warranted. With much larger sample sizes, other factors may appear and become key to discovering which elements of talent development are most predictive of student satisfaction and high grades (or overall student success) in the transitional first semester of their early college experience.

Further research can determine, more specifically, how each factor relates to other data collected, but not utilized in the study. For instance, how satisfied are first semester students with the learning goals included in the QGCI survey? Do students attribute their grades to effort if their fall GPA is a 3.0 or lower? Is students’ malleable view of their own intelligence and their internal locus of control consistent with their satisfaction with their learning outcomes?

Specific data that categorizes content on the SAT could be used to further examine the
recently released findings on the relationship between seventh-grade Talent Identification Program (TIP) participants’ (1) math SAT scores and future math achievement as adults and (2) verbal SAT scores and future writing and language-related career achievement (Cavanagh, 2007). Existing data from the current study could be used in several years to describe or explore the relationship between this sample’s math SAT scores with their career choices and achievement after completion of their university degrees.

A follow-up study at the end of the two years would add to the present findings, especially in the area of parenting style and intrapersonal catalysts. Which catalysts are important to the newly graduated TAMS student? How are the first-semester catalysts and the last-semester catalysts similar or different? Finally, the study could be replicated for other first-semester early college students at TAMS and at other early college entry programs to confirm or dispute the current findings in order to more reliably understand the first-semester early college phenomena.
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