Mediating Factors of Personal Wellbeing in Gifted College Students: Early-College Entrants and Honors College Students

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Abstract

Many educational, behavioral, dietary, safety, and other factors influence the wellbeing of adolescents around the world (Currie et al., 2008). Previous studies examined multiple adolescent subpopulations, but none looked at academically advanced students. In this study, the Personal Wellbeing Index (International Wellbeing Group, 2005) was used to assess the wellbeing of 213 gifted college students who entered university in either an early-college-entrance program or entered at normal ages and were accepted into an honors college. One hundred twenty-two participants were students from the Texas Academy of Mathematics and Science (TAMS). TAMS is an early-college entrance program allowing gifted students to enter college after their sophomore (second) year of high school, approximately 15 to 16 years old at the time of entrance to the University. Ninety-one participants were students who attended the UNT Honors College. Honors College students are gifted students who enter college at a traditional age in America, after high school graduation (18 to 19 years old). This study also examined the participants' general self-efficacy, beliefs about of intelligence, hope, gratitude, religiosity, and resiliency; and assessed any mediating effects they had on personal wellbeing in the high-ability college students. Data analysis included latent transition, general linear model, repeated measures, and regression. Results of the study revealed that dispositional mood and hope-agency were significantly related to the development of personal wellbeing for high-ability students during their first year of college regardless of age. Knowledge of psychological constructs that are facilitative of the positive personal wellbeing helps parents, teachers, administrators, and counselors prepare gifted students for success in college and beyond.

Keywords: High-ability adolescents and young adults, Gifted, Social and Emotional, Subjective wellbeing, Hope, Latent transition analysis.

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Wellbeing is commonly referred to as “happiness” and is the individual’s general assessment at a point in time of whether or not they are living a good life (Diener, 2000). It includes strength in physical, cognitive, and social-emotional functioning as well as the successful integration of these three domain functions (Bornstein et al., 2003). The interactions of an individual’s innate dispositions, their personality, and their positive and negative life experiences determine the level of well-being for an individual at any point in time (Cummins, 2002). A person’s success in accomplishing and integrating these areas results in more productive activities and a more enjoyable life, the results of which are often seen as important and significant by the person and by the broader community (Zaff & Hair, 2003). The integration of physical, cognitive, and social-emotional functioning assists social relationships and helps the individual overcome psychosocial and environmental problems (Berk, 2004). Wellbeing also includes subjective dimensions in the sense of satisfaction associated with fulfilling one’s potential (Bornstein et al., 2003) and living a good life.

Wellbeing and the good life that follows are enhanced when an individual has experiences and makes choices that develop their underlying abilities, bring them satisfaction and enjoyment in doing so, and allow the individual to use their signature strengths to achieve abundant and genuine fulfillment (Seligman, 2002). Attaining a good life is dependent upon underlying abstract concepts such as the individual’s life goals, his or her desired quality of life, hopes, and ability to successfully function as a self-determining adult (Seligman & Csikszentmihalyi, 2000). The good life for high-ability individuals includes developing their natural abilities, character, and unity of life (Sayer, 2009) and suggests personal growth that includes but goes beyond the development of natural abilities into talents is essential to move the high-ability individual toward flourishing across his or her lifespan.

Many elements contribute to the overall wellbeing of people (Pollard & Rosenberg, 2003). Studies of subjective wellbeing focus on factors that develop personal strengths, enhance growth of positive responses to difficulty, and reinforce social and emotional foundations in the individual’s life (Diener, 2000). These factors include constructs such as wellbeing, hopefulness, resiliency, gratitude, general self-efficacy, spirituality, disposition, and beliefs about intelligence. Children, regardless of their intellectual ability, should receive educational services and programs that appropriately address their specific needs. Good schools are places where they develop their natural abilities while they form and maintain sound and lasting friendships leading to good habits and behaviors (Sayer & Boazman, 2006). In order for high-ability individuals to develop positive psychological traits, move toward their life goals, have their desired quality of life, and become self-determining adults, they need educational settings that give them the optimal balance between skill and challenge and provide opportunity to develop good friendships (Gross, 2004). Without this balance, gifted individuals are less likely to develop signature strengths, fully thrive, flourish, and attain the best life (Rogers, 1986).

Wellbeing and Education

Getting more education has a significant, but a small correlation to well-being (Oreopoulos, 2007). Wellbeing increases when learning takes struggle and time and when individuals must actively study and work to develop their underlying abilities and develop their talents (Bornstein et al., 2003). Education has its influence on wellbeing through allowing individuals to make better progress towards their goals (Diener et al., 1999). Knowledge about the patterns and effects of educational interventions on the wellbeing of adolescents often addresses problems in physical
or mental health, behavior, and circumstances (e.g., Goodman et al., 2000) or look at school populations in general (e.g., Sellström & Brebberg, 2006). When the wellbeing of high-ability students is studied, it is primarily with students ages 6 to 18 (Rinn & Plucker, 2004).

In A Nation Deceived (Colangelo, Assouline, & Gross, 2004), an American report on the underutilization of acceleration in the education of the gifted, the authors point out that contrary to popular conceptions, high-ability students do not always find success in school. Curricular interventions are not neutral with regard to their impact on a high-ability individual’s personal and professional development. For highly-ability students, academic acceleration provides a research-supported educational option that deeply challenges them intellectually (Kulik, 2004). Acceleration enables their progress through school at a rate that better matches their current development and readiness by providing content and skills advanced from the traditional school curriculum sequencing.

Nearly all forms of academic acceleration for high-ability students produce growth in academic achievement (Rogers, 2002). They also provide better social and emotional opportunities for these students (Robinson, 2004). Australian gifted students who radically accelerated, or entered college two or more years ahead of their age peers, did better academically and in their careers and established lasting friendships with their older classmates (Gross, 2004). Both Australian and American high-ability adolescents where were accelerated had higher achievement in academic endeavors (Gross, 2004; Brody, Muratori, & Stanley, 2004), did better academically and in their careers and established lasting friendships with their older classmates (Gross, 2004), and showed elevated levels of positive psychological constructs after participation in an accelerative program (Boazman & Sayler, 2011).

Accelerative options have some of the strongest research support of any educational intervention known, but they are still not widely used in the United States or the rest of the world (Colangelo, Assouline & Gross, 2004). The objections often turn on social, emotional issues or issues of perceived fairness (e.g., Southern & Jones, 2004; Hoogveen, van Hell & Verhoeven, 2005). The data on its effectiveness are strong and consequently the options are becoming more widely accepted in the United States, in Western, Middle, and Southern Europe, Russia, and in several Asian countries (Persson, Joswig, & Balogh, 2000; Persson, 2009). In Taiwan, accelerative options for high-ability students were found very effective and were mandated in 2004 (Tsai, 2007). Teachers in the Netherlands see acceleration as a useful intervention (Hoogveen, van Hell & Verhoeven, 2005). Acceleration improved the satisfaction towards school of high-ability Korean secondary students (Jin & Moon, 2006).

The current descriptive study explored the psychological levels of hope, selected dispositional characteristics, gratitude, resiliency, general self-efficacy, theories of intelligence, and religiosity along with their influence on personal wellbeing and the academic success of high-ability college students. The study used a positive psychology orientation (Diner, 2000; Seligman & Csikszentmihalyi, 2000; Seligman, 2002; Keyes, 2003; Seligman, 2003; Fredrickson & Losada, 2005; Peterson, 2006) and was framed within Sayler’s (2009) theoretical Model of Giftedness and Thriving.

In addition to the psychological constructs examined, this study explored the use of latent transition analysis (LTA) which allows simultaneous description of latent categorical variables (growth curve modeling) and the longitudinal changes that occur between latent classes (autoregressive modeling).
Method

Participants

Participants were high-ability students who entered the University of North Texas as freshmen in the fall of 2008 (n = 213). These participants included students from the Texas Academy of Mathematics and Science ([TAMS] n = 122) and Honors College freshmen (n = 91).

TAMS is a state-funded program for high-ability high-school students. TAMS students typically enter college after their sophomore year of high school and complete the first two years of college while simultaneously earning a high-school diploma. Each year approximately 200 students enter the program. Generally, students come to TAMS from all regions of the state of Texas. They represent all major ethnic groups and all socioeconomic status groups.

The Honors College is a focal point of academic excellence at the university. It designs, creates, and supports learning opportunities, both within and beyond the classroom, to enhance intellectual growth and academic accomplishment for the highly talented and motivated students who choose to be members. These students are normally in the top 20% of their high school graduating class. A requirement of Honors College admittance is a minimum combined mathematics and critical reading SAT score of 1200. Honors College students come from all regions of Texas as well as other states. The students in Honors College represent all major ethnic groups and socioeconomic status groups.

The aggregate group (n=213) in this study is representative of the data from students in both the TAMS and Honors group. The aggregate group had a slightly higher percent of females (56%, n = 119). Most participants were whites (59%, n = 126) or Asians (36%, n = 76,) with minorities, other than Asians, making up about 5% of the total: African American/Black (4% n = 8,), Hispanic/Latino (1%, n = 2) and American Indian (.5%, n = 1). Fifty-seven percent of the population (n = 122) had an SAT score between 1300 and 1490, thirty percent (n = 63) between 1100-1290. Four percent of the group (n = 8) had SAT scores higher than 1500, and nine percent (n = 20) scored between 900 and 1090. Table 1 presents measurement scale statistics on the aggregate group of high-ability college student group at entrance to college and PWI-A statistics and GPA after 1 year.

Like the aggregate group, the majority of the students in the TAMS group was female (59%, n = 72). The largest ethnicity population in the TAMS group was Asians (60%, n = 73), and thirty-five percent were white (n = 43). Six percent were African American/Black (n = 6). The TAMS group had largest percentage of students scoring between 1100 and 1290 (45%, n = 51) followed by those scoring between 1300 and 1490 (n = 45, 37%).

Consistent with the other two groups, females (60%, n = 55) represented the largest demographics in the Honors College group. Ninety-one percent of the students in this group were white (n = 83). Asian (n = 2), African American/Blacks (n = 2), and Hispanic/Latino (n = 2) represented two percent of the population; while American Indian (n =1) made up one percent. Eighty-five percent of the Honor’s groups scored between 1300 and 1490 (n = 77), thirteen percent scored between 1100 and 1290 (n = 12), and two percent (n = 2) scored higher than 1500.

Sampling Procedures

TAMS survey data collection took place during the August 2008 and August 2009 orientation meetings. All TAMS students who entered the university in the fall of 2008 (about 200) were invited to participate at entrance to the university and again after 1 year. One hundred twenty-two completed the instrument at both data collection points. Inspection of the data revealed 47 missing data points out of a possible 8,540. Because there were no patterns of
missing data, no single student or item had an abundance of missing data, and the missing data in this data set was proportionately small, mean substitution was used to replace missing data in the 47 instances. Although mean substitution for missing data is considered an older method, it is a viable method for handling missing data when missing values are proportionately small (Tabachnick & Fidell, 2007).

**Table 1: Scale Statistics at Entrance and After One Year**

<table>
<thead>
<tr>
<th>Scales</th>
<th>Aggregate n = 213</th>
<th>TAMS n = 122</th>
<th>Honors n = 91</th>
<th>Aggregate n = 213</th>
<th>TAMS n = 122</th>
<th>Honors n = 91</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>PWI-A</td>
<td>75.89</td>
<td>12.27</td>
<td>76.62</td>
<td>12.59</td>
<td>74.90</td>
<td>11.82</td>
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<tr>
<td>GPA</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STCI-T&lt;30&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cheerfulness</td>
<td>31.29</td>
<td>5.14</td>
<td>33.25</td>
<td>4.28</td>
<td>28.67</td>
<td>5.05</td>
</tr>
<tr>
<td>Serious</td>
<td>27.36</td>
<td>4.08</td>
<td>27.21</td>
<td>4.01</td>
<td>27.56</td>
<td>4.19</td>
</tr>
<tr>
<td>Bad Mood</td>
<td>18.41</td>
<td>5.23</td>
<td>18.89</td>
<td>4.41</td>
<td>19.10</td>
<td>6.11</td>
</tr>
<tr>
<td>DUREL</td>
<td>15.42</td>
<td>2.20</td>
<td>15.36</td>
<td>6.83</td>
<td>15.33</td>
<td>2.21</td>
</tr>
<tr>
<td>GQ-6</td>
<td>15.94</td>
<td>7.14</td>
<td>34.57</td>
<td>5.37</td>
<td>16.72</td>
<td>7.51</td>
</tr>
<tr>
<td>GSE</td>
<td>34.97</td>
<td>5.74</td>
<td>31.94</td>
<td>3.41</td>
<td>35.51</td>
<td>6.21</td>
</tr>
<tr>
<td>Hope</td>
<td>52.17</td>
<td>3.56</td>
<td>25.79</td>
<td>2.61</td>
<td>32.49</td>
<td>3.73</td>
</tr>
<tr>
<td>Pathways</td>
<td>26.00</td>
<td>2.57</td>
<td>12.74</td>
<td>1.69</td>
<td>26.29</td>
<td>2.51</td>
</tr>
<tr>
<td>Agency</td>
<td>12.84</td>
<td>1.61</td>
<td>13.05</td>
<td>1.53</td>
<td>12.98</td>
<td>1.48</td>
</tr>
<tr>
<td>TOI</td>
<td>33.75</td>
<td>7.19</td>
<td>34.35</td>
<td>7.17</td>
<td>33.95</td>
<td>7.18</td>
</tr>
<tr>
<td>Fixed</td>
<td>13.16</td>
<td>1.54</td>
<td>17.82</td>
<td>4.82</td>
<td>13.31</td>
<td>1.55</td>
</tr>
<tr>
<td>Growth</td>
<td>17.60</td>
<td>4.58</td>
<td>16.53</td>
<td>3.05</td>
<td>17.32</td>
<td>4.26</td>
</tr>
</tbody>
</table>

Data collection with the Honors students took place in the fall of 2008 and again in the fall of September 2009. All Honors College students entering the university in the fall of 2008 (about 190) were invited to participate. Ninety-one completed the initial instrument. Seventy-six percent (n=69) of the individuals who participated in the first round of data collection chose to participate in the second round of data collection. Multiple imputation procedures were used to impute data for the 22 honors students who did not participate in round two data collection.

**Measures**

A multi-instrument questionnaire was used to gather data from the study participants. The questionnaire was comprised of several established measures of psychological constructs: personal wellbeing, general self-efficacy, dispositional cheerfulness, seriousness, and bad mood, theories of intelligence, hope, religiosity, and gratitude. The outcome variable in this investigation is personal wellbeing. Personal wellbeing was assessed twice, once at the time of entrance to the university and again after one year.

**Personal Wellbeing Index – Adult**

This study used the Personal Wellbeing Index – Adult (PWI-A, International Wellbeing Group, 2005) as the dependent variable measuring personal wellbeing. This widely used
the eight-question form of the survey has an 11-point response set. The response set was an 11-point scale anchored on each end with the responses “completely dissatisfied” at the zero point and “completely satisfied” at ten. An additional survey item asked the participants to rate their overall life satisfaction (OLS). The OLS question used the same 11-point scale response as the other eight questions in the scale. The OLS item was not included when calculating the composite wellbeing index score. It is used to provide evidence of construct validity for the domains by regressing the different domains against the individuals’ rating of their overall life satisfaction. (International Wellbeing Group, 2005).

The seven domains of wellbeing, assessed by the PWI-A are: standard of living, personal health, achieving in life, personal relationships, personal safety, community-connectedness, and future security. Each question in the PWI-A corresponds to a domain. The seven domains of the PWI-A compose the minimum set of domains that represent the first level of deconstruction of ‘satisfaction with life as a whole’. Cummins (2002) established the PWI-A scale and verified the first level of deconstruction by using the criterion that each domain must contribute unique variance when the domains are collectively regressed against ‘satisfaction with life as a whole.’ The internal consistency values range from .70 to .85 (International Wellbeing Group, 2005).

**General Self-Efficacy Scale**

General self-efficacy is one of the independent variables in the present study. General self-efficacy was measured with the General Perceived Self-efficacy Scale ([GSE] Jarusalem & Schwarzer, 2000; Schwarzer & Jerusalem, 1995). The GSE is designed to assess self-beliefs about being able to cope with a variety of difficult demands in life. This scale explicitly assesses general personal agency; the belief that one’s actions are responsible for successful outcomes. This instrument is a ten-question survey that uses a 4-point scale response with the following choices: not at all true, hardly true, moderately true, and exactly true. The point values for these responses range from one to four. The Cronbach’s alpha values in 23 national samples range from 0.76 to 0.90, with the majority in the high 0.80s.

**State-Trait-Cheerfulness Inventory**

Dispositional Cheerfulness, Seriousness, and Bad Mood are independent variables assessed in this study using the State-Trait-Cheerfulness Inventory ([STCI-T <30>] Ruch, Kohler and van Thriel, 1996). This is the short trait form of the English standard trait version 60-item scale. The STCI-T <30> has 30 questions and uses a 4-point scale response with responses ranging from “strongly disagree” to “strongly agree.” The three domains, cheerfulness, seriousness, and bad mood are assessed as temperamental traits using ten questions in each domain. Each domain carries a possible 40 points. The standardized mean of the trait cheerfulness domain is 32.65, the standard deviation is 4.97, the Cronbach’s alpha value for the scores reported by Ruch Kohler and Thriel (1996) is 0.87, and the split-half reliability value (Spearman-Brown corrected) is 0.88. Trait seriousness has a standardized mean of 25.14, a standard deviation of 4.69, a Cronbach’s alpha value of .76, and the Spearman-Brown corrected split-half reliability value is .80. Trait bad mood has a standard mean of 19.04, a standard deviation of 5.83, a Cronbach’s alpha of .68, and the Spearman-Brown corrected split-half reliability is 0.88. Although reliabilities below .70 are considered low, scores slightly below this mark (.68) can be considered acceptable for social science research purposes (Johnson & Christensen, 2004).
Theories of Intelligence Scale

The Theories of Intelligence Scale ([TOI] Dweck, 2000) was another independent variable that measured self-theory beliefs about intelligence. It examined the connection between academic achievement and personal view of intelligence. This scale is a self-reported measure that uses a six-point Likert-type scale to evaluate self-beliefs about the malleability of intelligence. A lower sum of item responses indicates a belief of fixed intelligence where a higher score points toward a belief in incremental growth of intelligence.

This study uses the TOI–Self Form for Adults (Dweck, 2000). The TOI-Self Form for Adults has eight questions. Four questions evaluate beliefs of fixed intelligence and the remaining four items assess incremental growth beliefs about intelligence. This version shows high reliability in a single semester test, re-test situation where responses to the eight items were collected at the beginning of the semester and again at the end of the same semester (\( \alpha = .96 \) and .97 respectively, Hoggan, 2008). In the current study, analysis of each subset, fixed and growth, were analyzed separately.

Adult Dispositional Hope Scale

The Adult Dispositional Hope Scale (Snyder, Irving, & Anderson, 1991) was designed to measure dispositional hope in individuals, ages 15 and older. This is 12-item scale was originally developed with a four-point continuum. The continuum of the response scale has been updated to an eight-point continuum since the scale’s creation. The present study is a continuation of previous work done at the University of North Texas, which used the 4-point continuum to assess hopefulness. To retain continuity among cohorts of participants the 4-point continuum was used in this study. The Hope Scale measures two constructs of dispositional hope: (a) agency (goal-directed determination) and (b) pathways (planning routes to goal attainment). Four items on the scale measure agency, four items measure pathways, and the remaining four items are distracters not used in scoring. The two-component model of hope has been confirmed through principal components exploratory factor analysis (Snyder et al., 1991) and confirmatory factor analysis (Babyak, Snyder & Yoshinobu, 1993).

The psychometric properties of the Hope Scale were established through six different administrations of the scale to undergraduate university students (n = 3,920) and two different administrations to individuals in psychological treatment (n = 206). Cronbach’s alpha values for the eight samples ranged from .74 to .84 (Snyder et al., 1991). The construct validation of the scale shows positive correlation with scales measuring optimism, expectancy of goal attainment, self-esteem and an inverse correlation with measures of hopelessness and depression (Snyder et al., 1991).

Duke University Religion Index

Religiosity, an independent variable, in the present study, was assessed with the Duke University Religion Index ([DUREL] Koenig, Patterson, & Meador, 1997). The DUREL is a five-item self-reported scale. It was originally designed to assess three domains of religiousness: organizational (OR), non-organizational (NOR), and intrinsic religiosity (IR). The psychometric properties of the DRI (Storch et al., 2004), reveal good internal consistency (\( \alpha = .78 \) to .91) and an established convergent validity through strong correlation with the Santa Clara Strength of Religious Faith Questionnaire-Short Form (SCSRFQ-SF, \( r = .86, p < .0001 \)). Although the DUREL was originally thought to measure three distinct domains (Koenig, Patterson, & Meador, 1997) a confirmatory factor analysis (CFA) using
statistical structure equation modeling supports a one-dimensional factor structure instead of the three domain structure of the original scale (Storch et al., 2004). The current research also used the single-dimensional factor structure for reporting religiosity.

**Gratitude Questionnaire**

Gratitude is an independent variable and a grateful disposition is the tendency to be aware of and respond to other people’s goodwill in positive experiences and outcomes in life (McCullough, Emmons, and Tsang, 2002). The affective trait of gratitude was assessed with the Gratitude Questionnaire-6 ([GQ-6] McCullough, Emmons, and Tsang, 2002). The GQ-6 is a 6-item self-reported scale with a seven-point continuum ranging from (1) strongly disagree to (7) strongly agree. Psychometric properties of the GQ-6 were established through the administration of the scale to university students (n = 235). The Cronbach’s alpha value for the administration of this scale was .82 (McCullough, Emmons, and Tsang, 2002). Discriminate validity was established through confirmatory factor analysis, which revealed the GQ-6 was related but separate from constructs such as satisfaction with life, vitality, subjective happiness, optimism, and hope.

**Design**

There is increasing awareness and use of predictor modeling techniques for data analysis in social and psychological science research (Jung & Wickrama, 2008). Established growth modeling techniques often assume that individuals come from a single population and that one growth path can effectively estimate a whole population. Conventional growth models assume that the variables affecting growth influence each person in the same way. Yet, within any population, there are subpopulations identified by different traits, needs, or status. In every school population, there is a variety of subgroups. In an examination of the high-ability student subpopulation in a school, one will find different intellectual levels, varying creative ability, varying enriching experiences outside of the classroom environment, as well as other characteristics (Gross, 2004, Collangelo, Assouline & Gross, 2004).

The current study used three predictor models (Latent Transition Analysis [LTA], Latent Class Analysis [LCA], and GLM-repeated Measures) to examine the contribution of general self-efficacy, dispositional cheerfulness, seriousness, and bad mood, theories of intelligence, hope, religiosity, and gratitude to personal wellbeing. LTA has the ability to break a sample population into latent classes and examine the effect covariates have on class membership. The three-step analysis included (a) an unconditional LCA to determine latent classes, (b) correlation analyses to determined correlation between dependent and independent variables in each class, (c) regression analysis with the independent covariates that correlated with the dependent variable in each class would be carried out to examine variance accounted for by the covariates within the class. Analysis indicated a single-class model for personal wellbeing, so a GLM repeated measures analyses was used instead of the LTA to determine the amount of variance accounted for by the psychological measures.

**Latent transition analysis**

The first step in the analysis for personal wellbeing was to determine if the independent variables (general self-efficacy, theories of intelligence, hope, gratitude, religiosity, disposition, and resiliency) correlated with the dependent variable (personal wellbeing). In this analysis, any variable that did not significantly correlate with the dependent variable did not contribute significantly to the variance in the dependent variable and would weaken
the findings associated with the analysis as the non-significant relationship between the variables reduces the degrees of freedom (Hinkle, Wiersma, & Jurs, 2003). Further, using uncorrelated variables restricts the variability of the data and decreases the opportunity to attain significant results (Hinkle, Wiersma, & Jurs, 2003). To determine the correlation between the independent and dependent variables, a Pearson product moment correlation (Pearson, 1895) was used for each group. A summary of correlation results for the three groups is presented in Table 2. Those variables that did not significantly correlated with the dependent variable were removed from further analysis for that group.

<table>
<thead>
<tr>
<th>Aggregate Group</th>
<th>( r )</th>
<th>TAMS Group</th>
<th>( r )</th>
<th>Honors Group</th>
<th>( r )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hope-agency</td>
<td>0.34**</td>
<td>Hope-agency</td>
<td>0.31**</td>
<td>Hope-agency</td>
<td>0.38**</td>
</tr>
<tr>
<td>Cheerfulness</td>
<td>0.18*</td>
<td>Cheerfulness</td>
<td>0.32**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad Mood</td>
<td>-0.25*</td>
<td>Bad Mood</td>
<td>-0.38**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gratitude</td>
<td>0.24**</td>
<td>Gratitude</td>
<td>0.29**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Self-efficacy</td>
<td>0.18*</td>
<td></td>
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</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed)

Specification of the latent class model - PWI-A

When conducting the LTA, the measures of the PWI-A at entrance and after one year allowed for a longitudinal examination of the changes that occur in the latent classes over time. LTA accessed how students transition between latent classes (i.e. between low personal wellbeing and high personal wellbeing) and how the independent variables influenced the movement between the latent classes. The first of these steps was the specification of the unconditional latent class models (LCM) for the aggregate group of students and each of the disaggregated participant groups separately. The purpose of specifying the unconditional latent class model was to establish a statistical model that best fits the data as represented by Fit Indices. Specifying the unconditional LCA involves selection of measurement models that statistically determine a number of probable latent classes within each group (Muthén & Muthén, 1998-2007). Therefore, only the dependent variable is used in determining the LCM (Jung & Wickrama, 2008). The statistical software package Mplus 4.2 (Muthén & Muthén, 1998-2007) was used to conduct the unconditional LCA.

LCA fit indices

A number of fit indices along with theoretical justification were used when determining an unconditional model (Jung & Wickrama, 2008). When determining unconditional LCMs, the Bayesian Information Criterion ([BIC] Schwartz, 1978), in combination with the Bootstrap Likelihood Ratio Test (BLRT), have been establish to be the best indicators of the number of classes that best represents the data (Nylund, Asparouhov & Muthén, 2007). Entropy is another important consideration when determining model fit. Entropy ranges from 0 to 1, with 1 indicates the likelihood that the individuals in each class are placed in the correct class (Eddy & Easton-Brooks, 2011; Jung & Wickrama, 2008). For instances, an entropy of .95 indicates that there is a 95% probability that the individuals in the participant group is placed
into the correct classes (Eddy & Easton-Brooks, 2011; Jung & Wickrama, 2008). Therefore, the model with a significant BLRT p-value, the lowest BIC value in comparison to the other class models being tested, and entropy close to 1.0 is determined to be the best model (Nyland, 2007).

**GLM repeated measures**

The repeated measures analysis permitted an examination of the PWI-A data overtime for the homogeneous populations in this study. The repeated measures design is used when the same subjects are measured on an outcome variable at repeated time points. The repeated measures analysis decreases unsystematic variability in research with data at multiple assessment points because the same subjects are used at each measurement and individual differences are controlled (Field, 2000). The reduction in unsystematic variability provides greater ability to identify variable effect.

Statistical Package for the Social Sciences (SPSS) 17.0 was used for the GLM repeated measures analysis. Data from the personal wellbeing measures were entered into the analysis as the within-subjects factor with two levels, PWI-A at entrance and PWI-A after one year. The measured psychological constructs and demographic variables were analyzed as covariates with PWI-A for the group. The repeated measures analysis controlled for individual differences and accounted for the correlation between the repeated measures of personal wellbeing, allowing greater ability to identify the effects of the psychological constructs measured in this study.

Missing data in longitudinal social science research is not uncommon (Juster & Smith, 1997). However, nonresponse to surveys has increased in recent years, especially among college students who are responding at lower rates than previous decades (Dey 1997). In this study, the expectation maximization (EM) algorithm via the Statistical Package for the Social Sciences (SPSS) 17.0 Missing Values Analysis (MVA) revealed the missing PWI-A data for the Honors College cohort were missing completely at random (p=.45). Randomly missing data were replaced using multiple data imputation (Peugh & Enders, 2004). The imputed values were produced using full information maximum likelihood (FIML) estimation (Dempster, Laird, & Rubin, 1977; Enders & Bandalos, 2001) by means of the EM algorithm.

**Results**

**PWI-A - Beginning of College**

The Bootstrap Likelihood Ratio Test (BLRT) was significant in the 2-class model within the model fit analysis for the PWI-A of the composite sample at entrance to college (Table 3). The statistically significant BLRT ($p=.01$) in the 2-class model indicates there is a significant improvement in fit from the 1-class model. However, the 2-class model entropy value (.56) indicates that there is only a 56% probability that the individuals in group 1 are actually in group 1 and that those in group 2 are actually in group 2. Conversely, the data shows that there is also a 44% probability that the participants do not belong in either of the two-classes (groups). Given that the findings show low entropy and the rise in the BIC from the 1-class model to the 2-class model, the analysis indicate that the 1-class model is the best fit for these data for the aggregate group.

The model fit for the TAMS group (Table 3) shows significance in the BLRT ($p=.03$) for the 2-class model, indicating that there is a significant improvement in the fit between the
1-class and the 2-class model for the TAMS group. The entropy value (.64) for the 2-class model indicates that there is a 64% probability that the participants are in either group 1 or group 2. This low entropy value and the rise in the BIC from the 1-class model to the 2-class model indicate the 1-class model is the best fit for the data for the TAMS group.

Fit indices for the Honors College group (Table 3) show that there is no significance in the BLRT for the 2-class model. The rise in the BIC from the 1-class model to the 2-class model and the low entropy value give further indication that the 1-class model is the proper model for the Honors College group. As with the aggregate and TAMS groups, the findings in table 3 show that at entrance to college, a 1-class model is the best fit for the PWI-A data for all three groups.

**PWI-A - After One Year at College**

Table 3 shows significance in the BLRT in the 2-class model for the aggregate group after one year at college. The statistically significant BLRT (p=.03) in the 2-class model indicates there is a greater significance in fit of data for the 2-class model than the 1-class model. The entropy (.75) for the 2-class model indicates that there is a 75% probability that participants were assigned to the correct group. While this entropy is higher than the 56% at entry into college, the value of at least 90% is more desirable. Again, the low entropy and the rise in the BIC from the 1-class model to the 2-class model indicate that the 1-class model is the best model for the aggregate group of students.

**Table 3: Unconditional Model Fit Indices – PWI-A at entrance and after one year**

<table>
<thead>
<tr>
<th>Model</th>
<th>At Entrance</th>
<th></th>
<th>After One Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BLRT</td>
<td>BIC</td>
<td>Entropy</td>
<td>BLRT</td>
</tr>
<tr>
<td>Aggregate (n = 213)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-class***</td>
<td>1587.11</td>
<td>1641.84</td>
<td>0.56</td>
<td>0.03</td>
</tr>
<tr>
<td>2-classes</td>
<td>*0.01</td>
<td>1589.30</td>
<td>0.56</td>
<td>*0.03</td>
</tr>
<tr>
<td>3-classes</td>
<td>0.09</td>
<td>1594.41</td>
<td>0.68</td>
<td>0.21</td>
</tr>
<tr>
<td>TAMS (n = 122)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-class**</td>
<td>918.37</td>
<td>947.80</td>
<td>0.64</td>
<td>0.03</td>
</tr>
<tr>
<td>2-classes</td>
<td>*0.03</td>
<td>919.61</td>
<td>0.64</td>
<td>*0.03</td>
</tr>
<tr>
<td>3-classes</td>
<td>0.09</td>
<td>929.22</td>
<td>0.77</td>
<td>0.10</td>
</tr>
<tr>
<td>Honors College (n= 91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-class**</td>
<td>675.19</td>
<td>701.49</td>
<td>0.49</td>
<td>0.13</td>
</tr>
<tr>
<td>2-classes</td>
<td>0.68</td>
<td>681.97</td>
<td>0.49</td>
<td>0.13</td>
</tr>
</tbody>
</table>

* *p < .05; ** Selected Model; BLRT = Bootstrapped Likelihood Ratio Test; BIC = Bayesian Information Criterion Value; --Indicates that the value not produced at that stage of the model.

The model fit for the TAMS and the Honors College group (Table 3) shows significance in the BLRT for the 2-class model, indicating that there was a significant improvement in the fit between the 1-class and the 2-class model for each group. However, the rise in the BIC from the 1-class to the 2-class model and the low entropy give further indication that the 1-class model is the best model for both the TAMS the Honors College groups of students. The findings show that for the three groups, the data fits a 1-class model after being in college one-year.

The results of the unconditional Latent Class Analysis (LCA) indicated the aggregate group and the separate TAMS and Honors groups were homogeneous with respect to their levels of personal wellbeing at entrance to the university and after one year. The purpose of
the Latent Transition Analysis (LTA) was to identify if and how students transition between model classes overtime. However, given that the data showed that for each of the groups and both assessment points represented a 1-class model, the LTA was not appropriate. Therefore, a General Linear Model (GLM) repeated measures analysis was conducted.

**Repeated measures analysis - aggregate group**

The variables (cheerfulness, bad mood (negatively), gratitude, general self-efficacy, and hope-agency) for the Pearson product moment correlation conducted earlier (Table 2), were analyzed as covariates in the repeated measures analysis. The repeated measures analysis of covariance for the aggregated group of high-ability college students (Table 4) indicated hope-agency, $F(1, 207) = 20.25$, $p=.001$, and lacking the disposition of bad mood, $F(1, 207) = 5.76$, $p=.017$, had a statistically significant relationship with personal wellbeing for students in the aggregate group. The agency component of hope, positively correlated with personal wellbeing, and accounted for 8.9% of the variance in personal wellbeing for the students in the aggregate group.

Dispositional bad mood was significantly and negatively correlated with personal wellbeing and accounted for a small percent of the variance (2.7%) in personal wellbeing in the aggregate group of high-ability college students. Given that the coding for bad mood shows that those with a low score on the Bad Mood Scale were actually in a good mood, these findings indicate being in a good mood was significantly associated with high personal wellbeing and accounted for 2.7% of the difference in the personal wellbeing of students. The disposition of cheerfulness, gratitude, and general self-efficacy did not have a statistically significant relationship with personal wellbeing in the repeated measures analysis for these participants.

**Repeated measures analysis - TAMS students**

A GLM repeated measures analysis was also conducted on the TAMS student participants. Cheerfulness, bad mood (negatively), gratitude, and hope-agency were correlated with personal wellbeing (Table 2) and were included as covariates in the repeated measures analysis. The repeated measures analysis of covariance (Table 4) indicated hope-agency, $F(1, 117) = 11.06$, $p=.001$, and lacking a disposition of bad mood, $F(1, 117) = 9.69$, $p=.002$, have statistically significant associations with personal wellbeing. The agency component of hope accounted for 8.6% of the variance and lacking dispositional bad mood accounted for 7.6% of the variance in personal wellbeing in the sample of TAMS students. The dispositions of cheerfulness, and gratitude did not have a statistically significant relationship with personal wellbeing in the repeated measures analysis of the TAMS participants.

**Repeated measures analysis - Honors College students**

The agency component of hope had a statistically significant relationship with personal wellbeing (Table 2) for Honors students in this study. Hope-agency was included as a covariate in the repeated measures analysis. The repeated measures analysis of covariance (Table 4) for the Honors College student group indicated that hope-agency, $F(1, 88) = 27.79$, $p=.001$, has a statistically significant relationship with personal wellbeing. Hope-agency accounted for 24% of the variance in personal wellbeing in the sample of Honors College students.
Table 4: Repeated Measures Analysis of Covariance

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheerfulness</td>
<td>229.07</td>
<td>1</td>
<td>229.07</td>
<td>1.87</td>
<td>0.173</td>
<td>0.009</td>
</tr>
<tr>
<td>Bad Mood</td>
<td>705.34</td>
<td>1</td>
<td>705.34</td>
<td>5.76</td>
<td>0.017*</td>
<td>0.027</td>
</tr>
<tr>
<td>Gratitude</td>
<td>347.82</td>
<td>1</td>
<td>347.82</td>
<td>2.84</td>
<td>0.093</td>
<td>0.014</td>
</tr>
<tr>
<td>General Self-Efficacy</td>
<td>126.25</td>
<td>1</td>
<td>126.25</td>
<td>1.03</td>
<td>0.331</td>
<td>0.005</td>
</tr>
<tr>
<td>Hope - Agency</td>
<td>2480.54</td>
<td>1</td>
<td>2480.54</td>
<td>20.25</td>
<td>0.001**</td>
<td>0.089</td>
</tr>
<tr>
<td>Error</td>
<td>25352.51</td>
<td>207</td>
<td>122.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheerfulness</td>
<td>236.43</td>
<td>1</td>
<td>236.43</td>
<td>1.95</td>
<td>0.165</td>
<td>0.016</td>
</tr>
<tr>
<td>Bad Mood</td>
<td>1172.56</td>
<td>1</td>
<td>1172.56</td>
<td>9.69</td>
<td>0.002**</td>
<td>0.076</td>
</tr>
<tr>
<td>Gratitude</td>
<td>470.31</td>
<td>1</td>
<td>470.31</td>
<td>3.86</td>
<td>0.051</td>
<td>0.032</td>
</tr>
<tr>
<td>Hope - Agency</td>
<td>1339.22</td>
<td>1</td>
<td>1339.22</td>
<td>11.06</td>
<td>0.001**</td>
<td>0.086</td>
</tr>
<tr>
<td>Error</td>
<td>14162.90</td>
<td>117</td>
<td>121.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors College</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hope - Agency</td>
<td>3068.88</td>
<td>1</td>
<td>3068.88</td>
<td>27.79</td>
<td>0.001**</td>
<td>0.240</td>
</tr>
<tr>
<td>Error</td>
<td>9716.66</td>
<td>88</td>
<td>110.42</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05 **p < .01

Discussion

This study examined measured psychological constructs at entrance to the university and explored how these constructs mediated personal wellbeing in gifted students during their first year of college. Sayler’s (2009) Model of Giftedness and Thriving served as the theoretical framework for this investigation. Personal wellbeing is one of several outcomes in the Model of Giftedness and Thriving. Personal wellbeing is one of several outcomes in the Model of Giftedness and Thriving, which work together to move the individual away from wasting and toward flourishing on the thriving continuum.

The students in this study had statistically similar dispositions regardless of their age and path to college and they maintained similar dispositions as they move through their first year of college. The students in this study were comparable in their levels of personal wellbeing when compared to previous studies of earlier cohorts of gifted college students (Boazman, 2006; Hoggan, 2008; Boazman & Sayler, 2011).


Comparing Early-entrants and Honors College Students

In the current study, Honors College students reported slightly lower feelings of personal wellbeing than did the TAMS students at entrance to college. Although both groups’ wellbeing scores were high for the general population. At the end of their first year in college, personal wellbeing for the TAMS students was lower than at entrance to the university, while personal wellbeing for Honors College students had risen. Why would the change in wellbeing of these two groups of high-ability college students be in opposite directions? To attempt to answer this question we must examine the PWI domain item results. The TAMS students in this study experienced losses in feelings of satisfaction with what they were achieving in life, satisfaction with feelings about safety, and satisfaction with feelings about future security over the first year of college. The stage of development when exiting high school and entering college may, in part, account for the different trajectories. TAMS students entered college two or more years earlier in age than Honors students do. At the younger than traditional age (approximately 15 to 16 years) when TAMS students leave home and go to college, it would be normal for them to feel hesitant, or at somewhat of a loss in leaving their familiar environments, their families, established friendships, and known schools and teachers. Once in college, the TAMS students will likely find challenges in having to make new friends, having to be more self-sufficient, more responsible, and more independent than ever before in their lives. The challenges and struggles they encounter in their new life may contribute to a temporary loss in feelings of in satisfaction with what they were achieving in life, feelings about safety, and feelings about future security.

Another factor that may have accounted for the slightly diminished feelings of personal wellbeing in the early-entrants is the challenges to their personal beliefs about their ability. In many instances, high-ability students often do well in school with minimal effort (Colangelo, Assouline & Gross, 2004). The high success with minimal effort leads them to believe they will always learn easily, get things fast, and seldom make mistakes. These experiences may account for their perception that their intelligence is a fixed entity. Without intellectual challenges, the high-ability students would be less likely to have reason to believe their intelligence is malleable. Once the early-entrants enter the university, many often experience the most rigorous academics of their life to that point. The minimalist learning strategies they may have previously used in their schoolwork and the previous levels of academic effort no longer bring about easy success once they are in college. The challenges that come with the rigorous college coursework may cause them to shift their beliefs about intelligence and their personal level of giftedness.

In contrast to TAMS students, Honors College students, who were just as gifted, were traditional-aged (approximately 18 years of age) college entrants. Honor’s students came to college after finishing high school. They are at a traditional point in life when they and their friends are graduating high school. At this point in their life, it is often a natural progression to move forward. Moving forward for the high-ability graduates in America generally means going to college. Classmates will take different directions after high school, so it is accepted that many of the honors students would be more prepared for the separation from the familiarity of home, past friends, and previous experiences brought about by entering college. Additionally, their developmental level would be more conducive to independence, making new friends, and becoming involved in the rigors of college life. It is in the last two years of high school, precisely the years skipped by TAMS students, which Honor’s students are most likely to have had more rigorous classes, (i.e. advanced placement, international baccalaureate, etc). Admission to the Honors College is dependent on a review of students’ high school programs and their success in advanced classes during high school.

The honors students in this study entered college with feelings of personal wellbeing that were slightly lower than those of students in TAMS were. The Honors College students, prior to entering the Honors College, encountered rigorous coursework in the advanced classes during
their junior (approximate age 17 years) and senior (approximate age 18 years) year of high school. When they enter college, honors students may have already experienced and rebounded some from a dip in feelings of personal wellbeing brought about by these academic challenges in high school. Honors College students continued to experience academic challenges in their college classes. However, the academic rigor found in advanced courses in high school during their junior and senior year may have played a part in tempering the effect of the challenging courses found at the university. The experience of facing personal and academic challenges before coming to college may allow them to continue their rebound in feelings of personal wellbeing over the first year of college.

Psychological Constructs Associated Personal Wellbeing

Hopefulness

The agency component of hopefulness was strongly associated with positive personal wellbeing in both of the groups in this study. In this study, those who entered with a higher sense of their ability to move toward achievement of their goals experienced greater positive feelings of personal wellbeing initially and after one year in college.

College provided TAMS and Honors College students opportunities to take courses in a wide variety of fields and to develop and refine goals and paths toward those goals. Honors College students, with their wide variety of interests and abilities, increased options, new independence, and self-reliance, were more able to identify multiple paths toward goals, and after one year in college appeared to be moving towards achieving those goals. Positive feelings about their ability to move toward achieving the goals they set would contribute to positive feelings of wellbeing.

At entrance to college, the TAMS students by nature of the program (an early entrance program in mathematics and science) had a narrower academic focus than the Honors College students had. Whereas the Honors College students had a variety of majors and interests, the TAMS students had been cultivating their interests in mathematics and science for many years. Like the honors students, the TAMS students experienced an increase in academic and personal options, independence, and self-reliance when they entered college. Although feelings about personal ability to identify goals and move toward achieving those goals was significantly important to personal wellbeing for the TAMS students, the importance of those feelings was not as great for the TAMS students as it was for the Honors College students. One reason for the lesser effect of hope-agency on personal wellbeing for the TAMS students is the fewer number of goal pathways that come with entering a program with a specific focus on careers in mathematics or science fields.

Another possible reason hope-agency was less predictive of personal wellbeing in TAMS students was lack of personal experience in being agentic in academic goal attainment. High-ability students many times experience academic success without a great deal of challenge (Colangelo, Assouline & Gross, 2004). It is very possible the students who enter TAMS have had the experience of successful goal attainment without a lot of effort. The need for personal agency may not have been a necessary factor in their success to this point. The young scholars who entered TAMS have had teachers, parents, counselors, and school administrators who helped them navigate their academic careers. It is possible that the ability to look at multiple paths, multiple goals, and experience self-sustaining movement on those paths toward set goals, does not develop until after the challenges faced during the college years following their early entry.
Dispositions

Dispositional bad mood was associated with lower levels of personal wellbeing for those TAMS students who had the highest college grades (TAMS-A group, see definition below). The trait of bad mood is characterized by a general sadness, a pessimistic attitude toward life, a tendency toward distress, or in despondency. Individuals with the trait of bad mood often have sullen, irritable, or grouchy feelings (Ruch, Kohler & van Thriel, 1996) which can present a hindrance to the achievement of wellbeing and satisfaction in life. Having a dispositional bad mood impairs self-regulation and diminishes ability to deliberate possible outcomes to exceptional as well as daily decisions (Leith & Baumeister, 1996). Those with dispositional bad mood are more likely to act out of impulse rather than acting out of logical contemplative reason. In the intellectually challenging environment of college with new and possibly less close personal relationships, TAMS students with the trait of bad mood may lead them to interpret struggles in a personally unfavorable light, reducing feelings of personal wellbeing.

The responsibility of educators is not to only guide and facilitate academic growth. Students, especially high ability students, need teachers who can help them grow into happy, productive, successful individuals. Knowledge of psychological constructs that are facilitative of the positive personal wellbeing helps parents, teachers, administrators, and counselors prepare high-ability students for success in college and beyond.

References


Connie Belin, & Jacqueline N. Blank International Center for Gifted Education and Talent Development.


