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Getting Ahead:

Current Secondary and Postsecondary Acceleration Options for High-Ability Students in Indiana

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Background Information

Acceleration

Many gifted and talented education programs are based on philosophies of either enrichment or acceleration. At the secondary level, acceleration often includes taking college-level courses before graduating from high school. The rationale for this is simple; when students complete the curriculum available to them at their local high school, continuing on to college-level material is a natural progression. Advanced Placement (AP), International Baccalaureate (IB), and concurrent enrollment are all options that allow students to earn college credit prior to high school graduation. *A Nation Deceived* (Colangelo, Assouline, & Gross, 2004) outlined many facets of acceleration including early entrance to college, talent search programs, social-emotional effects, and research outcomes. Several studies have demonstrated the effectiveness of different types of accel-

Summary

Gifted education programs at the secondary level have yet to receive as much attention as those at the primary and elementary levels. The 2007 State of the States Report found that AP courses remain the most common means of addressing the needs of high-ability high school students. This study presents the current state of high-ability programming in Indiana high schools with special attention to dual-credit and IB programs. Survey data were collected on the policies and offerings of 87% of the state's school corporations. The data suggest that even though almost 90% of corporations offer dual-credit courses and 4% offer IB programs, AP courses remain the primary source of high school programming. The data also indicate that 70% of school corporations require students to exhibit high levels of performance in past coursework or on standardized tests to participate in these programs. Implications for such requirements are that they may prevent underachieving high-ability students from gaining access to the coursework from which they would benefit to be successful in an academic setting.

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eration including early entrance to kindergarten (Gross, 1999), partial-grade and full-grade acceleration (Colangelo, Assouline, & Lupkowski-Shoplik, 2004), and early entrance to college (Gross & van Vliet, 2005; Olszewski-Kubilius, 1995).

The effect size or specific outcomes acceleration affords varies widely depending on factors such as type of program, outcome measure, student population studied, and the student comparison group (Kulik, 2004). In his meta-analysis of acceleration research of 25 earlier studies, Kulik (2004) found that accelerated students usually perform better than their nonaccelerated, high-ability peers; they score the equivalent of a full grade higher on standardized achievement tests, with effect sizes ranging from .16 to 2.68. Kulik reported 11 studies that compared accelerated students to same age and same ability peers and concluded that accelerated students consistently outperformed nonaccelerated, high-ability peers on standardized achievement measures with a median effect size of .8. However, when accelerated students were compared to older nonaccelerated students, the findings were much smaller, suggesting that accelerated students did just as well as the older nonaccelerated peers, but not any better.

Although the academic outcomes for acceleration seem positive, Kulik (2004) also investigated the social and emotional effects in 13 previous studies. Social and emotional outcomes are difficult to assess because affective factors are inherently more complicated to measure than achievement outcomes. Partly because of this, the only social factor that has been shown to be positively influenced by acceleration was students' postcollege planning. Other outcomes, such as enjoyment of school subjects, participation in activities, and personal adjustment, had inconsistent outcomes across multiple studies.

Overall, research examining the social and emotional outcomes of acceleration has had mixed results. Much of this may have to do with the different forms of acceleration and how they are implemented (Robinson, 2004). Robinson (2004) suggested that most of the negative effects reported in the literature are due to instances where younger students are placed in classes almost exclusively with older, nonaccelerated students.

Robinson's suggestion that some students have difficulty being in full-time placements with much older students may indicate that partial-grade or subject-level acceleration is a better step for those who are not ready for full-grade acceleration. In such situations, students receive advanced curriculum as well as age-peer interaction. In addition, such models of acceleration have shown greater positive social and self-concept effects for students who were subject accelerated than for students who were full-grade accelerated (Rogers, 2002). Olszewski-Kubilius (1995) suggested that even those students for whom radical acceleration (i.e., 3 or more years) seems to be an ideal solution should consider part-time programs such as concurrent enrollment courses before committing to any full-time college work. This not only gives the student an initial exposure to college curriculum, but it can help determine whether or not a full-time college experience might be an ideal next step for the student.

Advanced Placement, International Baccalaureate, and concurrent enrollment coursework are available in high schools across the nation, but not all students are able to participate in these opportunities. The percentage of U.S. public high schools offering Advanced Placement, International Baccalaureate, and concurrent enrollment coursework is 67%, 2%, and 71% respectively.

Advanced Placement. Advanced Placement courses were not a focus of this study, but are referred to here because they are the most common programming option for gifted secondary students across the country (National Association for Gifted Children [NAGC], 2007). Many high schools offer AP as their only means of high-ability programming (Hertberg-Davis & Callahan, 2008). AP courses provide the opportunity for high school students to take freshman-level college courses while still in high school. Courses are taught at the high school by high school teachers who have attended professional development workshops. An examination is administered at the conclusion of the course and students may earn college credit based on their performance. Credit awarded is determined by the college or university and varies with each institution.

AP courses and the International Baccalaureate program are similar in that they both focus on a greater depth and breadth of curriculum. At the same time, neither have specific considerations for affective concerns, such as a counseling component, in order to help students cope with the increased rigor of the advanced classroom material. Such components were suggested by Peterson (2003) in the form of lunch-time discussion groups, career development panels, or speakers specifically tailored to the needs of gifted and talented adolescents. An additional drawback to AP courses and the IB program is that neither was designed specifically for gifted students and neither allows much student-based differentiation or deviation from a prescribed curriculum (Callahan, 2003). This may be one of the reasons that little affective attention is included in AP curriculum or IB programs.

International Baccalaureate. The International Baccalaureate organization offers several different student programs, ranging from elementary to high school. The IB Diploma program is another means of exposing students to high-level curriculum in high school. Currently, the three different IB programs exist in 126 countries and serve approximately 600,000 students ages 3–19 (International Baccalaureate, n.d.). The IB Diploma program is designed for students ages 16–19 and is meant to expose them to college-level curriculum in the last 2 years of high school. Culminating in a final examination, the IB Diploma program allows students to potentially earn college-equivalent credits without having to take the courses from a college or university. These are potential credits because each college or university controls how such credits are accepted. According to the IB Web site at the time of this study, there were 15 such programs in Indiana (International Baccalaureate, n.d.). Of those, 3 were at privately funded high schools, and the remaining 12 were in public schools. Seven of these public schools were located in the greater Indianapolis area, four were clustered in the northern part of the state, and the remaining school was located in the far southern part of the state.

Perhaps the greatest focus of the IB program is its attention to the student as an individual, allowing for increased depth and breadth of study (Poelzer & Feldhusen, 1996). Poelzer and Feldhusen (1996) studied whether students in the higher level IB courses scored significantly better than students in subsidiary-level or regular curriculum courses. The authors used a 4 x 2 x 2 design with gender and type or IB level of curriculum as the independent variables and the achievement test score as the dependent variable. In all three content areas studied (biology, physics, and chemistry), IB students scored higher than non-IB students. Across the three subject areas, student gains in achievement were fairly similar regardless of the level of IB course. There was no interaction between IB course level and gender for any of the three subject areas. There were significant differences in achievement gains in physics and chemistry between the two genders; these gains favored males in each case of significant difference. Although the overall results might be expected, they indicate that even when initial level is taken into account, IB students make greater achievement gains, regardless of IB course level, than do non-IB students.

Much of the research on IB programs involves observations and interviews concerned with past students' perceptions of their experiences. Taylor and Porath (2006) sought to determine IB graduates' perceptions of the program workload, stress levels, and overall value of the experience. Participants of this small study (N = 16) reported feeling intellectually stimulated by the IB curriculum and believed they were better prepared for college despite their perception that they were more stressed than their non-IB peers. Vanderbrook (2006) found similar results in her case studies of 5 gifted students in AP courses and IB programs. Although only 2 of the 5 students were in IB programs (the other 3 took AP courses at a different school), the author found similar results across both programs. Despite both programs being seen by students as challenging, student comments suggested that affective support was lacking. These studies suggest that additional time or resources spent on issues of counseling, stress management, career exploration, and time management

would help improve services in IB Diploma program and AP courses, especially when these courses are used as programming options for gifted and talented students.

In a more recent study, Hertberg-Davis and Callahan (2008) interviewed and/or observed 300 AP or IB students, 25 administrators, 200 teachers, and 8 program coordinators to determine student perceptions and the appropriateness of both AP and IB for gifted and talented students. The authors found the majority of students in AP and IB courses were pleased with the challenge and happy to be with good teachers and other students who were interested in learning similar topics. Students also noted the long-term value of taking such courses. The authors interviewed students (n = 28) who had dropped out of their respective programs. Reasons cited for dropping out included displeasure with the standardized curriculum that had little room for flexibility and a concern over a lack of time to catch up for those who entered the courses with less background knowledge than other students. The authors recommended that although AP and IB courses provide challenging curriculum to a number of secondary students, such courses do not meet the needs of all students and that additional teacher training in differentiation and an increased emphasis on the benefits of learning over a test score or credit are necessary next steps.

Concurrent Enrollment. Many students now take advantage of dual or concurrent enrollment. The terms concurrent enrollment, dual enrollment, dual credit, postsecondary enrollment, and coenrollment all have been identified as essentially the same type of program in which high school students concurrently take a class for high school and college credit (Andrews, 2004). The terms dual enrollment (DE) and dual credit (DC) will be used here to distinguish between two different types of concurrent enrollment programs. *Dual enrollment* refers to courses taught at a postsecondary institution such as a community college or university. The student takes the course at the institution of higher learning, and the course is taught by an employee of the college or university. *Dual credit* refers to courses taught in the high school using the cur-

riculum and resources of a postsecondary institution. The courses are taught by high school teachers, but are university-level courses and hold all of the expectations of performance at the college level. Students who complete both DE and DC courses earn credit at both the high school and college level.

The National Research Center for Career and Technical Education (NRCCTE) has been a leader in concurrent enrollment research. In 2007, Karp, Calcagno, Hughes, Jeong, and Bailey reported on the concurrent enrollment outcomes in Florida and New York. The longitudinal research design allowed the researchers to control for the fact that concurrent enrollment students are generally more successful in traditional academic areas than students who do not participate in concurrent enrollment programs. Controlling for initial ability level in this fashion is important when analyzing growth. Many other characteristics of high-achieving students may exist that are difficult to measure, or are left unmeasured, such as different types of motivation or drive to succeed. It could be argued that students who participate in concurrent enrollment programs are also more motivated in general. With regard to academic indicators of success, concurrent enrollment participants performed better than students not enrolled in such courses. Concurrent enrollment students were 4.3% more likely to receive a high school diploma, 7.7% more likely to enroll in a college, and had significantly higher postsecondary grade point averages (.21 higher on average) than their nonenrolled peers, after controlling for initial ability level. These differences in GPA remained after 3 years of college, and concurrent enrollment students earned more credits than peers who were not dually enrolled.

Access

Availability of college-level courses for high school students and access to those opportunities varies widely. AP, IB, and concurrent enrollment options are available in all 50 states, but not necessarily at every school. State law, school demographics, and

entrance requirements influence whether or not students are able to participate in early college coursework.

State Mandates

AP and IB programs typically are implemented voluntarily by individual school districts throughout the country. AP and IB courses are offered in 50 and 47 states respectively (Krueger, 2006). Four states have mandates requiring public high schools to offer AP courses: Arkansas, Indiana, South Carolina, and West Virginia. No states mandate IB programs. However, several, including Kentucky, Virginia, and Idaho, do require schools to offer advanced opportunities, which may include AP or IB classes (Krueger, 2006).

It is possible to participate in concurrent enrollment courses in all 50 states; however, it is not always easy for qualified students to access these classes. Statewide concurrent enrollment policies exist in 45 states, and 5 states allow local school districts and postsecondary institutions to establish protocols. Of the 45 state policies, 11 are mandatory and require all high schools and eligible public postsecondary institutions to provide concurrent enrollment opportunities (Krueger, 2006). The majority of programs require students to leave the high school campus to attend classes at a local college or university. The mandates in place typically require high school counselors to inform students of the concurrent enrollment options and to award credit to the student for approved college-level courses. Mandates where the school is required to offer dual-credit courses within the high school are rarely seen. A few states such as Kentucky and Virginia require every school to offer advanced-level coursework either in the form of dual credit, AP, or IB. State law in Indiana requires that every high school offer at least two dual-credit courses. These classes are taught by high school faculty and use the same syllabi, class assignments, laboratory equipment, and examinations as a postsecondary institution (Indiana Commission for Higher Education, 2003).

Table 1

National Dual-Credit and AP Availability by School Size

	Small	Medium	Large
AP	63%	75%	82%
Dual-Credit	40%	82%	97%

School Demographics

The IB Diploma program exists in 615 high schools across the United States, which is fewer than 3% of high schools (International Baccalaureate, 2008). Almost 70% of high schools offer AP classes. AP courses are far more prevalent in urban than rural areas, with 87% of urban schools offering courses compared to 50% of rural schools (Waits, Setzer, & Lewis, 2005). Seventy-two percent of schools in towns offer AP courses. Small schools offer few AP courses (see Table 1). Table 1 also illustrates the discrepancies between concurrent enrollment offerings based on school size (Waits et al., 2008).

South Carolina high schools are required to offer AP courses, but if a school states that it cannot support an adequate number of students in the class, it is granted a waiver (Krueger, 2006). Low-income and minority school districts are the least likely to offer concurrent enrollment opportunities for their students (Krueger, 2006; Waits et al., 2005). Schools with low minority populations are more likely to offer dual-credit courses (72–78%) than those with high minority populations (58%).

Entrance Requirements

Smith (2007) examined the relationship between concurrent enrollment participation and career or college aspirations. The caveat with such a study is that many concurrent enrollment programs have specific grade requirements imposed by their high schools or require early completion of all previous high

school coursework. These requirements dictate that only already advanced students are allowed to participate. Harnish and Lynch (2005) found such a situation in their study of concurrent enrollment programs in career and technical areas. Before students were allowed to enroll in concurrent-credit career technical education classes in Georgia, they had to earn a certain score on an academic test of traditional high school material. Participants saw such requirements as barriers to concurrent enrollment participation. The participants also voiced concerns that the admission test screened students who might have skills in career and technical areas but whose ability level was lower in the subjects tested. The authors suggested a more flexible policy for concurrent enrollment programs that might allow for greater participation of underachieving students or those whose skills do not lie in traditional academic areas. Nationally, only 2% of institutions with concurrent enrollment program focus on academically at-risk students (Krueger, 2006).

The emphasis on content-specific admissions procedures also was addressed by the Education Commission of the States report (Krueger, 2006). This report examined state statutes, rules, regulations, and Web sites and presented current state requirements for student participation in dual-enrollment programs across the country. The most common requirements related to (a) written approval or recommendations, (b) other, or (c) grade point average with 22, 16, and 7 states reporting such requirements respectively. The "other" category included parental permission, completion of certain high school courses, or scores on state assessments. The authors of the report noted that although grades and test scores were some of the most common requirements, proficiency-based admissions procedures may be better suited to dual-enrollment subjects than many of the reported academic measures because of the wide range of dual-enrollment areas that are not adequately measured by grades or test scores.

Having a content-specific admission policy is aligned with the Indiana state definition of high ability (Indiana Code for High Ability Students, 2007) and the federal definition (United

States Department of Education, 1993) in that both focus on a wide range of talent domains. The current Indiana definition focuses on students who perform, or who have the potential to perform, at high levels in one of several different domains, including general intelligence, but also technical and practical arts as well as visual and performing arts. If programs are designed to address these many domains, then a wide range of admissions options would best facilitate participation by a diverse group of students.

Whether AP, IB, dual enrollment, or dual credit, such courses provide for a smoother continuum of learning for the advanced high school student, shortening the time necessary for an undergraduate degree, and generally expanding academic options (Fincher-Ford, 1997). By creating a continuous transition from secondary to postsecondary education, all students have the ability to explore a wider range of content. In addition, students who have mastered the high school curriculum at an early age are allowed to progress when they are ready. Although prerequisites and logistics vary, concurrent enrollment programs are designed to afford advanced high school students the opportunity to proceed with coursework at the college level as a means of bridging their secondary and postsecondary education.

Davis and Rimm (2004) expressed concerns about the social-emotional ramifications of early entrance to college and early exposure to college-level material. One study found a higher-than-average prevalence of depression and dropout among a group of female high school students who entered a college residential program early (Cornell, Callahan, & Lloyd, 1991). However, it is important to note that much of the research on the social-emotional effects of early college entrance deals with full-time residential entrance. Little research exists as to the effects of concurrent enrollment programs (Brody, Muratori, & Stanley, 2004). What seems to be most important in early exposure to a college experience is that preparation be done before the accelerated placement is made to make sure that all involved parties agree that such a placement is the best educational and social-emotional match for the student.

Research Questions

1. How prevalent are dual-credit and International Baccalaureate offerings in Indiana high schools?
2. How well do the offerings in Indiana match what is suggested in the research for secondary student high-ability programming?
3. What, if any, barriers exist that prevent students from taking full advantage of dual-credit and International Baccalaureate programs?

Method

Participants

In order to address the three research questions, every public school corporation in the state of Indiana was contacted through its respective high-ability coordinator. School districts in Indiana are termed "school corporations," but function in the same fashion. Because every corporation is required to have a high-ability coordinator, this was the first point of contact. In many cases, this person was also a school counselor, high school principal, or in some cases, the corporation superintendent. This list was available from the Indiana Department of Education and contained the 299 high-ability coordinators and their contact information.

Procedures

To collect the appropriate information from the school corporations, a survey was designed with fixed-response and open-ended questions. Survey items were designed to gather information on the prevalence of practices with regard to dual-credit and IB offerings as well as to understand better how those offerings fit into each corporation's secondary high-ability programming. Several items were created and were subsequently

revised based on the existing literature. The final version of the survey contained 13 questions (see Appendix), 4 of which were open-ended and were used to gather narrative detail beyond the fixed-response questions. Because the survey was available online and in paper, the formats differed slightly. In the online version, if the respondent answered "no" to a question (e.g., Does your school district offer any International Baccalaureate programs?), then a list of possible IB courses was not presented. Despite these minor differences, both versions of the survey requested the same information.

Before the survey was distributed to participants, several university faculty and graduate students reviewed it for clarity and readability. As a result of the reviews, terminology was standardized and question order was changed to present more universally relevant and shorter questions at the beginning, with the longer and open-ended questions at the end. A cover letter or e-mail was included with the survey to explain the study's purpose.

In order to facilitate data collection, school corporations were identified using their Indiana school corporation ID number. Dual-credit offerings were also assigned numbers by the state in order to standardize course reporting. These numbers and standardized course names were obtained from the Indiana Department of Education and used in all related survey questions. Two stand-alone, open-ended questions were added to the end of the survey to address the third research question. The purpose of these two questions was to elicit greater detail concerning how dual-credit and IB programs were or were not connected with a school's high-ability program and with postsecondary institutions.

Once the survey was completed, it was submitted to the Institutional Review Board (IRB) to check on human subjects exemption. The IRB determined that review and approval were not required. The survey link was then sent by e-mail to every high-ability coordinator in the state. The e-mail contained the link as well as information regarding how the coordinator could obtain a paper copy of the survey. Within the first 3 weeks, approximately 130 of the 299 coordinators completed the online

Table 2

Indiana School Corporations by Demographic Type

Demographic type	Respondents	Nonrespondents	Total
Metropolitan	53% (20)	45% (17)	100% (37)
Suburban	89% (57)	11% (7)	100% (64)
Town	91% (29)	9% (3)	100% (32)
Rural	95% (154)	5% (8)	100% (162)
Unknown	0% (0)	100% (4)	100% (4)
Total	260	39	100% (299)

version of the survey. Some e-mail delivery failed, and these corporations were earmarked for later paper contact. After the first 3 weeks, a reminder e-mail was sent to the approximately 170 coordinators who had yet to complete the survey. These coordinators were given 2 additional weeks before being sent a hard-copy version of the survey. In the end, 222 coordinators completed the online survey in response to the e-mail or hard-copy contact letters.

The first hard-copy mailing yielded 24 paper responses out of the 77 remaining corporations whose information was still missing. At this point it was evident that the corporation high-ability contact for the nonresponding corporations was either unavailable or not interested in participating in the survey. Secondary contacts were found from each school corporation's Web site. In most cases this was a high school counselor. In a few cases the secondary contact was the high school principal or some other administrator. The same e-mail that was sent to the first contact was then sent to these secondary corporation personnel. Two weeks later, as a final contact, hard-copy surveys were mailed to any corporations whose results we had not yet obtained. This final hard-copy mailing yielded an additional 14 responses. In the end, information was collected from 260 of the 299 Indiana public school corporations, yielding an 87% response rate.

Table 2 presents the distribution of Indiana school corporations by demographic type (Indiana Department of Education, 2006). This classification is maintained by the state and desig-

nates school corporations as metropolitan, suburban, town, or rural. Since 2006, four additional school corporations have been created whose demographic information was not available. Table 2 also presents the proportions of survey respondents and non-respondents for each demographic category. Rural, town, and suburban demographic corporations responded in rates of 90% or better. Metropolitan school corporations were the exception, with only 53% of total corporations completing the survey.

Data Analysis

The online results were combined with the paper responses to create a single database. The database was reviewed for any discrepancies, including duplicate responses and general format. In every case involving a duplicate response, one entry was complete while the others appeared to have been started and then discontinued. All fixed-response questions were tabulated (i.e., *yes*, *no*, *no response*).

The database was formatted, and all results were mail-merged into individual corporation documents. This process yielded individual corporation reports that included both fixed and open-ended responses. This helped to facilitate the tabulation of the two open-ended questions. Similar question responses were tabulated together in order to gather more information about corporation practices. After an initial reading of the responses to open-ended Questions 1 and 8, a second read through was conducted in order to collapse any codes that were repetitive or overlapped at all. For example, original codes might have existed for honors classes and advanced classes separately. During the second read through, it was decided that these two codes should be combined as a single code and as such were collapsed into one. Both authors reviewed the open-ended responses and agreed on the categories represented by the corporation responses. Questions 12 and 13 were evaluated in this subjective fashion, as opposed to the frequency counts that were used in the other open-ended questions, because the data were not directly related

to the two primary research questions, but were gathered for clarification purposes.

Results

Table 3 presents the results from the fixed-response questions. Scored as *yes*, *no*, or *no response*, each question had relatively few corporations choosing not to respond.

The results indicated that 75% of corporations had a high-ability coordinator. In addition, 39% reported having a specific high school high-ability coordinator. Question 8 was contingent upon a corporation having a dual-credit program. In the online version of the survey, respondents were not presented with this question unless they indicated having such services. As such, the information yielded from this question only applied to those districts that indicated they had a dual-enrollment program. No respondents completed Question 8 on the paper version of the survey while simultaneously indicating they had no dual-enrollment program in Question 6.

Tables 4 and 5 present the categorized responses from Questions 1 and 8, respectively. These open-ended responses provided greater detail and explanation to the fixed-response questions they followed in the full survey.

Table 4 presents the most commonly reported programs offered for high-ability high school students. Advanced Placement courses, advanced classes, and dual-credit classes were the three most common types of programming with 70%, 49%, and 38% reporting such practices respectively. Enrichment activities were the only other type of programming that was reported by more than 10% of responding corporations. All other responses were relatively rare and included independent study (5%), International Baccalaureate (3%), classroom differentiation (3%), and self-contained gifted courses (5%). Some corporations reported several different types of programming, while others reported none. For this reason the number of responses do not total to any meaningful number.

Table 3

Indiana Corporation Responses

Question	Yes	No	No Response
1. Does your school have high-ability services?	92% (240)	7% (18)	1% (2)
2. Does your high school have a high-ability coordinator?	39% (101)	59% (155)	2% (4)
3. Is there a district high-ability coordinator?	75% (194)	23% (61)	2% (5)
4. Does your high school give credit for high school level courses taken during middle school?	78% (203)	18% (47)	4% (10)
5. Does your school give credit for Talent Search courses or other gifted student program courses taken off campus?	34% (88)	63% (163)	3% (9)
6. Does your school offer dual-credit/dual-enrollment courses?	87% (225)	10% (27)	3% (8)
7. Does your school have any plans to begin offering new dual-credit/dual-enrollment courses?	55% (144)	39% (101)	6% (15)
8. Do students have to meet any special criteria or prerequisites in order to enroll in dual-credit courses?	70% (182)	22% (58)	8% (20)
9. Does your school offer any International Baccalaureate programs?	4% (11)	89% (231)	7% (18)
10. Do you have any plans to begin an International Baccalaureate program or add to existing course offerings at your school?	8% (21)	83% (216)	9% (23)

***Note*. Percentages are of corporations responding (260).**

Table 5 presents the prerequisites required for participation in dual-credit courses. Grades (28%), standardized test scores (14%), and completed coursework (23%) were the most commonly reported requirements. Even though specific grades or test score cutoffs were not reported, it is likely that a school corporation with grades as a prerequisite would require high grades.

Table 4

Types of Programs Offered for High-Ability High School Students

Category	Responses
1. Advanced Placement	70% (182)
2. Honors, accelerated, or advanced classes	49% (128)
3. Dual-credit courses	38% (100)
4. Early graduation	3% (8)
5. Clubs, competitions, or other enrichment	11% (28)
6. International Baccalaureate	3% (8)
7. Independent study or mentorship	5% (12)
8. Classroom differentiation	3% (9)
9. Self-contained gifted courses	5% (13)

***Note*. Percentages are of corporations responding (260).**

Table 5

Types of Prerequisites for Dual-Credit Course Enrollment

Category	Responses
1. Grades	28% (72)
2. Standardized tests	14% (37)
3. Completed coursework	23% (59)
4. Class standing	3% (8)
5. Recommendations	11% (29)
6. Placement tests	4% (10)
7. College institution requirements	7% (18)
8. Multiple/various criteria	4% (10)

***Note*. Percentages are of corporations responding (260).**

Although no requirement was reported by more than 28% of the 260 total respondents, not every corporation responding chose to describe its prerequisites.

The corporation responses for Question 10 were checked with the information available from the International Baccalaureate

organization. According to the Web site (International Baccalaureate, n.d.), 15 schools in Indiana offered the IB Diploma program. Four of these were private schools or public charter schools that were not part of a public school corporation and, hence, not part of the study. At the same time, three schools that were known to offer the program (based on information from the IB Web site) did not respond to the request for participation. Upon further examination of the IB Web site data, it became clear that the corporations who reported offering an IB program but were not listed on the IB Web site as such were all planning to begin the program the following school year. In total, 21 corporations planned to either begin an IB program or add one to their current offerings.

Discussion

The findings indicate that all but 20 of the responding corporations had a high-ability program for high school students. At the same time, as of July 2007, all schools were mandated by the state to identify and serve students in grades K–12 (Indiana Code for High Ability Students, 2007). It is unclear why with a legislative mandate in place, 18 schools explicitly stated they had no high-ability program. It is clear from Table 4 that the most common service model for schools that do have a secondary high-ability program is Advanced Placement. This is consistent with the State of the States Report (National Association for Gifted Children, 2007). Table 4 shows that 70% of the responding corporations offered Advanced Placement courses as their secondary high-ability offering. Although this finding itself is neither positive nor negative, some authors have suggested that AP is not sufficient as an entire secondary high-ability program (e.g., Dixon, 2006; Kyburg, Hertberg-Davis, & Callahan, 2007).

As stated earlier, each corporation in Indiana is required to have a person in the position of high-ability coordinator. However, only 75% of responding corporations reported having a person in this position. Because the majority of the responses

were completed by individuals listed as high-ability coordinators by the Indiana Department of Education, this result is puzzling. It is possible that the position is still being defined and has yet to be fully implemented, as the deadline for the creation of the corporation high-ability position was 8 months beyond the time of data collection. It is also possible that a name was given to the state as a placeholder without any person actually coordinating services for high-ability students. At the other end of the spectrum, 101 corporations not only had a high-ability coordinator, but also had their own coordinator for the individual high school. Because a building coordinator was not part of the state mandate, one third of Indiana corporations either already had this position or implemented it without the mandate specifically requiring such a position. Ideally, more schools will create such a position and appoint a person to oversee high-ability programming. This person should be specifically trained in the academic and affective concerns of high-ability students.

The responses regarding the prevalence of dual-credit offerings are also encouraging. Such programs represent an option for high-ability high school students that involves little additional staffing or labor by the high school. Because many colleges and universities already have dual-credit programs established with school corporations, it is likely that logistical systems already exist. Some state community colleges have begun offering a limited number of free dual-credit courses for qualified high school students (Ivy Tech Community College, 2007). Such an offering represents an ideal partnership between secondary and postsecondary education, as it creates a seamless transition to postsecondary institutions without the barrier of additional cost for the student. This ideal offering is especially beneficial for low-income high school students who cannot afford the cost of postsecondary courses. The finding that 144 corporations indicated intention to begin a dual-credit program or to add to their current dual-credit offerings suggests that secondary educators and students recognize the inherent value and potential in such partnerships. Educators and parents of middle and high school students should investigate what dual-credit programs

exist with their local colleges and universities both within and outside of Indiana.

Although many districts plan to add to their current offerings or start new dual-enrollment programs, some data indicate that many school corporations do not immediately think of dual-credit courses as programs meant for high-ability students. Although Table 3 shows that 87% of schools currently have some dual-credit offerings, Table 4 shows that only 38% of corporations listed dual-credit as part of their high-ability program. This finding is similar to those of Gentry, Hu, Peters, and Rizza (2008) who found that career and technical education (CTE) courses are generally viewed as outside the realm of high-ability students. Greenan, Wu, and Broering (1995) found that gifted and talented students were often counseled away from CTE areas because such content was not considered for gifted and talented students. Ideally, overcoming this perception will help students with interests and abilities in CTE or other nontraditional areas become more widely recognized with regard to gifted and talented programs.

One of the greatest issues to overcome with regard to dual-credit offerings involves the prerequisites. Nearly every requirement reported for enrollment eligibility (see Table 5) involved students already being able to perform at high levels before being allowed to attempt high-level courses. Although it seems intuitive that students complete lower level courses before attempting advanced courses, those who are intellectually precocious and far ahead of their age peers may not benefit from such lower level courses. At the same time, underachievers are unlikely to have the high grades some corporations require for dual credit. This finding is similar to that of Harnish and Lynch (2005), who found that students who were highly able in career and technical areas were required to perform well on traditional academic measures of achievement before being allowed to participate in dual-credit courses.

The information yielded from this study does not tell us if students who might benefit from dual-credit programs are being left behind. However, the information does suggest that

participation in most corporations is contingent upon high levels of performance in lower level classes and on standardized tests. Just as with any other program for gifted and talented students, there should be a range of requirements, and no large-scale decision should be based on a single criteria or dimension (Borland, 2008). An ideal assessment might involve differing measures or requirements for various programs based on the subject area. A student interested in dual-credit math or science classes would not be denied because of a low English grade or test score, for example.

Although the overall results indicated a number of districts planned to add to the number of IB programs offered in Indiana, it is clear that IB is not likely to become accessible to every student in the near future. The cost, program guidelines, and training requirements might keep all but a small percentage of corporations from affording their students the benefits of IB programs. Although the research has shown definite benefits, the IB program suffers from some of the same drawbacks as that of AP courses. Although IB offers a wider range of course offerings, there is still a lack of any specified social-emotional or affective considerations (Vanderbrook, 2006). School personnel who wish to implement either program for high-ability students should consider including teacher training on gifted and talented education in the content areas or in AP courses or IB programs.

Application to Other States

Although this study focused on a single state's practices, several of the results are applicable to other states. Access to advanced coursework is limited for many high-ability students. Having a state mandate that requires dual-credit courses be taught within the high school setting provides all students with opportunities to earn college credit while in high school. Students from poverty, small schools, and schools with high minority populations need to be provided the same head start on college as students from larger, less diverse, and more affluent high schools. Articulation

between public schools and postsecondary institutions should be focused on reducing financial and logistical barriers for all students by providing courses at the students' home schools.

Krueger (2006) suggested three major changes to current national concurrent enrollment practices that are supported by our current findings and could help bring the benefits of such programs to more students. These suggestions include expanding eligibility requirements, considering the creation of additional concurrent enrollment sequences to offer a large number of classes, and expanding outreach to ensure concurrent enrollment reaches traditionally underserved populations. With such modifications, concurrent enrollment programs can fit into a more comprehensive system of P–12 education.

State practices should focus not only on partnerships with colleges and universities to allow high school students to enroll in courses at the postsecondary institution, but also on provisions for providing free-college level courses to be taught within the high schools in the state. Following Krueger's (2006) recommendations will provide a wider range of secondary students the opportunity to participate in rigorous academic coursework regardless of socioeconomic status, school size and location, or ethnicity.

Limitations

One limitation of this study is that results were not obtained from 39 of the total 299 corporations. Although there is no way to know why 39 corporations chose not to respond, it is possible that these corporations had fewer dual-credit and International Baccalaureate programs. If this explanation is accurate, the results presented would be slightly skewed, making it appear that a larger percentage of high-ability programs and services are offered in Indiana than is in fact the case. This is especially true for metropolitan school corporations, as they had the lowest response rates. Additionally, this study focused only on public school corporations and does not describe the offerings available in the many private schools in the state.

Future Research

The potential for future research in the area of secondary gifted education is extensive. Research is warranted with regard to the different concurrent enrollment options and types of acceleration, specifically for high-ability students. Of concern is the quality of the concurrent enrollment options and their ability to appropriately challenge gifted students. As concurrent enrollment becomes more popular, evidence of the effectiveness of concurrent enrollment courses will become increasingly important.

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Appendix
Indiana High School Dual Enrollment & International Baccalaureate Survey

[Link to Online Survey]

School Name _____City / Town_____

Please complete the survey below. Questions in bold require a written response. Feel free to attach additional materials or write on the back of the survey if you require additional space.

1. Does your high school / district offer any services specifically for gifted, talented, or high-ability students? **If so, please describe or attach additional materials as to identification procedures and programming.**	Yes / No
2. Does your high school have a building high-ability coordinator? **If so, please include his or her contact information.**	Yes / No
3. Does your high school have a high-ability coordinator at the district level? **If so, please include his or her contact information.**	Yes / No
4. Does your high school give credit for high school level courses taken during middle school?	Yes / No
5. Does your school give credit for Talent Search courses or other gifted student program courses taken off campus?	Yes / No
6. Does your school offer dual-credit / dual enrollment courses? If so, please see 6b.	Yes / No
6b.Please check all of the dual-enrollment courses that are offered at your school. ❑ **1124** Advanced English/Language Arts, College Credit ❑ **1574** Advanced Social Sciences, College Credit ❑ **2544** Advanced Mathematics, College Credit ❑ **2152** World Language, College Credit ❑ **3090** Advanced Science, College Credit (L) ❑ **4260** Advanced Fine Arts, College Credit ❑ **4564** Advanced Business, College Credit ❑ **5238** Advanced Career-Technical Education, College Credit ❑ Other (please list)_____	
7. Does your school have any plans to begin offering new dual-credit / dual-enrollment courses? If so, please see 7b.	Yes / No

7b. Please check all of the dual-enrollment courses you are planning to add to your program.

❑ **1124** Advanced English/Language Arts, College Credit
❑ **1574** Advanced Social Sciences, College Credit
❑ **2544** Advanced Mathematics, College Credit
❑ **2152** World Language, College Credit
❑ **3090** Advanced Science, College Credit (L)
❑ **4260** Advanced Fine Arts, College Credit
❑ **4564** Advanced Business, College Credit
❑ **5238** Advanced Career-Technical Education, College Credit
❑ Other (please list)_____

8. Do students have to meet any special criteria or pre-requisites in order to enroll in dual-credit courses? **If so, please describe criteria or attach additional information.**	Yes / No
9. Are you familiar with the International Baccalaureate (IB) Program?	Yes / No
10. Does your school offer any International Baccalaureate Programs? If so, please see 10b.	Yes / No

10b. Please check all of the IB courses offered at your school.

❑ Language A1 Higher Level
❑ Language A1 Standard Level
❑ World Language B Higher Level
❑ World Language B Standard Level
❑ World Language ab initio Standard Level
❑ World Literature A2 Higher Level
❑ World Literature A2 Standard Level
❑ Classical Language Higher Level
❑ Classical Language Standard Level
❑ History Higher Level
❑ History Standard Level
❑ Islamic History Higher Level
❑ Islamic History Standard Level
❑ Geography Higher Level
❑ Geography Standard Level
❑ Economics Higher Level
❑ Economics Standard Level
❑ Philosophy Higher Level
❑ Philosophy Standard Level
❑ Psychology Higher Level
❑ Psychology Standard Level
❑ Social & Cultural Anthropology Higher Level
❑ Social & Cultural Anthropology Standard Level
❑ Business and Management Higher Level
❑ Business and Management Standard Level
❑ Information Technology in a Global Society Higher Level
❑ Information Technology in a Global Society Standard Level
❑ Biology Higher Level
❑ Biology Standard Level
❑ Chemistry Higher Level
❑ Chemistry Standard Level
❑ Physics Higher Level
❑ Physics Standard Level
❑ Environmental Systems Standard Level
❑ Design Technology Higher Level
❑ Design Technology Standard Level
❑ Mathematics Higher Level
❑ Mathematics Standard Level
❑ Mathematical Studies Standard Level
❑ Further Mathematical Studies Standard Level
❑ Computer Science Higher Level
❑ Computer Science Standard Level
❑ Visual Arts Higher Level
❑ Visual Arts Standard Level
❑ Music Higher Level
❑ Music Standard Level
❑ Theatre Arts Higher Level
❑ Theatre Arts Standard Level
❑ Film Higher Level
❑ Film Standard Level
❑ Dance Higher Level
❑ Dance Standard Level
❑ Theory of Knowledge
❑ Other_____

11. Do you have any plans to begin an International Baccalaureate Program or add to existing course offerings at your school? If so, please see question 11b.	Yes / No

11b. Please check all of the IB courses you are planning on adding.

- ❑ Language A1 Higher Level
- ❑ Language A1 Standard Level
- ❑ World Language B Higher Level
- ❑ World Language B Standard Level
- ❑ World Language ab initio Standard Level
- ❑ World Literature A2 Higher Level
- ❑ World Literature A2 Standard Level
- ❑ Classical Language Higher Level
- ❑ Classical Language Standard Level
- ❑ History Higher Level
- ❑ History Standard Level
- ❑ Islamic History Higher Level
- ❑ Islamic History Standard Level
- ❑ Geography Higher Level
- ❑ Geography Standard Level
- ❑ Economics Higher Level
- ❑ Economics Standard Level
- ❑ Philosophy Higher Level
- ❑ Philosophy Standard Level
- ❑ Psychology Higher Level
- ❑ Psychology Standard Level
- ❑ Social & Cultural Anthropology Higher Level
- ❑ Social & Cultural Anthropology Standard Level
- ❑ Business and Management Higher Level
- ❑ Business and Management Standard Level
- ❑ Information Technology in a Global Society Higher Level
- ❑ Information Technology in a Global Society Standard Level
- ❑ Biology Higher Level
- ❑ Biology Standard Level
- ❑ Chemistry Higher Level
- ❑ Chemistry Standard Level
- ❑ Physics Higher Level
- ❑ Physics Standard Level
- ❑ Environmental Systems Standard Level
- ❑ Design Technology Higher Level
- ❑ Design Technology Standard Level
- ❑ Mathematics Higher Level
- ❑ Mathematics Standard Level
- ❑ Mathematical Studies Standard Level
- ❑ Further Mathematical Studies Standard Level
- ❑ Computer Science Higher Level
- ❑ Computer Science Standard Level
- ❑ Visual Arts Higher Level
- ❑ Visual Arts Standard Level
- ❑ Music Higher Level
- ❑ Music Standard Level
- ❑ Theatre Arts Higher Level
- ❑ Theatre Arts Standard Level
- ❑ Film Higher Level
- ❑ Film Standard Level
- ❑ Dance Higher Level
- ❑ Dance Standard Level
- ❑ Theory of Knowledge
- ❑ Other_____

12. If your district / school currently has dual-credit / dual-enrollment courses, how are they reported in the student's records?

13. If your district / school currently has dual-credit or International Baccalaureate programs, how are they paired with your school or district's high-ability program?

Once you have completed the survey, please place it in the envelope provided and drop it in the mail. Once all of the survey results have been compiled, the data will be made publicly available to all participating schools and their students via an online database. Thank you for taking the time to contribute to this project.