Early Entrance to College and Self-Concept:

Comparisons Across the First Semester of Enrollment

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Researchers have demonstrated that academic acceleration is an effective intervention for gifted and talented students (e.g., Brody & Benbow, 1987; Colangelo, Assouline, & Gross, 2004; Schiever & Maker, 2003). Nonetheless, one form of academic acceleration, early entrance to college, remains a controversial option despite evidence that participating students perform well academically and have successful long-term educational and occupational outcomes (Firpo, 2008; Muratori, Colangelo, & Assouline, 2003; Olszewski-Kubilius, 2002; Stanley & McGill, 1986). Some of the hesitation surrounding parents' and educators' endorsement of early entrance programs has to do with concerns about possible negative effects on the social and emotional development of students who choose to enter college early (Noble, Arndt, Nicholson, Sletten, & Zamora, 1999). However, parents whose children have entered college early report that students have positive experiences when programs include supportive services (Noble, Childers, & Vaughan, 2008) that assist

This study compared self-report ratings of self-concept before and after the first semester of college among a group of 21 early entrance college students. The measures included a general demographic questionnaire and the Piers-Harris Self-Concept Scale, 2nd edition (PH-2). Results indicated that students maintained their overall level of self-concept following their first semester of college. Mild increases in self-concept were noted in the domains of Physical Appearance and Attributes, as well as Happiness and Satisfaction. Overall, mean group scores on the PH-2 total and subtest self-esteem measures were in the average range, both before and after the participants' first semester of college. This is a positive finding that points to this group of students' generally positive impressions of their behavior, intelligence, physical appearance, popularity, feelings of anxiety, and overall happiness. These findings offer additional support that academic acceleration among gifted students is not related to decreases in self-concept.

summary

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students in adjusting to the increased social and academic demands of college.

The Case for Early Entrance Programs

There are currently 18 early entrance programs available in the United States, all of which are unique in terms of age at admission, support services offered, and program duration. Of these programs, the University of Washington's Robinson Center for Young Scholars Early Entrance Program (EEP; early entrance to the University of Washington before age 15) has the most significant history of research support, including two longitudinal studies that document program effectiveness. In the first study (Noble, Robinson, & Gunderson, 1993), students who graduated from the EEP program between 1977 and 1986 completed a lengthy questionnaire concerning multiple areas related to their EEP experience and life after graduation. In general, most EEP graduates indicated that they were relatively happy, successful individuals who were positive about their decision to skip high school and enter a university setting early. Furthermore, participants from the EEP program entered graduate school at higher rates than age-matched National Merit Scholarship finalists and those who qualified for the EEP program but did not participate. Researchers also concluded that students' choice to radically accelerate through the EEP program did not negatively affect their social and emotional development.

In the second study (Noble et al., 2007), researchers queried EEP graduates about multiple facets of their careers and personal lives. Participants in the study indicated that the social community of intellectual peers provided by the EEP program was an important component in their decision to enter college at such an early age. Findings also suggested that the creation of a formal transitional school, where the accelerated students spent their first year of school, helped students with the social and intellectual adjustment to college. One surprising and notable finding was that male graduates reported less satisfactory inter-

personal relationships than did female graduates, and many of these males indicated that the EEP program was a contributing factor to this difficulty. Nevertheless, researchers concluded that "overall the participants of the current study revealed themselves to be well-rounded, balanced individuals on whom the EEP continues to exert a profound and overwhelmingly positive influence" (Noble et al., 2007, p. 165).

Social and Emotional Adjustment

Overall, researchers who have examined the social and emotional adjustment of early entrants have found that students who enter college early do not experience negative consequences as a result of acceleration (Brody, Muratori, & Stanley, 2004). Numerous personal accounts from graduates of early entrance programs also document general satisfaction with making this educational choice (Robinson, 2004). In most cases, early entrance programs provide opportunities for students to develop emotionally and socially within an intellectual community of peers who welcome their high abilities (Noble & Childers, 2008). Some data suggest that the specialized nature of the program, coupled with the support services that are provided, contribute to the positive results. For example, an examination of the affective components of the EEP suggested that students held generally positive impressions about the support services offered, such as staff availability, faculty mentorship, and the availability of peer supports (Noble & Childers, 2008).

One notable exception to the stance that early entrance programs are not socially or emotionally harmful came from a study by Cornell, Callahan, and Loyd (1991), who found that females enrolled in an early entrance program experienced high levels of depression and attrition due to stress. However, this study has been criticized for methodological weaknesses, including the improper interpretation of statistical analyses, failing to control for other factors (e.g., academic, cognitive) that may have contributed to attrition, and the use of inappropriate measures and inclusion criteria to determine the suitability of students for

early entrance to college (Stanley, 1991). In addition, these results have not been replicated in the nearly 2 decades that have passed since the study was conducted. However, in a more recent study (Noble & Childers, 2008), although the majority of participants reported experiencing positive social lives in college and overall happiness in their personal lives, there was a pervasive theme of academic pressure (both internally and externally imposed) as well as pressure to "downplay their accelerative status in order to be seen as 'normal'" (p. 261). Other students reported feeling unhappy with their academic performance and expressed feeling intellectually intimidated by their peers and professors. Because a comparison group was not used, it is not possible to know if similar feelings would be expressed by gifted college students who were not a part of an early entrance program. However, Noble and Childers (2008) emphasized that all information gathered from student evaluations is valuable and should be used to make programmatic changes to improve students' intellectual and social/emotional experiences.

Self-Concept

One important aspect of adjustment to college is how self-concept changes in response to the transition to college. Research has indicated that some students in the general population experience declines in self-concept during their first semester in college (e.g., Friedlander, Reid, Shupak, & Cribbie, 2007; Hesse-Biber & Marino, 1991; Pritchard, Wilson, & Yamnitz, 2007). It is important to be cognizant of decreases in self-concept, as these declines have been associated with aspects of psychological distress—including depression (Alfeld-Liro & Sigelman, 1998) and eating disorders (Hesse-Biber & Marino, 1991)—in the general college student population.

To date, very few scholars have empirically investigated changes in self-concept among students who enter college early. Lupkowski, Whitmore, and Ramsay (1992) measured the self-esteem of a group of early entrants at the beginning and end of the first semester of college. Self-esteem was found to be sig-

nificantly lower for the group at the end of their first semester, but because of a small effect size, these changes were thought to have little practical significance. Findings from a second study (Callahan, Cornell, & Loyd, 1992) showed no significant changes in self-esteem over the first year of enrollment in an all-girls early entrance program. A recent study examined the experiences of early entrants at the Texas Academy of Mathematics and Science of the University of North Texas and found that, in addition to family cohesion, organization, control, and conflict, measures of overall self-concept predicted first semester GPA, and self-concept alone related positively to college adjustment (Caplan, Henderson, Henderson, & Fleming, 2002). Because of the limited and somewhat inconclusive research in this area, additional studies of changes in self-concept among early entrants to college are needed to continue to support the suitability of this form of acceleration.

The current study sought to expand upon this limited previous research in order to gain a better understanding of the effects of early college entrance on the self-concept of gifted students. Specifically, the authors set out to investigate three research questions: (a) Do early entrants to college show changes in self-concept after their first semester of enrollment?; (b) Are academic variables (i.e., ACT and high school grade point average) related to self-concept at the start of the first semester of college?; and (c) Are academic outcomes (i.e., college GPA) related to self-concept for early entrants after the first semester of college?

Method

Participants

The pool of participants included the entire cohort of first-year college students attending an early entrance program at a large Midwestern university ($n = 22$). Students were told that involvement was voluntary and that it would not affect their status in the early entrance program. All participants were first-year

university students enrolled in the initial year of the program. One contributor was removed from the study due to missing data. The remaining participants (n = 21) included 12 females and 9 males, ranging in age from 16 to 18. The majority of participants (n = 19) identified as Caucasian, 1 student identified as Latino, and 1 student identified as Asian/Pacific Islander.

This early entrance program was founded in 1999 and provides an opportunity for high-achieving students to enroll at a large university after their junior year in high school. The program strives to provide an opportunity for students who are academically ready to begin their college studies, a community for bright and motivated young scholars, and support and guidance from a professional staff trained to work with gifted and talented students. This support comes in many forms, including a weekly seminar, individual weekly sessions with a graduate student, and frequent opportunities to socialize as a group. Students also have access to free counseling services with licensed psychologists who specialize in serving gifted and talented students. Formal participation in the early entrance program is during students' first year on campus, but there are many opportunities to remain involved in the program in subsequent years. For example, students can continue to meet with a graduate student weekly or can have access to counseling services throughout their tenure at the university.

Applicants to the early entrance program are evaluated in numerous areas before being admitted, and standards for admission differ significantly from those of the general student body. First, applicants to the early entrance program must meet higher academic standards with regard to grade point average and standardized test scores than students admitted to the general university community. Second, each applicant's social maturity is assessed through interviews and a personal statement. Third, letters of recommendation from teachers are required. Finally, parents of applicants to the early entrance program are interviewed and must demonstrate support for the student's decision to enter college early.

Measures and Procedure

Demographic information and high school academic information—including standardized test scores (ACT composite) and high school grade point average (GPA)—were obtained from students' application materials for the early entrance program. Each participant's first semester college GPA was obtained from the early entrance program administrative staff.

Participants also completed the Piers-Harris Children's Self-Concept Scale, Second Edition (PH-2; Piers & Herzberg, 2002). The PH-2 is a 60-item self-report questionnaire used to measure self-concept in children aged 7 to 18 years. Self-concept is defined as a "relatively stable set of attitudes reflecting both description and evaluation of one's own behavior and attributes" (Piers & Herzberg, 2002, p. 1). This measure yields a Total Self-Concept score and six domain scores: Behavioral Adjustment (BEH), Intellectual and School Status (INT), Physical Appearance and Attributes (PHY), Freedom from Anxiety (FRE), Popularity (POP), and Happiness and Satisfaction (HAP). Two validity scales are also included. Scores are presented as T scores ($M = 50$; $SD = 10$) with higher scores indicating a more positive self-evaluation. This measure has demonstrated adequate psychometric properties, a detailed description of which can be found in the technical manual (Piers & Herzberg, 2002).

The PH-2 was administered as a pretest during the first week of classes of the students' first semester of college. The posttest was administered during the initial month of each student's second semester. Internal consistencies were calculated using Cronbach's alpha. Pretest internal consistencies ranged from .40 to .84; posttest internal consistencies ranged from .50 to .86 (see Table 1 for Cronbach's alpha values and confidence intervals). The internal consistencies as reported in the PH-2 manual range from .74 through .91 (Piers & Herzberg, 2002) and are generally considerably higher than what was obtained in our sample.

Table 1

Piers–Harris Internal Consistencies (Cronbach's Alpha) With 95% Confidence Intervals

Scale	Pretest	95% C.I.	Posttest	95% C.I.
Total Self-Concept	0.83	0.71–0.92	0.86	0.75–0.93
Behavioral Adjustment	0.40	-0.05–0.72	0.70	0.48–0.86
Intellectual and School Status	0.41	-0.03–0.72	0.53	0.17–0.78
Physical Appearance and Attributes	0.61	0.30–0.82	0.50	0.11–0.77
Freedom from Anxiety	0.84	0.72–0.93	0.74	0.55–0.88
Popularity	0.64	0.36–0.83	0.60	0.29–081
Happiness and Satisfaction	0.61	0.30–0.82	0.60	0.29–0.81

Results

Examination of the mean scores on the PH-2 reveals that all pre- and posttest mean scores were within the average range (T score $M = 50$; $SD = 10$). Overall and content-specific self-concept scores for this group of students were considered typical for students their age, both at the start of and after their first semester of college. No significant differences were found for the Total Self-Concept score, suggesting that overall self-concept did not statistically significantly change from the beginning of the first semester to the second semester (see Table 2).

Among the six domains of the PH-2, PHY was statistically significantly higher at posttest ($t = 2.25$, $p < .05$), suggesting that students' self-concepts related to their physical appearance and attributes were more positive after their first semester of college than when they began college (see Table 3). However, the confidence interval around this effect size (Hedge's $g = 0.47$) is quite large (0.09–0.86), suggesting that firm conclusions about pre- to posttest changes in PHY cannot be made. Scores in the HAP domain were also statistically significantly higher at posttest (Hedge's $g = 0.54$, $t = 2.56$, $p < .05$), but the effect size confidence interval is again very large (0.23–0.85), which significantly limits what conclusions can be made. In general, there is mild evidence that our group of students' self-concepts (related to their happi-.

Table 2

Means, Standard Deviations, and Ranges of
Academic Measures and Piers-Harris Scores

Measure	M	SD	Minimum	Maximum
ACT Composite Score	31.24	2.19	27.00	35.00
High School GPA	3.92	0.28	3.30	4.60
College GPA	3.50	0.49	2.33	4.18
Pretest Total Self-Concept	55.10	8.49	43.00	78.00
Posttest Total Self-Concept	54.38	8.85	39.00	78.00
Pretest BEH	57.19	5.75	43.00	62.00
Posttest BEH	56.00	7.06	37.00	62.00
Pretest INT	56.29	6.01	46.00	65.00
Posttest INT	54.05	6.42	42.00	65.00
Pretest PHY	50.14	8.45	38.00	65.00
Posttest PHY	53.24	7.64	40.00	65.00
Pretest FRE	53.24	9.38	31.00	65.00
Posttest FRE	52.57	7.69	39.00	65.00
Pretest POP	51.71	8.46	39.00	68.00
Posttest POP	49.71	7.68	36.00	68.00
Pretest HAP	50.29	7.50	37.00	59.00
Posttest HAP	52.62	7.53	37.00	59.00

ness and satisfaction) were more positive after their first semester of college than when they began college (see Table 4).

Although not statistically significant, effect sizes for all of the other subscales on the PH-2 are negative, suggesting an overall minimal decline in self-concept in these areas. In particular, the Hedge's g effect size for Intellectual and School Status (INT) was -0.35 (CI: -0.81–0.12) and the Hedge's g effect size for Popularity (POP) was -0.30 (CI: -0.67–0.06). Again, given the large confidence intervals for these effects, the lack of statistical significance, and the limited sample size, conclusions cannot be made about these results. Nevertheless, they do suggest that stu-

Table 3

T Values, *p* Values, and 95% Confidence Interval
for Pretest/Posttest Mean Differences, With
Correlations Between Pretest and Posttest Scores

| Scale | *t*-value | *p*-value | 95% Mean Difference Confidence Interval | | Pre/Post Correlation |
			Lower	Upper	
Total Self-Concept	0.61	0.55	-1.75	3.18	0.81**
Behavioral Adjustment	0.83	0.41	-1.79	4.17	0.50*
Intellectual and School Status	1.65	0.11	-0.59	5.07	0.50*
Physical Appearance and Attributes	-2.25	0.04	-5.96	-0.23	0.70**
Freedom from Anxiety	0.44	0.66	-2.49	3.82	0.69**
Popularity	1.44	0.17	-0.90	4.90	0.69**
Happiness and Satisfaction	-2.56	0.02	-4.23	-0.43	0.85**

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

Table 4

Bias Corrected Hedge's *g* Effect Sizes and 95%
Confidence Intervals for Pretest/Posttest Comparisons

| Scale | Effect size | 95% Confidence Interval | |
		Lower	Upper
Total Self-Concept	-0.13	-0.41	0.15
Behavioral Adjustment	-0.18	-0.63	0.28
Intellectual and School Status	-0.35	-0.81	0.12
Physical Appearance and Attributes	0.47	0.09	0.86
Freedom from Anxiety	-0.09	-0.45	0.26
Popularity	-0.30	-0.67	0.06
Happiness and Satisfaction	0.54	0.23	0.85

dents' beliefs about their intelligence, as well as their popularity, may actually decline slightly during their first year of college.

To determine if a relationship existed between precollege academic variables and self-concept upon entrance to college, correlations between the pretest PH-2 and both high school GPA and ACT composite score were computed. No significant relationships were found between these variables. However, the relationship between high school GPA and the behavioral adjustment domain of the PH-2 was approaching significance ($r = -.35$, $p = .12$), suggesting a weak, yet not statistically significant, negative relationship between students' perception of their behavior and their high school GPA; fewer behavior problems were reported in students with higher GPAs. To determine if a relationship existed between first semester academic outcomes and self-concept after the first semester of college, correlations between the posttest PH-2 and first semester GPA were computed. No statistically significant relationships were found between these variables. However, the relationship between first semester college GPA and the Freedom from Anxiety domain of the PH-2 was approaching significance ($r = -.36$, $p = .11$), suggesting a second weak, yet not statistically significant, negative relationship between students' feelings of anxiety and their college GPA, with students with higher GPAs reporting lower levels of anxiety.

Discussion

This exploratory study examined the self-concept of early entrance college students before and after their first semester of college. Due to the large confidence intervals around the pre- to posttest effect sizes, as well as our small sample size, we cannot make strong generalizations about changes in self-esteem after the first semester of college. Rather, it may be that we did not have adequate power to detect if there were significant differences, if they were in fact there. Further, the low internal consistency of many PH-2 subtests also would have limited our

ability to detect differences between the two administrations. Overall, mean group scores on the PH-2 total and subtest self-esteem measures were in the average range, both before and after the participants' first semester of college. This is a very positive finding that points to this group of students' generally positive impressions of their behavior, intelligence, physical appearance, popularity, feelings of anxiety, and overall happiness.

With the delineated limitations in mind, the current exploratory study revealed that, among this small sample of students, overall self-concept remained stable from pretest to posttest, with mild increases in self-concept in the areas of physical appearance and attributes and general happiness and satisfaction. Although definitive statements cannot be made because of the exploratory nature of this study, these aspects of self-concept may have mildly improved as a result of positive academic experiences, engagement in more challenging coursework, and interactions with peers who share their interests, values, and passions. These results support previous research indicating that early entrance to college does not adversely impact students' self-concept (Callahan et al., 1992; Caplan et al., 2002; Lupkowski et al., 1992). In addition, this study provides limited support to the broader literature suggesting that students who enter college early generally show positive social and emotional adjustment (Brody et al., 2004; Noble et al., 2007).

Like many students who enter college early, the participants in this study did so as part of an established early entrance program that offered a built-in peer group of other early entrants, access to supportive services, and programming designed to ease the transition to university and college life. It is possible that this environment was positively related to students' self-concept in this study, as previous literature has suggested that these types of programs may be associated with social and emotional adjustment (Brody et al., 2004; Noble et al., 2007). Additionally, in a study of early entrants at the University of Washington, participants indicated that the social community provided by the early entrance program significantly contributed to their decision to enter college early (Noble et al., 2007). Thus, it is possible

that these supportive and collegial environments not only help early entrants to adjust to college once they are enrolled, but may also play an important role in the decision to enter college early in the first place. Research on students who enter college early, independent of established early entrance programs, would help to tease out the contributions of these programs to the educational outcomes and psychosocial adjustment of early entrants.

These findings could be considered when establishing policies and practices related to early entrance to college. They suggest mild support for the idea that early entrance to college is a viable, appropriate form of acceleration for qualified and motivated students. Among our small sample, overall self-concept did not decrease during the first semester, as is the hypothesized fear of many who are opposed to this form of acceleration. Although some researchers have found decreases in self-concept among samples of the general student population upon entering college (Alfeld-Liro & Sigelman, 1998; Hesse-Biber & Marino, 1991), there was an extremely small mean decrease in overall self-concept ($T = 55.10$ pretest to $T = 54.38$ at posttest, $d = -.13$) among our small group of early entrants. For early entrance programs themselves, as well as the institutions that support them, these findings suggest the importance of providing a supportive environment for all students, particularly those who enter college early, because of the possible protective mechanism that is provided. Although not directly investigated, it may be that the supportive services provided to the early entrants in this study played a role in self-concept, as previous studies have highlighted the positive role that support services have played in other early entrance programs (e.g., Noble & Childers, 2008; Noble et al., 2008).

Limitations

There are several limitations to the current study, the largest being the small sample size, which significantly limits the power to detect potential significant findings. This is particularly notable when one looks at the actual negative effect sizes for

two of the PH-2 subscales: Intellectual and School Status (INT; Hedge's g = -.35) and Popularity (POP; Hedge's g = -.30). It may very well be that, with a larger sample size, these effect sizes would have been statistically significant, suggesting that students' beliefs about their intelligence and popularity declined in their first semester. Future investigators are strongly encouraged to engage in a similar investigation with a larger sample size to determine whether areas of self-esteem actually do decline among participants in early entrance programs. If declines are noted, it would have significant implications for program design. For the current study, because only a small group of students are admitted to each early entrance cohort, it was difficult to examine self-esteem among a large group of these students without adding other confounding variables that are present when multiple cohorts are examined.

Our sample included predominantly White students, which limits the generalizability of the findings to diverse groups. Use of the PH-2 to measure self-concept also is a limitation. The PH-2 is typically used with students before the age of 18, and may not be the best measure of self-concept among students attending college, regardless of their age. It is also possible that the constructs measured by the PH-2 are not those that one would expect to change as a result of entering an early entrance to college program. Another limitation involving the use of the PH-2 was the low reliability estimates found for many of the subscales (see Table 1). As a result of these low internal consistencies, it may have been more difficult to detect differences on these subscales between the pretest and posttest administrations.

The time parameters of the study could be viewed as another limitation, as researchers potentially could have made stronger conclusions had data been collected after student's first and second years. Surveying students after the first semester of college is not sufficient time to make broad conclusions that there are no negative or harmful effects to early entrance to college. However, this early transition period is perhaps the most demanding time for new college students, as they must adjust to a new environment and new challenges (Friedlander et al., 2007; Pritchard et

al., 2007). Finally, this study used a convenience sample of early entrants from a single program, meaning that these students may not be representative of the general population of early entrants to college.

In addition to the earlier suggestions made for future researchers, scholars may want to investigate other aspects of social and emotional adjustment to college among this population. It would also be helpful to sample students from various early entrance programs across the country and identify what aspects of the program are helpful for adjustment. Furthermore, qualitative approaches would provide scholars with the unique, personal experiences of early entrants that could inform policy and programming. Whatever the avenue taken by future studies, it is hoped that further research into this area will help to maximize the positive impact that early entrance to college can have on gifted and talented students.

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