

Dual Credit and Advanced Placement Students in Developmental Education: What Happened?

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ABSTRACT

Despite their better-than-average preparation, former dual credit and advanced placement students have placed into developmental education upon entering higher education. In this phenomenological study, six students were randomly selected to be interviewed from a group of 562 who placed into developmental education at one Texas university during a 6-year time frame, Fall 2009 through Summer 2015. Six themes, Utility of Developmental Class, Test Taking, Self-Awareness, Obstacles, Emotions, and Academics, and 20 sub-themes emerged from the interview data. The thoughts expressed by the students in this study suggest that developmental placement was a disorienting experience for many of them. Perhaps this was due to their newly acknowledged underpreparedness that necessitated they develop habits and skills more conducive to the college environment. Regardless of the source, in the end the students acknowledged various forms of personal growth as a result of the developmental course experience.

Keywords: developmental education, dual credit, advanced placement, developmental student perception

In anticipation of college, many students choose to enroll in a more challenging academic curriculum in high school. Two very popular college preparatory programs are dual credit (DC) and advanced placement (AP) programs. DC classes offer students concurrent credit for a high school and a college course. In the current literature, DC participation has been positively associated with transition to a 4-year college, persistence, and college completion and has been beneficial to students of all demographic groups (An, 2013; Robinson, 2011; Struhl & Vargas, 2012).

AP programs are designed for students who are perceived to be beyond the kindergarten through twelfth grade (K-12) curriculum or who have placed above the K-12 curriculum (Armstrong, 2013). In general, "AP courses offer admissions officers a consistent measure of course rigor across high schools, districts, states and countries—because all AP teachers . . . have to provide a curriculum that meets college standards" (College Board, 2014, para. 2). High school AP students can earn college credits as well, by passing the corresponding AP examination at the end of an AP course. In essence, students who have taken AP classes have benefited from increased course rigor and more experienced teachers, and they were better prepared for college (Foust et al., 2009; Santoli, 2002).

Overall, both AP and DC programs, due to increasing popularity, have been expanding in high schools (Steinberg, 2009). Approximate 1.17 million students in U. S. high schools took AP examinations in 2017, which was almost a 70% increase from 10 years prior (College Board, 2018). Furthermore, in a nationally representative study, 34% of high school students from a 2009 freshman cohort ($n = 23,000$) took at least one high school course for postsecondary credit with DC or concurrent enrollment (Shivji & Wilson, 2019). AP courses are offered in over 30 subjects, including English, mathematics, history, government, economics, biology, chemistry, and psychology. Recently, programs have been created in Texas and other states, such as the Advanced Placement Incentive Program (APIP), to entice high school students to attempt AP classes using monetary awards (Holstead et al., 2010; Jackson, 2010). These financial incentives may attract students to take AP classes in subjects in which they are not academically prepared, as students' prerequisite skills are typically not tested before they are allowed

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to enroll. Researchers have shown that peer groups in high school play an important role in shaping the academic attitudes and behaviors of their members (Wang et al., 2018). Therefore, some students may attempt AP courses in subjects in which they have not excelled due to peer influence. Additionally, the standards to enter DC programs have been relaxed in some states, as with the placement protocol of the Texas Success Initiative. As a result, upon entering college, some former DC and AP students discover that they are not, in actuality, academically prepared for the rigor of college-level coursework. After taking required college placement examinations, such as the ACT, SAT, or Accuplacer, a percentage of former DC and AP students place into developmental, or remedial, classes.

Typically, developmental courses are offered in the basics: mathematics, reading, and writing. Historically, the developmental sequence for each of these subjects, depending on a student's placement and the institution, has been lengthy. For example, Bailey et al. (2010) reported that out of 57 Achieving the Dream colleges, at least 61% of them offered three or more levels of developmental mathematics classes prior to college-level ones, and at least 35% of them offered three or more levels of developmental reading. Moreover, when students complete a developmental course, they generally receive institutional credit, but these courses often do not transfer or apply to their degree plan.

A current concern raised by taxpayers regarding developmental education is that they effectively pay two times for the same instruction, once in high school and then again in college (Ventura County Grand Jury, 2013). Consequently, this may cause some community members to have a negative view of developmental education programs and services. Indeed, these taxpayers might be alarmed to discover that these developmental classes are not only comprised of students who have struggled with the high school curriculum, but also of students who were previously in DC and AP classes. Why should a former DC or AP student need remediation upon entering a college or a university? An explanation of the phenomenon is certainly warranted, but qualitative studies which have explored the placement and the lived experiences of former DC and AP students in developmental education could not be found with a thorough literature search. Therefore, the purpose of this phenomenological study was to explore the perceptions and lived experiences of former DC and AP students who have been enrolled

in a developmental class. The overarching research question explored in this qualitative study was: What are the lived experiences and perceptions of former dual credit and/or advanced placement students placed in a developmental class in a medium-sized public university in Texas? Findings of this study add to the body of literature by providing administrators and educators with a better understanding of the aforementioned phenomenon and a firmer foundation to make informed instructional decisions. Additionally, by gaining a fresh perspective from this study, policy makers may be able to implement reform that will provide better college preparation for future DC and AP students and, subsequently, reduce the need for developmental coursework.

Literature Review

DC and AP programs are designed to help students get an early start on college and to make the transition to college smoother. Also, DC classes are very modestly priced, when compared to college tuition, so parents often encourage their high school teenagers to enroll in them (Leonard, 2013). Ostensibly, a more rigorous curriculum should help students to become college ready. However, this may not necessarily be true.

Perceived Benefits of DC and AP Enrollment

In a phenomenological study of 21 DC students from an urban charter school, Robinson (2011) determined that DC enrollment has multiple benefits, especially for students marginalized and at-risk. Robinson discovered that all of the participants in his study believed that the DC classes had equipped them to be more competitive upon entering college, and many indicated that their writing skills had improved through engagement in the program's classes. Robinson asserted that DC programs can become a sort of recruitment instrument for colleges, facilitating the matriculation of students marginalized and at-risk into college who might not otherwise attend. Similarly, An (2013), in a quantitative study using federal datasets, discovered that first-generation students who participated in DC programs were more likely to complete a degree than those students who did not participate.

Struhl and Vargas (2012) reported on a longitudinal study that followed Texas high school graduates ($N = 32,908$) for 6 years post-graduation. The researchers matched 16,454 former DC students to 16,454 similar students who had not taken DC classes. They found that DC coursework was positively associated

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with subsequent college enrollment, persistence, and completion and that it benefited all demographic groups. Similarly, Hughes et al. (2012), in a 3-year tracking study comparing thousands of DC students with comparable students in the same districts across the state of California, determined that DC students were: “more likely to graduate from college; more likely to transition to a 4-year college (rather than a 2-year college); and less likely to take basic skills classes in college” (p. 5).

Santoli (2002), with a review of the existing literature, determined that high school students in AP programs benefited from more experienced teachers and increased course rigor. Additionally, these students benefited from the AP coursework when they passed the corresponding AP examination and earned college credits. Santoli (2002) also stated that students in AP programs generally pursued more rigorous majors. Similarly, Foust et al. (2009) reported on the non-academic advantages of AP and International Baccalaureate (IB) programs. Like the AP program, the IB program offers students opportunities to earn college credits with advanced course taking, examinations, essays, and projects (Cech, 2007). After interviewing AP and IB students ($n = 84$) from four schools within one state, Foust et al. (2009) determined that students perceived that the classroom environment was better in their AP and IB classes than in their general education classes and that their teachers were more knowledgeable and better-prepared too. The AP and IB students mentioned that they did not have to worry about being ridiculed for overachievement because of the homogeneity within their classes (Foust et al., 2009). Moreover, although students may not have been enrolled in a subject area that was their specific strength area, the advanced academic environment helped shape their academic attitudes and behaviors in these critical pre-college adolescent years (Wang et al., 2018).

Disadvantages and Criticisms of DC and AP Programs

In an education policy brief for the state of Indiana, Holstead et al. (2010) revealed that many states funneled money into AP programs to provide incentives for students to take AP courses. For example, they reported that Texas AP students generally “receive between \$100 to \$500 for each score of 3 or above per eligible AP course” (p. 6), but that this amount varied across districts. Certainly, financial incentives encourage greater student participation in AP programs; however, Holstead et al. (2010) reported that the percentage of students receiving a 3 or a 4 on the AP exam has not increased over time. In many cases, student success rates have remained constant and have even decreased. Holstead et al. (2010) offered that this lack of improvement was possibly due to the monetary incentives, like the ones offered in Texas. These incentives may have motivated students who are unprepared for the rigor of AP courses to enroll in them.

Using 16 years of archival data from the College Board from 1997–2012, Davis et al. (2015) examined the passing percentages of Black students on AP examinations in three states, Texas, Florida, and New York. Results of descriptive statistics showed that more Black students failed than passed each year in all three states. In fact, when Davis et al. (2015) calculated composite passing percentages for each state for the 16 years, the percentages of Black students who passed AP examinations were 26.9 in Texas, 26.5 in Florida, and 35.4 in New York. Even though the number of Black students who took AP examinations had dramatically increased over the 16-year span (e.g., 995% in Texas), Davis et al. (2015) suggested that AP examinations were actually a poor investment for Black students. These researchers based their assertion upon negative cost effectiveness ratios ranging from -0.24 to -0.70 during the 16 years.

In addition to the academic challenges, Foust et al. (2009) reported that interviewed AP and IB students perceived that there were some non-academic disadvantages to program participation. Specifically, these students perceived that some unflattering stereotypes were associated with AP and IB participants. For example, both AP and IB students felt as though they were prejudged by non-participants and used terms like “geek[s],” “exclusive,” and “snobby” when describing these perceptions (Foust et al., 2009, pp. 300–301). AP and IB students also noted that the workload was extremely heavy. In fact, some students stated that they had to restrict their extracurricular participation and forgo social engagements because the AP and IB work was so time-consuming, and some of them even indicated that they regularly sacrificed sleep to complete their assignments.

Considering dual enrollment (DE), Speroni (2011) discovered that DE was found to have positive effects on student success only if students had taken the course from a community college and not from their high school. Speroni suggested that this disparity may well be due to lower quality high school DE courses taught by high school teachers. Also, when discussing the results of a quantitative study of 7,913 full-time students seeking a degree for the first time, Eimers and Mullen (2003) stated that when academic ability was held constant, the academic performance of former DC students was not really much better than students who did not participate in a DC program. However, Eimers and Mullen (2003) also concluded that the students with DC and/or AP credit were more likely to enroll in college a second year.

The extant literature is replete with studies that tout the benefits of DC and AP enrollment in high school (An, 2013; Foust et al., 2009; Hughes et al., 2012; Santoli, 2002). However, some studies have found that DC students are no better prepared for college-level classes than those students who

have not participated in these programs (Eimers & Mullen, 2003; Speroni, 2011). Furthermore, investments in AP programs by Black students have resulted in negative cost effectiveness ratios over a 16-year span (Davis et al., 2015).

These mixed reviews in the literature have highlighted benefits, challenges, and the efficacy (or lack thereof) of DC and AP programs, but they cannot provide the perceptions and lived experiences of students who have completed a rigorous DC or AP course only to be enrolled in a non-credit bearing course for underprepared students when they enter college. The viewpoints of former DC or AP students are critical to give voice to a subset of students who have not yet been heard in the literature. Moreover, by sharing these students' perceptions and experiences, this unique student group demonstrates explicitly the heterogeneous makeup of developmental education students. Thus, this study hopes to broaden the perception of what types of students enroll in developmental courses and to encourage further conversations regarding the challenges faced by developmental students.

Theoretical Framework

Critical theory, or *critical social science*, was used in this study to help the reader to understand the phenomenon of DC and AP students' lived experiences in developmental education from multiple perspectives. One of the tenets of *critical social science*, the terminology preferred by Fay (1987), is self-estrangement theory, which is based upon the idea that human beings have a limited understanding of their existence and their world, but they continually strive to make sense of it, which often leads to unhappiness and frustration (Fay, 1987). However, with the humanistic or secular version of critical social science, these individuals are capable of acquiring theoretical knowledge, which can guide them to make the changes necessary to lead more peaceful and happier lives. Wang and Torrisi-Steele (2015) asserted that belief systems and assumptions often help to maintain the status quo. However, with critical theory, simply recognizing disempowering assumptions and conditions that have caused oppression is not sufficient; action is necessary to create a beneficial transformation. Thus, both Fay (1987) and Wang and Torrisi-Steele (2015) emphasized the need for action or for a disruption of the status quo to effect change.

Fay (1987) used one of Plato's parables to explain the phenomenon of self-estrangement in

critical social science. In his parable, Plato described our typical human existence as humans chained inside of a dark cave. Plato explained that, over time, these individuals living in darkness may try to make some sense of their situation, and they may even find some happiness there. However, once people break free from the cave and see the sun, they would certainly not want to return to their former situation or state.

Extending this parable, students who could be in the dark with respect to their academic and, perhaps, their noncognitive strengths and weaknesses are the subgroup of DC and AP students who were placed into at least one developmental class upon entering college. These students, who may have experienced a form of self-estrangement in high school, perhaps partially due to grade inflation

practices (Gershenson, 2020; Hoyt & Sorensen, 2001), are enlightened when they receive the results of their first college placement examination. Faced with poor results, former DC and AP students may try to make sense of these results and their developmental placement. After all, many of these students have made mostly As and Bs in their college preparatory classes and have graduated in the top 10% of their class. These poor results and subsequent developmental placement must be discombobulating to many of these former DC and AP students because these developments do not mesh with their self-perception. However, after becoming aware of their academic deficiencies and, perhaps, after assimilating these recent developments into their own world view, these former DC and AP students can then take the necessary steps to remedy or attenuate their academic deficiencies and to, perhaps,

hone their noncognitive skills.

Method Research Design

In this qualitative study, a transcendental phenomenological approach (Moustakas, 1994) was used in an attempt to derive meaning from the accounts and perceptions of former DC and AP students who have been placed in a developmental class. According to Moustakas (1994), intentionality is one of the main features of transcendental phenomenological approach. This research was an intentional effort to explore the individual experiences of a group with the same phenomena (Creswell, 2014; Moustakas, 1994). Data were collected through individual interviews which is one of the recommended form of data collection for phenomenological research (Creswell, 2014).

Student:
"They
[instructors]
relied heavily
on online
homework which
was a bit of a
hassle because
the Internet
at the dorms
wasn't the best
sometimes."

Selection of Participants

The participants of this study were six undergraduate and graduate students who had formerly taken DC and/or AP classes in high school and who placed into one or more developmental classes upon entering college due to their poor placement testing results. The names and contact information of all former DC and/or AP students who had placed into developmental education within six years, Fall 2009–Summer 2015, was obtained from the Institutional Research department of a medium-sized university in Texas. Simple random sampling was used to select student records ($n = 5$) from the sampling frame ($N = 562$). After six iterations of randomly selecting five names to contact, five of them consented to participate. A sixth student, who was originally passed over because of a 15-day response time, was also included in this study after contacting one of the researchers by email and consenting to be interviewed. Following the interview of the sixth participant, data saturation was reached, and no additional names were selected.

Data Collection

After each student agreed to participate in this study either by email or by phone, arrangements were made to meet the individual in a mutually-agreed-upon public location. With each meeting, the participants first filled out a short demographic questionnaire that was used to confirm that they had been placed into a developmental course upon entering college and to gather some basic demographic information, such as age and ethnicity. Once each participant completed the short questionnaire and eligibility was established, the individual was then asked to sign an Informed Consent form, approved by the IRB, after the contents of this form were thoroughly explained by the researcher. Each participant was also given a duplicate copy of this Informed Consent document to take home. Once participants consented to participate, they were allowed to review the interview questions before one of the researchers actually verbalized them during the interview. After the questions were reviewed by each participant, a handheld recording device was used to record each participant's responses to five open-ended questions using a semi-structured interview structure. In an attempt to obtain deep, rich data, the participants were asked about their placement testing experience and about what it was like being placed in developmental classes after being in DC and AP classes. They were also asked what it was like being in the developmental classes and how this experience has affected their outlook on obtaining a college education. Finally, they were asked what they would change or do differently, if they could.

One interview, lasting 30–60 minutes, was conducted with each participant over a 4-week time period. In all, six students were interviewed until no new information was offered by subsequent participants (Creswell, 2014). Post interview, the interviewing researcher immediately journaled about each experience

in order to record some of the nuances of the interview and to make notes about each participant's nonverbal behavior, such as anxiety level, posture, composure, and general emotional state. Finally, the researcher used peer debriefing with her co-researcher, also called analytic triangulation (Nguyen, 2008), in order to more accurately interpret what the participants had described and to maintain an unbiased viewpoint.

Within one week of each interview, the interviewing researcher sent each participant a draft version of the transcribed interview for review by email. In the email, each participant was asked about the accuracy of the text and was given the opportunity to clarify the statements made and to also provide additional information. Creswell (2014) described this process as member-checking, a strategy to verify the validity of the information collected. Four of the participants returned an email stating that the text was indeed accurate and that they had no additional comments, and two of them did not reply.

Data Analysis

Interview transcripts were transferred into an Excel spreadsheet for analysis. Then the researchers met to code the interview data collaboratively to create a shared understanding of the interview responses (Weston et al., 2001). Before beginning the process of coding, the participants' responses were read collectively to get a general sense of emergent patterns and assertions and to make preliminary decisions about how to proceed (Saldaña, 2016). Using a content analysis approach (Krippendorff, 2013), statements from the interviews were unitized into thought segments. Through several cycles of coding (Saldaña, 2016), similar thought statements were then sorted into categories. After careful reflection about the meaning and intent of the participants' responses to the interview questions (Saldaña, 2016), six distinct themes and 20 sub-themes emerged.

Findings

The students in this study ranged in age from 19 to 33 ($M = 23.2$, $SD = 5.2$). The two women and four men represented various ethnic groups: one Black, two Hispanics, one Hispanic/White, and two Whites. Five of the six students were currently enrolled in school, but, prior to the interview, one student had dropped out after completing 84 hours of coursework. Of the five who were enrolled in school, two of them were seeking a master's degree after successfully obtaining a bachelor's degree. The other three students were enrolled in an undergraduate program.

The six former DC and AP students were asked about their college placement testing experiences and also about their lived experiences after being placed into developmental classes. Six core themes and 20 sub-themes emerged from the interviews conducted with the students. The six major themes were: *Utility of Developmental Class*; *Test Taking*; *Self-Awareness*; *Obstacles*; *Emotions*; and *Academics*. In Table 1, exemplar statements are provided.

Table 1
Exemplar Statements from Student Participants

Theme	Representative Quotes
Utility of Developmental Class	<p>"In all actuality, I did not know it as well, because the stuff that they tested us on, I learned like three years prior, not last semester ...so I really did need to review." [Helpful]</p> <p>"They spent a good portion at the beginning like retreading a lot of common knowledge in mathematics...They're trying to stuff so much in so little time that you might skip one or two things, and those one or two things are like what I was weak at. It focused on the wrong parts, as it were." [Curriculum and Pacing]</p> <p>"I have to know... but not just memorize it, but I actually like know by heart like what I need to do, especially if I want to become a lawyer." [Motivation]</p>
Test Taking	<p>"I got my scores. I was off by a couple of points.... It was right there on the line." [Placement Test]</p> <p>"For me, it was really nerve-wrecking because I suck at taking tests. I am horrible at taking tests. I get real bad anxiety. I start to shake, and so being there for four hours wasn't ideal for me." [Test Anxiety and Pressure]</p> <p>"...not a good test taker." [Test Taking Skills]</p>
Self-Awareness	<p>"I felt like I shouldn't be there because the thing with math and me is I'm good in math, and I like math." [Misplaced]</p> <p>"I believe the first part was science. That one was pretty... it came natural to me. Mathematics was the one, the second part, and that one, not so much. I never really had a strong understanding of mathematics." [Recognized Strengths and Weaknesses]</p> <p>"It's kind of like an experience, like, hey, like I didn't do so good on the ACT on the math portion, so I had to take a class." [Accepted Placement]</p>
Obstacles	<p>"It sucked a little bit because I just spent, I want to say, like \$80.00 for the ACT and then I was told that, oh, there's a chance for you to skip that class, but you have to fork over another \$80.00 bucks to take a one shot test." [Money]</p> <p>"What really sucked was certain classes were only available for certain parts of the year. So, with developmental, that made my entire plan of getting out in four years extended by at least by an additional semester." [Delay]</p> <p>"...should have taken one or two less advanced placement classes and taken a harder math class or two." [Preparation]</p> <p>"You got half the class that feel like they don't want to be there or they shouldn't be there, and the other half of the class... they know they should be there, but they don't care." [Others]</p>
Emotions	<p>"Just maybe call it something different, except for developmental or something, where some kids don't feel bad about it." [Embarrassed]</p> <p>"It was pretty frustrating... It was frustrating because I wanted to be doing... I wanted to be doing something else." [Frustrated]</p> <p>"I had to get through it, so I could get to my actual math class." [Getting Through]</p> <p>"When you are in high school, you are kind of told that you want to challenge yourself. You want to take as many harder classes as possible." [Others' Influence]</p> <p>"You don't feel as smart as you did when you were in high school, I guess." [Not Smart]</p> <p>"I will be honest...disheartening. It is probably the best way to describe it." [Disheartened]</p>
Academics	<p>"If I haven't studied the things in a while, I forget about it. Once I see like a problem, I catch on quick." [Knowledge]</p> <p>"I would tell myself, oh, I already know this. I'll do it later. When I reflect on this experience, I would probably not put it off so much." [Soft Skills]</p>

Utility of Developmental Class

The first theme, *Utility of Developmental Class*, was comprised of the students' responses with regard to the content of the developmental courses and the pacing. There were three sub-themes within this theme: *Helpful*; *Curriculum and Pacing*; and *Motivation and Value*. The first sub-theme, *Helpful*, was formed from the students' interview responses which spoke to the benefits students derived from the developmental class and how well this class prepared them for subsequent ones. Five of the six students interviewed mentioned that they thought the developmental class that they took was helpful to them in some way. For example, three of the students mentioned that the developmental class served as a good review. When speaking about the

developmental mathematics course content, one student admitted, "In all actuality, I did not know it as well, because the stuff that they tested us on, I learned like three years prior, not last semester ...so I really did need to review." Another student expressed similar sentiments when he said, "I mean, when I went into my regular math class, I felt like I was a little bit more prepared." However, this student really did not like the idea of taking the developmental mathematics class, and he remarked, "I didn't like it, but I had to take it," but he admitted that "it wasn't that bad."

Another participant, with regard to his developmental English class, suggested that the course facilitated his success in subsequent classes. He said, "I would take it again, cuz it really helped me."

In fact, during his interview, he reiterated three times that the developmental English course helped him and repeated twice that he would take it again. Specifically, he stated that what he learned “was really helpful now in getting through English [1301],” and he added that the course content at the end of the course was the most helpful. Another student expressed the same sentiments about the material at the end of his mathematics course, but he was not completely satisfied with the course as a whole. He stated, “Once we got to the more complicated stuff, it helped out a bit, but I would say it *helped*, but it didn’t give me a strong enough foundation.”

The second sub-theme of the theme *Utility of Developmental Class* called *Curriculum and Pacing* was about these students’ views of the course content and the pacing of the developmental course. Four of the students spoke about the curriculum of the developmental class that they were in and the pacing. Three of the students mentioned that they thought the pacing of this course could be improved. For example, one student, when speaking about developmental mathematics, said, “It felt like I was learning my addition tables all over again,” and he stated that “the first six weeks of that semester was nothing but rehashing everything I’ve learned since middle school.” He continued:

They spent a good portion at the beginning like retreading a lot of common knowledge in mathematics I would say, your basics in geometry, algebra, Pythagorean Theorem, stuff like that. So by the time we reached the end, there’s not a lot of time left, but we’re trying to push through it all to reach that, what you’re supposed to know by that time. They’re trying to stuff so much in so little time that you might skip one or two things, and those one or two things are like what I was weak at. It focused on the wrong parts, as it were.

This student indicated that he basically had to learn the rest of it on his own, and he also mentioned that he experienced issues with the technology integrated into the mathematics curriculum. He stated, “They relied heavily on online homework which was a bit of a hassle because the Internet at the dorms wasn’t the best sometimes.” Another student found the pace of her developmental mathematics course to be quite slow. With regard to the instructor, this student stated, “By the time she was on the second problem, I had already finished the whole page of problems.” However, a third student, who had taken a developmental English class, found that the course content met his needs and that the developmental course adequately prepared him for the credit course. Finally, a fourth student expressed a

desire to accelerate faster through the course content. He stated, “I don’t know if they give you the option of being able to test out, but I would have loved to have been given that option.”

A third sub-theme of the theme *Utility of Developmental Class* called *Motivation and Value* was comprised of students’ interview responses regarding how the developmental class motivated them in some way or how it caused them to develop an appreciation of education. Four of the six students indicated that their developmental placement changed what they desired or what they valued in some way. For example, the first student expressed a desire for a greater depth of knowledge and automaticity with mathematics after taking the developmental class and comparing it to her college-level ones. She stated, “I have to know... but

not just memorize it, but I actually like know by heart like what I need to do, especially if I want to become a lawyer.”

In fact, this student mentioned a desire to know the mathematics material at a deeper level three times during her interview. She also related that her developmental placement gave her the impetus to try harder. Another student expressed a similar sentiment about his developmental placement when he said, “If anything, it made me like try even harder, I guess, cuz I didn’t want to like try to take it again, you know.” Overall, two students also saw a need to pay more attention after their developmental placement, and two students stated that they recognized the importance of studying. For example, one student, when reflecting upon what he might do differently, said, “Maybe study a lot longer for some of these developmental to pass the ACT, the math portion and all that.” Another student stated that taking a developmental class caused her to appreciate her education more.

This student, with regard to being in a developmental class, stated, “That experience helped me to value my education more.”

Test Taking

The second theme, *Test Taking*, was comprised of the students’ statements about test taking, and, specifically, placement examinations. There were three sub-themes within this theme: *Placement Test*; *Test Anxiety and Pressure*; and *Test Taking Skills*. All students who were interviewed spoke about the placement test, the first sub-theme, because this was a topic of one of the interview questions. Students in this study primarily mentioned taking the ACT or the SAT before entering a university, and four of the six students mentioned taking two or more placement examinations. One student said, “I only took the like placement testing once my sophomore year and once my senior year because I

Student:
 "...in high school,
 I was taking
 pre-calculus,
 and then I end
 up taking AP
 calculus, so
 I thought to
 myself: Well, I’m
 not gonna need
 it [developmental
 math]..."

didn't make a high enough score my sophomore year to get into [a specific university]." With regard to a certain placement test, another student stated, "I took it twice. The first round, my math scores were high enough, but my overall score wasn't good enough for me, so I took it again so I could see what I could improve better." With regard to her second attempt, she said, "My math scores were lower, but my English scores were higher and so my overall score was high, but my math scores weren't high enough for me to test out of the developmental class, my math class." Additionally, a third student, who was a returning student, stated that when he took the placement examination the first time in 2000, he "did just well enough in math not to have to take developmental." However, when he returned 10 years later, he was required to take another placement test, and he mentioned that "apparently, the standards had increased." With regard to his mathematics placement score in 2010, he stated, "It was way too low." Finally, a fourth student, who took the SAT twice, but was ill the second time she took it, also mentioned that she had taken an additional placement test. She stated, "I don't know if it was like the Asset or the Compass or something. It was one of the two." However, two students indicated that they took only one placement test. One of them stated, "I got my scores. I was off by a couple of points... It was right there on the line;" however, he did not attempt the placement test again. The other student indicated that he was placed into developmental English due to his poor placement testing results in that subject, but he did not speak of a second placement attempt.

Half of the participants stated that they had test anxiety and experienced pressure when taking college entrance examinations. Thus, the second sub-theme of the theme *Test Taking, Test Anxiety and Pressure*, was created as a result of these students' interview responses. One of the students with extreme anxiety stated, "For me, it was really nerve-wrecking because I suck at taking tests. I am horrible at taking tests. I get real bad anxiety. I start to shake, and so being there for four hours wasn't ideal for me." He also stated that, given the chance, he would have opted to take the developmental class rather than to take the ACT again and emphasized, "I hate taking tests." Another student expressed similar sentiments when faced with another placement test; she recalled that the school wanted her to take it, but she did not want to. She related that she felt under pressure when taking placement examinations by stating, "There's a lot of pressure for just one thing." Another student expressed similar views when she indicated that the importance of placement tests made her extraordinarily nervous because these tests could determine her future.

The third sub-theme called *Test Taking Skills*, emerged from students' statements regarding their test taking abilities. One student mentioned that she was "not a good test taker" four times during her interview. However, she stated that she took the SAT twice to improve her scores. She indicated that her strategy was to take the SAT initially to become familiar with it

before taking the test again. Another student, when referring to his placement testing experience, exhibited some test taking savvy when he stated, "You always knew if you were doing wrong on it because it'd give you more questions after you took the first questions." He surmised, "And that's how you knew if you were doing bad or good on it."

Self-Awareness

The third theme, *Self-Awareness*, is about how well the students in this study were able to reconcile their new developmental placement with their self-perceptions and also about how well they understood their academic strengths and weaknesses. There were three sub-themes within this theme: *Misplaced*; *Recognized Strengths and Weaknesses*; and *Accepted Placement*. Four of the six students interviewed made statements about being misplaced, the first sub-theme, and expressed some surprise by their placement. One student, with regard to her developmental mathematics placement, said, "I felt like I shouldn't be there because the thing with math and me is I'm good in math, and I like math." Overall, this student mentioned three times in her interview that she felt like she was misplaced and added:

I never had taken developmental math, and the funny thing about that was in high school, I was taking pre-calculus, and then I end up taking AP calculus, so I thought to myself: *Well, I'm not gonna need it, you know.*

Another student, with respect to his developmental placement, said, "I thought I was a pretty good student. I made all like A's and B's, and I think my senior year I made a C in like a history class, like one of the dual credit history classes." He continued, "I thought I was like pretty well-prepared, but I guess not." This same student recalled:

When I was placed in the math class, I was like whoa, this kind of sucks; I should be ahead, like I should be, I should be doing pretty well, but I mean I had to take a developmental class.

Much like the first student, this student also felt like he was misplaced. He elaborated, "I made an A in the class, and it was pretty easy. I wish I could have tested out or something." A third student mentioned how he had taken many AP classes and how he had perceived himself to be "one of the smarter kids in high school." Finally, the fourth student who expressed sentiments of being misplaced also indicated that she was a top student, in the top 10% of her class, but that she was ill the second time she took her placement examination, the SAT. She said:

I actually had a respiratory infection, and so I was on medication, but I had to take the test cuz it was the last time you could take the test. So, I did not do as well on that one.

The second sub-theme, *Recognized Strengths and Weaknesses*, emerged from students' interview responses regarding their self-perceptions of their academic abilities. One of the students, when commenting on his developmental mathematics

placement, implied that he was not really surprised by this placement and remarked, "For me, it was just, you know, I've got this weakness and I've got to work hard on it. I've never really accepted that, well, *I'm just bad at math* thing." When recalling his experience in developmental mathematics classes, he stated, "I made an A in that class, in those classes, but it was *hard*. I had to work." He elaborated more about his effort: "I was taking developmental math and upper-level history courses at the same time, and I was having to put in twice as much work with the math than I was for anything else." When recalling his placement examination, another student spoke about his weakness in mathematics in relation to other subjects. He said, "I believe the first part was science. That one was pretty... it came natural to me. Mathematics was the one, the second part, and that one, not so much. I never really had a strong understanding of mathematics." He assessed his strengths and weaknesses by saying, "I wasn't really good at sports; I was good at critical thinking, and reading, and stuff like that." He explained that his developmental mathematics placement helped him recognize a problem in this area, and he stated, "I realized that there were certain parts that I wasn't good at and that I need to work on." Another student, when emphasizing that she was not really a very good test taker, asserted that she is more comfortable with written assignments and projects, given over time.

The third sub-theme, *Accepted Placement*, was about how some students accepted their developmental placement after receiving their placement testing results. For example, one participant said that his poor results on his placement examination in mathematics did not affect his outlook on getting a college education. Another participant, currently in graduate school, with regard to his developmental placement in mathematics, said, "I mean, I guess for me, it was just one of those things. I could always tell myself: *You know, so what? People have this problem all the time*. I did *really* well in English, reading comprehension, and writing, okay."

Obstacles

The fourth theme, *Obstacles*, was comprised of some of the precipitating factors which may have interfered with students' academic success once enrolled in the university. The sub-themes within this theme were: *Money*, *Delay*, and *Preparation*. Three of the six students mentioned money as something that they were concerned about, especially in relation to the developmental class. Therefore, the first sub-theme of the theme *Obstacles—Money*—is about the financial burden of the developmental class and the college

placement examinations. The student who felt like she did not derive much benefit from her developmental mathematics class stated, "To me, it was like a waste of money, for me to be in that class, even... at the end." Another student, when speaking about the cost and of the poor results of his placement test, said, "It sucked a little bit because I just spent, I want to say, like \$80.00 for the ACT." He continued, "And then I was told that, oh, there's a chance for you to skip that class, but you have to fork over another \$80.00 bucks to take a one-shot test. I wasn't the richest though." This student also mentioned money again with regard to the tuition of the developmental class, and he was disgruntled that he did not receive any kind of credit for the class. He stated, "When you get your first tuition bill, it kind of hits you all at once, a little bit." He continued, "Especially, when you are told that you have to take this developmental class and then you are told it doesn't count as a credit." Further, the cost of tuition had caused him to waver in his college plans. With respect to tuition, he stated, "Once I got the second half of my second year, and I guess it starts getting higher and higher in price, it made me think that maybe I might have to come up with a backup plan." Another student mentioned that she was required to pay for the developmental class as a result of her placement and suggested that others are affected by this too.

Three of the six students interviewed indicated that taking the developmental class delayed their degree plans. Thus, the second sub-theme of the theme *Obstacles* is *Delay*. One of the students, who was not currently enrolled, indicated that the developmental course set him back because it did not fit within his degree plan. He explained, "What really sucked was certain classes were only available for certain parts of the year. So, with developmental, that made

my entire plan of getting out in four years extended by at least by an additional semester." Although he was only required to take one developmental mathematics class, this student indicated that he was informed by his advisor that the delay would require him to enroll an additional year. Another student, who had taken developmental English, also expressed that he had been delayed in attaining his degree because he could not enroll in the first college-level English class initially. He stated, "It kind of set me back a little bit cuz I couldn't take English, the first one, that semester." Finally, the third student indicated that it set her back three hours, and she mentioned how some other students may have been set back even more.

The third sub-theme called *Preparation* emerged from student responses regarding the curriculum and instruction of their high school classes. Four of the six

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school
classes."

students interviewed indicated that their academic preparation for college was inadequate. One student, with regard to his DC and AP classes, stated, "I felt like they were good for me cuz they made me try harder, but I also felt like they didn't prepare me for the college, you know." He elaborated about these high school advanced classes by saying, "It's supposed to be a college class, but they were... they just didn't seem like anything I took here or I'm taking here [at the university]." Another student expressed a similar sentiment about his high school instruction when he expressed the idea that there were some concepts that his "high school teachers should've explained, which they didn't." One student expressed regrets about not focusing much on mathematics in high school. For example, with regard to the AP classes that he took in subjects other than mathematics, he indicated on two occasions that he probably should have "taken one or two less advanced placement classes and taken a harder math class or two." He explained, "So by the time I reached that ACT point, I would have had a stronger foundation. It probably would have helped me too in the long run." Finally, another student said that he struggled with his AP mathematics class in high school. He stated, "I barely passed that class. If anything, I think I might have passed the advanced placement class more out of mercy than anything else."

Emotions

The fifth theme, *Emotions*, emerged from students' feelings related to being placed into a developmental class after participation in DC and AP classes in high school. There were six prevalent emotion-laden sub-themes: *Embarrassed*, *Frustrated*, *Getting Through*, *Others' Influence*, *Not Smart*, and *Disheartened*. Four of the students interviewed reported feeling embarrassed about their developmental placement. The first sub-theme within *Emotions*, *Embarrassed*, is categorized mostly by the negative perceptions of these students' peers regarding these students' developmental placement and also by the stigma associated with this placement. One of the students stated this idea directly, "For me, it was... it was kind of embarrassing." Another one indicated that her friends asked her how she could be placed into a developmental mathematics class after taking an AP Calculus class in high school. Further, the third student suggested that the name of the developmental English course be changed because of its negative connotation. He suggested, "Just maybe call it something different, except for *developmental* or something, where some kids don't feel bad about it." Finally, the fourth student stated, "It was like a stigma, like, nobody wanted to be there."

The second sub-theme called *Frustrated*, emerged from students' feelings of irritation about being in a developmental class. One of the students in this study was extremely frustrated and upset with her placement and another student also mentioned that he was irritated, a lower intensity emotion closely associated with frustration (Turner, 2010). The student who seemed the most frustrated by her placement

stated, "It was pretty frustrating.... It was frustrating because I wanted to be doing...I wanted to be doing something else."

A third sub-theme, *Getting Through*, denoted how many students view their developmental classes as something they must endure. Four of the six students in this study used similar words when discussing their developmental classes. For example, one of the students indicated that "I had to get through it, so I could get to my actual math class." Another student stated, "I just wanted to pass it the first time and just keep working hard." The other two students also mentioned the idea of getting through the developmental course.

A fourth sub-theme, *Others' Influence*, emerged because the influence of others, particularly family, was a concept mentioned by students in this study. Two of the students indicated that they were influenced by family members or other important people in their lives. One student stated in general terms, "When you are in high school, you are kind of told that you want to challenge yourself. You want to take as many harder classes as possible." This student, who had dropped out of college, stated that his parents were encouraging him to go back to school, but that he was on the fence about it. He also mentioned that his parents would brag about his participation in the AP program. The other student stated that his father and mother were instrumental in helping him to come to terms with his developmental placement. He stated that when he received his placement results, his mom told him that his "English wasn't really that good" and suggested that he should work on it. He also said that his daddy helped him to reframe his developmental placement as "just another class" he had to take.

The fifth sub-theme, *Not Smart*, was indicative of how being placed into a developmental class and attending this class diminished some students' perceptions of their intelligence. Two of the six students indicated that their developmental placement made them feel less intelligent. One of the students said, "It made me kind of feel like I was not that smart or anything," and another student stated, "You don't feel as smart as you did when you were in high school, I guess."

The sixth sub-theme, *Disheartened*, had to do with students' feelings of disappointment after receiving developmental placement. Two of the six students interviewed for this study indicated that they were disheartened by their placement. When one of the students was asked what it was like to be placed into a developmental class, he responded, "I will be honest... disheartening. It is probably the best way to describe it." Another student expressed similar sentiments when he said, "At first, I was kind of disappointed. I didn't like it."

Academics

The sixth theme, *Academics*, emerged from students' perceptions of their prerequisite knowledge after entering the developmental class and also their views of their noncognitive abilities. There were two

sub-themes within this theme: *Knowledge* and *Soft Skills*. Two students mentioned that they thought they had a strong foundation in mathematics. One student made several statements regarding her prior knowledge of the content of her developmental mathematics class. She stated, "Like, I knew everything the teacher was talking about, what's going on ... because I already knew the stuff." The other student indicated that she was proficient in her basics. However, three of the students in this study mentioned that they had trouble retaining the material from both high school and developmental mathematics classes. For example, one student, currently in graduate school, when recalling his developmental class, said, "I did very well in that class," but he admitted, "I retained almost none of it when I took the GRE."

The second sub-theme, *Soft Skills*, was composed of the students' perceptions regarding their high school performance. Two of the students mentioned that they did not take their high school courses very seriously. One student said, "I just like kind of brushed them off and just did the minimum to get like the highest grade." She really did not give her high school classes her full focus. With regard to her developmental mathematics class, she stated, "My grades in high school were good, but going to that class and then comparing it to my actual college-level courses, I noticed how much I really didn't pay attention to my high school classes." In fact, this student, who reported that she graduated in the top 10% of her class, mentioned her lack of attention to high school instruction two more times during her interview. When asked what she might change or do differently when reflecting on this experience, she indicated that she would tell herself: "Just, actually, don't just do the bare minimum because that's not going to work. It really isn't." Another student, when asked what she might do differently, remarked, "I would've taken it more seriously probably. Um, yeah, I would've taken it more seriously probably." When looking back on her academic experiences, this same student mentioned procrastination as something that she might change. She explained that she would typically tell herself: "Oh, I already know this. I'll do it later." However, this student also described how she perceived her work ethic to be better than some of the other students in her developmental mathematics class. She said, "If you're put in a group, then you ended up doing all the work." When she perceived that others in her group were, perhaps, not quite as motivated as she was, she stated that she would tell them: "No, I take every class seriously. That's how I got to be in AP."

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Discussion

Many DC and AP students take very rigorous courses in high school, ostensibly courses that give them a glimpse into college. Researchers have suggested that DC participation has been positively correlated with transition to a university, persistence, and completion of college and that this participation has benefited students of all demographic groups (An, 2013; Robinson, 2011; Struhl & Vargas, 2012). Similarly, studies have shown that many AP students were also better academically prepared for college (Foust et al., 2009; Santoli, 2002). However, even after taking advanced classes, some DC and AP students have still placed into at least one developmental class upon entering a university. Indeed, some taxpayers have openly voiced their concerns about effectively paying two times for the same instruction, once in high school and then again in college (Ventura County Grand Jury, 2013). These taxpayers would most likely want to know why so many students, who have been on an advanced track in high school, have placed into developmental education courses.

Certainly, the inability to retain information over time may explain why some former DC and AP students have placed into developmental classes. In this study, three of the students indicated that they had trouble remembering the material that they learned in high school and in their developmental classes, and one of the students expressed a desire to learn the course material to a greater depth. In fact, Smilkstein (1993) wrote about the two levels of knowledge, procedural and declarative, which this student verbalized. Smilkstein indicated that students can acquire procedural knowledge without declarative knowledge, or a real understanding of the underlying concepts. Critical thinking skills are developed by using procedural and declarative knowledge together (Smilkstein, 1993). Some of the students in this study may have learned mathematics procedures, but they may not have learned the course content to a great enough depth to retain it or to use it in subsequent college-level classes. One student expressed this sentiment when she stated that she would like to "not just memorize it," but to "know by heart" what she needed to do. To enable knowledge and skills to transform students' current understandings, learning must include an ongoing process of purposeful application of knowledge and skills within real-world contexts (Roumell, 2019). A lack of declarative knowledge might explain why three of the five students placed into a developmental mathematics class upon entering a university indicated that they were unable to retain the mathematics content over time. Therefore, when preparing for college, students would be well advised to

not only consider the level of high school courses taken, but also the depth of learning in the courses.

Several of the students indicated that they had developed habits which were not conducive to their success, such as procrastination and inattention, which may have also interfered with these students' achievement in high school. Specifically, these students stated that they would do the work later or give limited attention to instruction because they already knew the material, or so they thought. After taking the developmental class, four of the six students in this study recognized a real need to develop these soft skills. Adams (2013) described soft skills, in the context of higher education, as noncognitive attributes that can facilitate student success, such as resilience, character, resourcefulness, ambition, professionalism, and integrity.

Although a majority of the students initially viewed their developmental class as something that they must endure, rather than a class that could benefit them, many of the students did eventually find value in it. However, the developmental class did extend some students' time to degree, and this delay may have contributed to one student's decision to withdraw. Overall, five of the six former DC and AP students indicated that the developmental class did help them in some way, if only for a good review.

Former DC and AP students experienced a range of emotions from being placed in and attending developmental classes (e.g., disheartened and frustrated). Evidently, these students were also embarrassed by their placement, as half of the students in this study expressed this sentiment. Developmental placement also took many of the students by surprise as four of the six students interviewed expressed sentiments that they had been misplaced and, subsequently, had trouble reconciling this developmental placement with their self-perception. Most likely, these students were kept in the dark with respect to their academic abilities with practices of grade inflation at the high school level (Gershenson, 2020; Hoyt & Sorensen, 2001) and discovered with the results of their placement examination that they were underprepared for the rigor of college-level coursework. When placed into a developmental class, these learners felt misplaced, as well as out of place, and they also did not feel as intelligent as they once did.

The thoughts expressed by the students in this study suggest that developmental placement was a disorienting experience for many of them. This phenomenon can be compared to the one described by Fay (1987) with Plato's parable and by the tenets of critical social science. These students, when confronted with placement examination results which did not coincide with their own personal perceptions of their academic abilities, were, perhaps, just beginning to see the sun from the darkness of their cave. As entering college freshmen, these students, who may have been kept in virtual darkness by their high school teachers' grade inflation policies and by the lack of rigor in their high school courses (Hoyt & Sorensen, 2001), may have held

a very distorted view of their foundational knowledge and academic preparedness. In fact, Gershenson (2020) discovered that all racial subgroups of Algebra I students in North Carolina from a 10-year period performed better on a standardized test, as well as 2 years of subsequent mathematics classes, when their teacher did not inflate grades, despite differences in the socio-economic composition of their schools. Due to these common high school practices, college placement results may have been some students' first indication that their academic skills were subpar.

Some of these advanced students may have taken action to attenuate their academic deficiencies in high school if they had been made aware of them (Fay, 1987). In this particular study, the students' inaccurate self-assessments of their academic abilities may have caused some complacency. After all, two of these students reported that they were in the top 10% of their class, and two others thought that they were smart, well-prepared students. In all, two thirds of the students expressed sentiments that they had been misplaced. More than likely, these advanced students, who had been kept in the dark about their academic abilities, would have possessed the capacity to rectify or attenuate their academic deficiencies and to modify their behavioral habits (e.g., paying more attention and learning course content to a greater depth) before entering college if they had fully understood their situation (Fay, 1987). Moreover, underprepared students influenced by their peers (Wang et al., 2018) or enticed by monetary incentives to enroll in AP classes (Holstead et al., 2010) might have avoided developmental placement in college if they had realized that their abilities were lacking.

Implications

Several systemic issues currently exist in our secondary school system that should be addressed. One of them is the lack of prerequisite requirements for students to enter pre-advanced placement (PAP) and AP courses. Students who are ill-prepared for these classes are enrolling in them and are further encouraged by financial incentives, like the APIP, to give them a try. However, Davis et al. (2015) determined that AP examinations have actually been a rather poor investment for some students. The lack of alignment between the rigor of advanced high school classes and that of college courses could be attributed to the fact that educators may have been compelled to educate all students in their classrooms (e.g., No Child Left Behind Act of 2001, Pub. L. No. 107–110, 115 Stat. 1425) at the expense of those who are better academically prepared. One of the students in this study confirmed this assertion by stating, "It's supposed to be a college class, but they were...they just didn't seem like anything I took here or I'm taking here [at the university]." Hoyt and Sorensen (2001) wrote, "Lax and/or inconsistent standards may create student attitudes, behaviors, and expectations for performance that lead to failure in the college environment" (p. 32). Moreover, high school teachers

of advanced classes may be under pressure by their administrators to keep their passing rates high, despite the composition of their classrooms. Hoyt and Sorensen (2001) suggested that “teachers need administrative support when they give low grades to students who do not demonstrate an understanding of the subject matter” (p. 32), and they recommended that “students who are underprepared for courses should be redirected into courses appropriate to their skill level” (p. 32). Of course, most administrators, counselors, and teachers would rather not discourage the ambitions of the young, and therein may be where the problem lies. However, effective counseling can do much to ameliorate the negative impact of a policy change, and students who have been redirected to more suitable classes might then recognize a real need to improve. Finally, with only adequately prepared students in their classrooms, instructors of advanced courses might then be better able to maintain the rigor of their courses, a rigor more comparable to that of colleges and universities.

Perhaps as a result of current practices within secondary schools, much diversity exists within developmental classrooms. As such, strides should be taken to accommodate this diversity; a one-size-fits-most model for teaching may be highly ineffective. In the current study, one of the students mentioned that he would have liked to have been given the opportunity to place out of some of the mathematics content, and other students indicated that the curriculum and the pacing of their developmental mathematics course could be improved. Specifically, two students, one from each discipline, indicated that they found the instruction on the more challenging concepts, typically not covered until the end of the course, the most helpful. Perhaps, an accelerated model that allows students to test out of some of the more basic concepts would be a good fit for students who have been on an advanced track in high school (Bishop et al., 2018; Saxon & Martirosyan, 2020).

Limitations and Recommendations for Future Research

One of the limitations of this study was that a student may have taken a DC or AP course in high school English, for example, and then placed into college developmental mathematics, or vice versa. The researchers assumed that former DC and AP students have the propensity to do well in both disciplines which may not be true. Also, if a student had taken a DC course in high school, for example, and received college credit, the requirement for a college placement examination was waived. Therefore, some DC students who may have needed developmental studies did not receive this placement.

In the present study, 562 students placed into developmental education within a 6-year time span. More than likely, this phenomenon occurs regularly at other university and community college campuses across the United States. However, with a thorough literature search, no studies about this phenomenon could be found. Therefore, more research is needed

about this subgroup of developmental learners to raise awareness about this phenomenon and to guide administrators, counselors, and educators as they strive to meet these advanced students’ needs. For example, a comparison of this subgroup of learners with those on a more traditional path to college after graduation could provide better insight into this phenomenon. Also, these advanced students could be studied by high school to detect possible trends. Furthermore, the current practice of offering fewer developmental courses to decrease students’ time to a credit course may be creating some disadvantages for advanced learners because these courses may now be too broad or, possibly, too tailored to their classmates with more extensive needs. Finally, an investigation into some of the common practices in secondary schools, which may be contributing to the phenomenon, may be warranted.

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