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DEVELOPMENTAL EDUCATION  
MEET STUDENT NEEDS?**

An Analysis Based on Student Experience in Texas Community Colleges

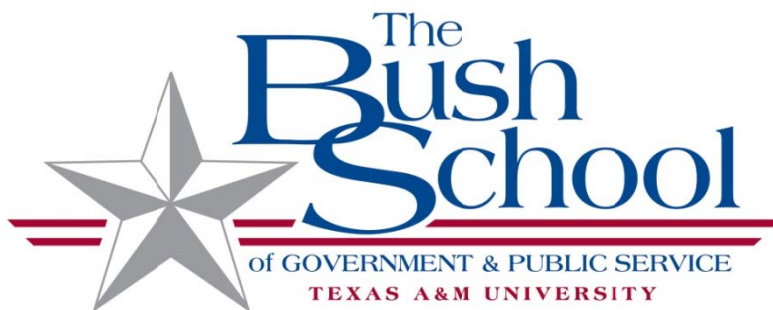
A Research Report  
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## EXECUTIVE SUMMARY

Many students graduating from Texas high schools, especially those from disadvantaged backgrounds, are underprepared for the rigor of college coursework, and they need extra help. Institutions of higher learning across the state have attempted to provide that help in the form of developmental education (DE)—supplemental instruction designed to fill in crucial gaps in a student’s knowledge base.

Since DE is designed to serve such a crucial function for students who have less than adequate preparation, it is particularly disconcerting news that DE programs appear, in many cases, to be failing those they are intended to serve. The students who are the least prepared and the most disadvantaged languish in college classrooms, taking courses that do not count for credit. More than 70% will never finish their degree.<sup>1</sup>

A review of the existing literature revealed that few researchers had talked systematically to students in DE courses about their experiences. That seemed odd, since the students are the customers of the DE process, and the ones most affected by the success or failure of these programs. A mixed methods study of DE students could offer a new, potentially insightful, angle on the problems facing DE programs in Texas. By incorporating student voices and approaching their experience from a variety of research angles, this project seeks to add to the ongoing conversation about appropriate public policy in higher education.

### This Study’s Approach: An Overview

In order to evaluate the impact of DE programs, the research team conducted two concurrent studies—an electronically administered survey and a set of in-person focus groups. Both studies focused on students’ opinions of their experiences as well as the strengths and weaknesses of the programs in which they were enrolled.

We chose to study community colleges which served a higher than average percentage of economically disadvantaged students. In Texas, 41% of all students entering college require some form of DE, and of those, 80% attend a community college.<sup>2</sup> This makes DE primarily an issue for community colleges. Students of low socioeconomic status are also more likely to need DE.<sup>3</sup>

All 16 two-year institutions in Texas with Pell grant reciprocity rates above their regional averages were included in the sampling frame. Nine of the 16 agreed to participate and administer the survey to their students. Surveys administered by those colleges generated 780 usable responses.

As a complement to the survey findings, focus groups were conducted at two colleges outside of our survey’s sampling frame (i.e. students who participated in focus groups did not participate in our survey). The focus groups were designed to allow students to provide more direct feedback, with fewer preconceived notions about their experiences in DE. Additionally, gathering data from students beyond the survey’s sampling frame helped improve the overall

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<sup>1</sup> Texas Higher Education Coordinating Board (2011)

<sup>2</sup> Texas Higher Education Coordinating Board (2012, 2013)

<sup>3</sup> Complete College America (2011)

validity and robustness of the study. Three focus groups were held and a total of 40 students participated.

### **What Influences Student Success?**

According to a review of recent research on DE, five potential influences were identified that would likely affect student success:

- 1) Greater student engagement leads to higher likelihood of student success;
- 2) More contact with advisors/advising leads to higher likelihood of student success;
- 3) Greater student connection to the school community leads to higher likelihood of student success;
- 4) Higher than average student determination (as measured by a “grit” scale score) leads to higher likelihood of student success; and
- 5) Increased prevalence of outside-of-school factors leads to changes in student success.

The research studies explored each of these hypotheses.

### **Research Findings**

The data collected in both the survey and the focus groups led to some distinct and some complementary conclusions. Additionally, other important discoveries were made about DE while researching the variety of DE programs in Texas, some of which led to conclusions not based strictly on data from the survey or focus groups. These conclusions are presented separately first, then taken together to inform recommendations.

### **Survey Findings**

Ultimately, the survey was designed to help the research team understand the impact of selected factors on a measure of student success. In other words, we wanted to know what issues typically have the potential to impact student success in DE. However, given the relatively short time frame of our study and the confidentiality concerns associated with obtaining test scores and specific outcome data for individual students (persistence through DE and graduation, for instance), the research team constructed a proxy for student success—something we could measure in the short-term and conceptually tie to indicators of success only measurable in the long-run. This proxy is the Anticipated Academic Success Index (AASI), which captures students’ beliefs about their future academic success. By asking students to gauge their prospective success in DE and related educational goals, we were able to evaluate the impact of selected factors on how well students believed they would perform academically in the future.

Our analysis of survey data tested the significance of each hypothesis relative to the AASI. The survey team used factor analysis to better understand the nuanced impacts of the various hypotheses. In the analysis, each hypothesis was tested while control variables were in place to represent the potential impact of both the remaining hypotheses and a variety of other factors (e.g. educational background, current institution, natural confidence, and a number of other demographics including sex, minority status, dependent children, marital status, government grants, and age). An analysis of the data collected in our survey revealed a number of interesting findings:

- 1) Classroom engagement has a statistically significant, positive effect for all non-DE students, but is not significant for DE students.

- 2) Grit is positive and statistically significant for both DE and non-DE students.
- 3) Outside factors are significant. Supportive relationships have a significant, positive effect for all groups, and money concerns negatively affect lower level DE students.
- 4) Advising experience has a significant, negative effect on DE students, and is not significant for non-DE or near college ready groups.
- 5) Community connection is not significant in explaining AASI for any group.

### **Focus Group Findings**

The data provided in the research team's focus groups led to other important conclusions not necessarily addressed directly in the hypotheses. Students commented on a number of critical issues impacting their experience in DE programs:

- 1) Miscommunication, both with regard to how students are placed into DE courses and about the nature of the courses themselves, is prevalent. Students offered striking examples of this problem:
  - "I was just told that I was required to take this test [a DE placement test], and it doesn't affect you in any way. So I was focused on getting it in and getting out."
  - "I didn't know for a long time that my pre-algebra class was a developmental class. I didn't know for months. I didn't realize it. I just thought that was college algebra."
  - "[information was available] only during orientation when they give us like this booklet. But after that, like...you don't hear much more than that after. And that's like only right when you start."
  - "Well, I took, um, a lot of dual credits during high school, so when I came here, I didn't have to go to the orientation. So I don't have a booklet. I didn't even know about the learning communities or focus groups."
- 2) Outside factors have both positive and negative impacts on the experiences of students in DE. For instance, some saw work outside of school and/or presence of children as a hindrance to success in DE:
  - "I have the graveyard shift and then come home, get my kids ready for school, take them to school, I come to school. When I leave school, if I don't go to sleep before I pick them up, then I'm here doing studying and then I try to get my sleep in, cook for them, go back to work. That's just my routine."
- 3) On the other hand, some students suggested that those same outside factors could represent a positive impact on their experience and ability to succeed in DE:
  - "My motivation comes from my child. I have to be motivated because of her. She will not see a failure."
  - "It's personal for me too, because I got a 5 year plan. I got 3 kids dependent on me. That's my strive, that's my determination. I'm going to do it."
- 4) After financial aid is deposited into students' bank accounts, many DE classes experience a considerable drop in attendance:
  - "As soon as that money went into the account, a lot of people just dropped because they got, yeah, 10,000 bucks in their account."

- “My experience is, once checks got handed out, my class went from... what? Like 25 people? To like... what, 15 now?”
- 5) Students were generally content to be in DE:
- “We all need it! You can say what you want but at the end of the day, we all need it.”
  - “I’m like her because at first I was offended. I thought it was a resource class until I got in it. Then I realized it was there to help me.”
  - “So I like these classes, they get you ready. I’m motivated to go on to college level math.”

### Another Important Conclusion

While researching DE programs on an institution-by-institution basis in order to determine appropriate questions for the survey and focus groups, an important discovery was made: there is little uniformity across DE programs. Importantly, some programs required completion of more DE courses than others before a student could advance to credit-bearing coursework. Perhaps the most basic problem with this kind of program variety is one of equity. A student might find herself forced to take three or even four DE courses at one institution and only one or two at another. That translates to significant differences in time, energy, and money spent in the pursuit of the opportunity to take credit-bearing courses.

### Recommendations

The following recommendations for policy makers and stakeholders in Texas are based on the conclusions of this study and our knowledge of current policy. While more research is needed to better establish and corroborate these findings, these recommendations can help in the effort to resolve systematic problems in Texas DE programs.

- 1) In creating policy designed to assist underprepared students, consider that community college students are not a homogeneous group.**
  - The survey findings indicate that DE students are not a homogeneous group with regard to their experiences and needs.
  - DE and non-DE students have considerably different experiences and needs.
- 2) Expand the progress made in HB 1244 (which requires a uniform placement test across institutions) by more adequately informing students about the importance of DE placement exams and the nature of DE.**
  - The focus groups revealed that a lack of communication and miscommunication about the importance of DE placement exams and the nature of DE itself is prevalent.
  - Add information to the placement test booklet itself which explains that a student’s score will be used to determine whether they need to take DE courses.
  - In addition, provide students with a pamphlet including more detailed information on the DE process, and what it might mean for their educational futures.

- 3) Standardize the number of classes that are offered and the placement scores required for each class or “tier” in DE programs statewide.**
- Standardization of the number DE classes corresponding to each placement test score helps combat inequities based on institutional differences. Under this recommendation, a student who places into DE with a particular test score would not be required to complete more DE courses at one institution than another.
  - Standardization also decreases the potential for confusion and misinformation.
- 4) Avoid reforming the Texas high school core curriculum in ways that will likely increase enrollment in DE.**
- When Texas high school students leave high school underprepared and in need of DE courses, Texas taxpayers often wind up paying twice for what amounts to the same education.
  - Recent changes to the required Texas high school curriculum, which require fewer essential courses and remove certain testing requirements, are likely to increase the number of high school graduates in need of DE.



## INTRODUCTION

The term “developmental education” (DE) refers to a system of remedial, noncredit-bearing courses used in postsecondary institutions to help prepare their entering students for the level of academic rigor they will face in their credit-bearing courses. In other words, DE is a set of remedial services provided to students who are deemed underprepared for college. According to Bettinger and Long (2007, 88), “remedial classes are designed to address academic deficiencies and prepare students for subsequent college success.” Students are typically placed into DE programs according to their performance on a standardized assessment tool that varies by institution.

The demand for DE is itself a problem because it indicates that a large proportion of students are beginning college underprepared, and enrollment in DE courses has grown exponentially over the past decade, suggesting that the problem is only getting worse. Some academics have coined this trend the “college readiness crisis” (Kinzie et al. 2008, 24).

Furthermore, DE is problematic for almost all students who participate. Scholars have found a negative correlation between enrollment in DE courses, time to degree completion and chances of earning a degree. According to the Texas Higher Education Coordinating Board, in FY 2011, only 29.1% of the students who participated in DE in a two-year institution persisted to their degree (Texas Higher Education Coordinating Board 2011). Furthermore, DE’s effectiveness (or lack thereof) is of special concern to minority and low socioeconomic status groups. Nationally, 67% of African American students and 58.7% of Hispanic students enter DE, and recent evidence suggests that only 20% of African Americans and 16% of Hispanic students are considered at least minimally prepared for college, compared to an average of 32% across all students (Greene & Forster 2003, 1; Complete College America 2011, 1). Among low-income students attending two-year institutions in Texas, only 28.2% of the students who enroll in DE complete those courses. Only 14.2% complete both the remedial coursework and associated college-level courses (Complete College America 2011, 2). Such low percentages indicate that, for many students, DE is not serving its most important purpose.

The bottom line: the gap between the preparation students take from high school and the preparation they will need in order to succeed in college has put pressure on the higher education system to compensate in some manner. DE is an attempt at that compensation.

There is currently no consensus between policy makers, teachers, students and scholars about what approaches to DE are most valuable and effective for students (Levin and Calcagno 2008, 132). The multitude of remedial education approaches made available to students in Texas are evidence of this fact. Some institutions focus their remediation efforts on simply ensuring that students pass specific developmental classes (University of Houston Downtown 2012) while others take a more holistic approach by combining developmental classes with tutoring, more focused advising, and fostering learning communities (Levin and Calcagno 2008, 187). Due to these different approaches and focuses, there is a need to research the issue from a variety of angles, and the student perspective seems underrepresented. This analysis was designed to provide student perspectives on DE in Texas.

## LITERATURE REVIEW

In order to more confidently move forward with a serious inquiry into the nature of student failure in DE, it was necessary to conduct a thorough review of the extant literature on the subject. Gathering the findings of that body of research is crucial to understanding the general state of affairs in academic research into DE. The results of this review revealed some significant deficiencies in the methods used to understand student experiences. In particular, little research had been done that incorporated multiple methods of analysis. Further, the ability to generalize from the findings of most studies is rather limited, as most that involve student input focus on a single institution or population within an institution. This suggests that broader studies with more robust methodologies are needed to make more meaningful statements about student experience in DE.

The present review was conducted using methodological robustness as the criterion for the inclusion of sources focused on DE. We selected studies that were completed after 1998 because that time frame provides a relevant and substantial body of research, and “in 1997, the Texas Legislature authorized the use of alternative tests for Texas Academic Skills Program (TASP) purposes effective 1998,” such as the ACCUPLACER, COMPASS and ASSET placement tests.<sup>4</sup> Thus, Texas-specific studies conducted in this era reflect the current policy environment. We excluded quasi-experimental and experimental studies that do not have well-defined (i.e. clearly stated or described) control and treatment groups, because these fell below the methodological rigor necessary to advance the DE research discussion. For qualitative and quantitative survey studies we only included peer-reviewed research and university dissertations. We gave Texas studies priority for inclusion due to their shared target group of Texas DE students. Any source which included data overlap with another study was excluded.<sup>5</sup> Although DE researchers utilize a wide diversity of methodological designs, we ultimately selected four designs that are especially prevalent and most rigorous.

The following review of current research is categorized according to each study’s methodological approach. The categorizations provide clarity as to how the authors of each study assess DE’s performance, and offers the ability to begin to formulate a new, different approach to the problem. The following taxonomy was a pivotal step in developing the methodology of the present work, allowing us to make the best decisions about formatting our inquiry into DE. Although we arranged the review by study type, the review was also paramount in our discovery of the themes most commonly attached to student success or failure in DE, from which we drew our guiding hypotheses described in our methodology.

Our review revealed that research quantifying the effects of DE routinely suggests negative or negligible impacts for students (Boatman and Long 2010; Calcagno and Long 2008; Martorell & McFarlin 2011; McMullin 2012; Zeidenberg et al. 2007) and that DE is costly for state governments and students (Bailey 2008; Breneman and Haarlow 1997; Long and Riley 2007; Martorell & McFarlin 2011; Steinberg 1998). Finally, students’ perspectives of DE are largely missing from recent literature (Venezia, Bracco, and Nodine 2010).

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<sup>4</sup> Texas Higher Education Coordinating Board (2000, p. 4)

<sup>5</sup> |Such a method was proposed in Randolph, in an effort to avoid double counting.(2009, p. 6)

## Longitudinal Studies

Longitudinal studies are performed over an extended period of time, tracking the same group of people for several months or years. They are widely used in DE research because researchers can observe students during their college years and obtain data on retention or graduation rates. Through longitudinal studies, researchers are able to compare the outcomes of different sets of students, such as developmental and non-developmental students. Longitudinal studies also allow researchers to track long-term changes and identify trends or predict future outcomes. However, due to the prolonged nature, longitudinal studies can be time-consuming and thus costly. Longitudinal studies can be lengthy commitments lasting several years which make them prone to subject attrition; subject attrition occurs when members of the sample drop out of the study for various reasons. Therefore, it is crucial that longitudinal studies have large sample sizes and large budgets.<sup>6</sup>

Longitudinal research offers no clear consensus about the outcomes of DE. Many researchers have found negative effects on completion rates and credit attainment for DE. Bailey et al. (2010) used data from Achieving the Dream, a national nonprofit with a mission to help community college students succeed. Researchers tracked students to measure success, which they defined as “progress through their referred sequences of remedial courses,”<sup>7</sup> and then analyzed the points at which the DE students exit their sequences. Researchers found that less than one half of all students complete their required DE courses. In math courses, the problem is worse: only 20% complete a gatekeeper course<sup>8</sup> within three years of enrollment. In English courses, only 40% complete a gatekeeper course<sup>9</sup>. Researchers also studied the demographics of their research and found that men, older students, African American students, part-time students, and vocational program students were less likely to complete the full remedial sequence.

In another longitudinal study, Zeidenberg et al. (2007) tracked non-developmental and developmental students in one Florida community college for 17 terms. They found that DE students “were 7% less likely to graduate than were students who did not take such courses, even after controlling for observable student characteristics.”<sup>10</sup> Boatman and Long (2010) used a 2000 to 2003 longitudinal dataset that included 200,000 students from almost 50 colleges, institutes, and universities. The researchers found that students in DE earned significantly fewer credits than their non-DE peers. For example, “by the end of the third year, students at the upper end of developmental mathematics earned roughly six fewer college-level credits than their peers who placed immediately into college-level courses, and students at the lower end of remediation earned three fewer college-level credits.”<sup>11</sup>

Not all DE longitudinal research is entirely negative. Kolajo (2004), who tracked developmental and non-developmental students between 1999 and 2002, found that DE students tended to take much longer to graduate; however, Kolajo (2004) also found that “developmental students perform equally well in college courses as non-developmental students.”<sup>12</sup> Unlike

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<sup>6</sup> Bauer, (2004)

<sup>7</sup> Bailey, Jeong, and Cho, (2010, p. 256)

<sup>8</sup> A “gatekeeper” course is defined as “the first college-level courses corresponding to the developmental subject fields.” Bailey, Jeong, and Cho, (2010, p. 258)

<sup>9</sup> Bailey, Jeong, and Cho, (2010, p. 258)

<sup>10</sup> Zeidenberg, Jenkins, and Calcagno (2007, p. 3)

<sup>11</sup> Boatman and Long, (2011, p. 3)

<sup>12</sup> Kolajo, (2004, p. 365)

Boatman and Long (2010), but similar to Zeidenberg et al. (2007), Kolajo only included one community college in his dataset, which is located in Maryland. Martonell and McFarlin (2011) also found few negative effects of DE. The two researchers, using longitudinal administrative data from Texas, concluded that DE had little impact on student outcomes but found only a small negative impact.<sup>13</sup> The Martonell and McFarlin study is unique in that it uses data from four-year colleges in addition to two-year community colleges, whereas other studies tend to focus on one or the other.<sup>14</sup> Bettinger et al. (2005) found that “once differences in students’ backgrounds are accounted for, remedial education no longer affects students negatively.”<sup>15</sup> These researchers found that students in math DE had more credit hours than their non-DE counterparts and were also more likely to transfer to a four-year college. Bettinger et al. (2005) notes, however, that DE participation did not necessarily indicate a higher likelihood of graduation.

Researchers have capitalized on the tracking qualities of longitudinal studies to compare non-DE and DE students over time. Overall, there is no clear consensus about the true effects of DE. While many researchers have demonstrated that DE students suffer lower completion rates, findings are mixed as to whether or not DE actually helps prepare students for credit-bearing courses.

### Correlational Studies - Regression Discontinuity

Other researchers use regression-discontinuity (RD) analysis—a particularly strong statistical technique. As Lesik (2006) states, a main strength of a RD design is its usefulness as a statistical technique “to make causal inferences when a treatment program is designed for a specific segment of the population where random assignment is not sensible.”<sup>16</sup> This is specifically pertinent for developmental education researchers because it would be unethical to withhold a treatment (e.g. a developmental math course) from a portion of a studied cohort in order to ensure there was a reliable control group for their analysis. While morally sound, one limitation of the RD technique is that it is *statistically less rigorous than* experimental designs such as random assignment. Nevertheless, DE researchers are able to utilize RD designs because students are required to take placement exams. The placement exam scores can then be used to create two groups of students that are either just below or just above the cut-off score for DE placement. Conceptually, students just below and just above the cut-off score should be very similar to one another, making those just above the cut-off a good control group for those immediately below.

Within the sub-field of DE research, a common question is whether or not at-risk students who participate in DE coursework are more likely to persist in their post-secondary studies as a result of their remediation. Numerous RD studies have been conducted within the last fifteen years, and the results have been mixed. In two of the largest studies, Calcagno and Long (2008) and Martorell and McFarlin (2011) found no compelling evidence that developmental education positively affects student outcomes. Calcagno and Long, using a dataset composed of nearly 100,000 Floridian students at 28 public community colleges within the state, determined that “remediation has both benefits and drawbacks as a strategy to address the needs of

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<sup>13</sup> Martorell and McFarlin, (2011, p. 26)

<sup>14</sup> This is especially true for studies outside of Texas. For example, “remediation in Florida is almost exclusively offered at two-year schools.”

Martorell and McFarlin, (2011, p. 6)

<sup>15</sup> Bettinger and Long, (2005, p. 24)

<sup>16</sup> Lesik, (2006, p. 2)

underprepared students.”<sup>17</sup> The researchers found that students enrolled in math remediation were slightly more likely to persist “fall-to-fall” (one year). Conversely, their analysis also indicated that students receiving English remediation had slightly poorer student outcomes than similar students who did not receive remediation. Martorell and McFarlin examined test scores for over 400,000 students at both two-year and four-year Texas institutions. Similarly to Calcagno and Long, they found “little evidence that remediation improves student outcomes” and may in fact have “a small negative effect on the number of academic credits attempted and the likelihood of completing at least one year of college.”<sup>18</sup> The authors offer several possible explanations for their findings, including that remedial offerings in Texas are potentially ineffective; for example, “because remediation is mandatory for low-scoring students, the incentives to monitor remedial programs and ensure that remedial offerings are of high quality may be low due to the inelastic demand for remedial courses.”<sup>19</sup>

The greatest value of these studies is that both were conducted in large states with diverse populations, making the transferability of their findings more robust than similar studies that examine smaller or more homogenous populations.<sup>20</sup> In light of these facts, some researchers, like McMullin (2012), have come to the conclusion that “given their size and methodological quality, these regression discontinuity studies fairly conclusively demonstrate development education’s ineffectiveness at increasing the number of credit courses passed, GPAs, or graduation rates for a large swath of the students involved.”<sup>21</sup> However, Bailey (2009) notes “nevertheless, these results are only relevant to students scoring near the remediation assignment cutoff scores” and cannot be applied to students with more pronounced basic skills deficiencies who did not fall within each study’s sample bandwidth.<sup>22</sup> In other words, the regression discontinuity design, while methodologically stronger than other designs, does systematically overlook certain groups within the DE population, especially those students who do not score close to the placement test cut-off line.

## Quantitative Survey Studies

A quantitative survey approach uses qualitative research, such as questionnaires, interviews, and focus groups, and then codes and analyzes the data quantitatively. Benefits of surveys include their ability to collect data from multiple areas and populations, achieve a large sample size, and be administered uniformly, which helps avoid potential bias. However, since they are usually anonymous, surveys cannot be used to track a population over time like longitudinal studies.<sup>23</sup> Surveys are also prone to biases. Researchers must be very wary of where and how the survey is sent to prevent selection bias,<sup>24</sup> and questions must be carefully designed

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<sup>17</sup> Calcagno and Long, (2008, p. 22)

<sup>18</sup> Martorell and McFarlin, (2011, p. 26)

<sup>19</sup> Martorell and McFarlin, (2011, p. 23)

<sup>20</sup> For similar studies of DE, conducted using a RD design that focus specifically on developmental English, see Leake and Lesik (2007). For mathematics, see Lesik (2007). For writing, see Famulari (2012). For the role of placement exams on DE, see Horn and McCoy (2009) and Scott-Clayton (2012).

<sup>21</sup> McMullin II, (2012, p. 32)

<sup>22</sup> Bailey, (2010, 257)

<sup>23</sup> Gable (1994, p. 2).

<sup>24</sup> “Selection bias arises under a variety of circumstances. It can derive from the self-selection of individuals into the categories of an explanatory variable, which can systematically distort causal inferences if the investigator cannot fully model the self-selection process.” Collier and Mahoney (1996, p. 59).

to prevent response bias.<sup>25</sup> When combined with a quantitative approach, survey data can be analyzed to develop hypotheses and find relationships.<sup>26</sup>

Quantitative survey based research is useful in determining developmental student perspectives. Coel, Gatz, and Wilson (2000) used surveys to determine student beliefs<sup>27</sup> about learning of 101 DE students.<sup>28</sup> They found that after DE, students generally had naive views on how to acquire knowledge; that is, they only wanted to learn material that would be on quizzes or tests. Students also believed that knowledge is handed down from teachers, rather than between students. However, students typically understood that learning could, and often is, a slow process, requiring review of material more than once. These findings imply additional areas of focus, such as beliefs about learning, may need to be addressed in DE.

Venezia et al. (2010) conducted focus groups with 257 California community college students, which were transcribed for analysis. They also created a telephone survey which was conducted at 110 California community colleges. From the focus groups, Venezia et al. (2010) found that students in DE often became frustrated with the developmental process which had a negative effect on the students' educational goals. There were multiple reasons for this frustration, including students being unprepared for college, the variety of developmental policies across campuses, and the long wait times to meet with advisors. The survey was analyzed to identify trends and variation between community colleges, but the study's results were not statistically significant. Therefore, the authors concluded that "the variation in the data was due to individual college differences and could not be attributed to the other factors we tested."<sup>29</sup>

Quantitative surveys can be used to determine which program structures and policies impact DE outcomes. Carr (2012) evaluated the DE programs of two two-year colleges from the University System of Georgia database, using a survey developed by Boylan and Bonham (2011). Carr (2012) found that designated departments, structured leadership, strategic planning, and hiring practices were the most important indicators.<sup>30</sup> He suggested institutions that spend resources on a permanent DE department and hire skilled DE teachers would be more successful. Nevertheless, several less expensive practices also improved DE programs. For example, "some faculty would offer a retest for students in order to replace the lowest grade in the class" which "motivated students to stay enrolled in the class and successfully complete coursework."<sup>31</sup>

Comprehensive data sets are a valuable tool for researchers within the field of education research. Unfortunately, data sets that include information about DE students are few in number and are infrequently used by researchers.<sup>32</sup> The Center for Community College Student Engagement (CCCSE) produces one of the only data sets that specifically surveys students in two-year public institutions, and some of these students have previously participated in

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<sup>25</sup> "A problem with such self-report measures is their potential susceptibility to social desirability response bias;" for example, "a tendency for subjects to overestimate the importance to them of socially desirable job and organizational characteristics (e.g., challenge and responsibility) and to underestimate the importance of less socially desirable characteristics (e.g. pay)." Arnold and Feldman, (1981. p. 1)

<sup>26</sup> Burke (2004, p. 19)

<sup>27</sup> Epistemological beliefs were defined as the "learners' general understandings about the nature of knowledge and learning." Coel, Gatz, Wilson (2000, p. 1)

<sup>28</sup> Coel, Gatz, and Wilson (2000)

<sup>29</sup> Venezia et al. (2010, p. 26)

<sup>30</sup> Carr (2012)

<sup>31</sup> Carr (2012, p. 82)

<sup>32</sup> Saenz et al. (2011)



developmental coursework. CCCSE administers its survey of community college students during the spring semester and only in credit-bearing courses. As a result, CCCSE's survey captures only former DE students who persisted to (or were simultaneously enrolled in) credit bearing courses and did not drop out before the spring semester. Given the number of DE students who do not persist and whose experiences are thus not recorded, CCCSE conclusions about DE must be taken with the knowledge that a crucial portion of DE students were not able to respond to the CCCSE survey. Saenz et al. (2011) analyzed CCCSE data in an attempt to determine factors associated with student engagement. The authors found a statistically significant relationship between factors, such as sex, and the use of school services on three different levels of student engagement among community college students.<sup>33</sup>

Quantitative surveys have helped DE researchers gain a better understanding of student perspectives, evaluate the effectiveness of DE policies and practices, and determine how some students learn in different ways than others. The findings of these studies reveal many students are frustrated with the DE process, but that some developmental program structures have proven beneficial.

## Qualitative Studies

Unlike quantitative researchers, who focus on hypothesis testing and inferential statistical analysis, qualitative researchers focus on hypothesis generation, discovery and exploration.<sup>34</sup> This distinction may lead some researchers and practitioners to believe that qualitative research is of little use except as methodological designs for exploratory studies.<sup>35</sup> However, qualitative research enables investigators to make determinations of participants' interpretation of constructs, like self-efficacy or sense of community, as well as provide vivid insight into local phenomenon.<sup>36</sup> Two disadvantages of conducting qualitative studies include the inability to achieve generalizability (i.e. statistical inference) and test hypotheses with large samples of participants.<sup>37</sup>

Whereas quantitative studies of DE frequently measure student persistence via positive academic outcomes, qualitative studies examine a more eclectic and diverse group of topics that quantitative researchers are unable to capture. Through qualitative studies, researchers are able to investigate the perceptions, experiences, and inter-personal relationships of students, particularly from the students' own perspectives. Tommaso (2012) conducted a series of semi-structured interviews with DE staff and students at a New York City community college. She found that a social divide may exist between developmental students who chose to attend college and their high school peers that immediately entered the workforce after high school graduation. As these DE students began their post-secondary coursework, the students maintained a "loner" mentality; that is, "they were not interested in friendship and emphasized the need to look out for themselves and not depend on anyone else in order to avoid distraction and disappointment."<sup>38</sup>

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<sup>33</sup> The study found that females were more likely than males to have higher levels of engagement and that students who made use of school services were also more likely to have higher levels of engagement.

<sup>34</sup> Johnson and Onwuegbuzie. (2004, p. 18)

<sup>35</sup> Campbell and Stanley, (1963, 7)

<sup>36</sup> Burke, (2004, p. 20)

<sup>37</sup> Burke, (2004, p. 20)

<sup>38</sup> Tommaso, (2012, p. 950)

However, Tommaso determined that students who avoided social interaction may actually inhibit their own academic success, despite their motivation to succeed.

Perin (2004) performed a qualitative case study of fifteen community colleges nationwide to survey the prevalence and characteristics of learning assistance centers for DE students.<sup>39</sup> Two of the fifteen community colleges studied were located in Texas, and both were found to have learning centers that assisted both DE student, as well as non-DE students. Interviewing learning center students and staff, Perin came to some conclusions applicable to all institutions in her cohort. Specifically, she found all sample colleges had at least one learning center and all offered tutoring. Moreover, “in cases where students decline remedial courses or where these classes are ineffective, assistance in learning centers can help fill in gaps in reading, writing, and math skills.”<sup>40</sup> Perin also posits that “a hypothesis that could be tested is that the generic instruction in DE courses may be less effective than the contextualized learning of skills that may occur...in learning centers or skills labs.”<sup>41</sup> Despite Perin’s suggestion for future research, her proposed hypothesis remains untested. Regardless, the idea that learning centers could exist as more than simply a supplemental option for DE students presents an interesting dilemma for researchers to further explore.

Other qualitative researchers have attempted to observe particular groups or demographics of DE students within the larger population. For example, McPhail (2011) interviewed female African-American community college DE students in the Mid-Atlantic region to assess their emotional experiences. McPhail determined that many community college services for DE students may not be reaching first generation students. Perhaps more disconcerting, McPhail found that “African-American female learners in developmental education do not systematically use college services” and feel “like quitting on a regular basis.”<sup>42</sup> Library science researchers have also weighed in on DE students and how they fare at community colleges. Lee (2012) studied the level of library anxiety of 191 DE English students at a community college in the Los Angeles Community College District. He found that library anxiety was present and that DE students failed to utilize library resources beyond library technology.<sup>43</sup> Additionally, Roselle (2008) interviewed twenty-seven community college librarians nationally and found that librarians “proactively integrate basic library skills into DE and academic success courses.”<sup>44</sup> Future studies of DE that attract researchers to pursue more interdisciplinary approaches will continue to add value to the field.

## Common Hypotheses in the Literature

The primary aim of our study is to test alternative hypotheses that have been put forward in the literature concerning factors that may influence student success in DE. Each hypothesis anticipates results which can be used to forge new policy along relatively broad, yet meaningful lines. Our hypotheses were formulated to provide help in answering the following substantive policy questions: Among the many priorities that a program may emphasize, what is most

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<sup>39</sup> Tommaso, (2012, p. 950)

<sup>40</sup> Perin, (2004, p. 580)

<sup>41</sup> Perin, (2004, p. 580)

<sup>42</sup> McPhail, (2011, p. 206)

<sup>43</sup> Lee also states that developmental students’ avoidance of library services is based more on ignorance than fear. Lee, (2012, p. 84)

<sup>44</sup> Roselle, (2008, p. 24)



important for student success? What explains the low completion rates of many students, especially those from minority and disadvantaged backgrounds? Is it poor teaching? A lack of good advising? Something else?

In our study, we begin to answer these important and relevant questions by asking students about their experiences in the community college system. In so doing, we tested five hypotheses about the most important factors determining student success in DE courses at two-year community colleges. It is important to note we did not attempt to provide answers regarding the single most important factor that leads to student success. Rather, we tested to determine whether support can be given to any (or all) of these hypotheses for DE students in Texas. While the hypotheses identified are by no means exhaustive, they represent broad streams in the current literature. Some of the hypotheses have been tested extensively, but not specifically tailored to developmental students, such as the classroom engagement hypothesis. Others, such as the grit scale, have not yet been widely tested. Therefore, our study is unique in that it takes the following five hypotheses from the literature and places them alongside one another in a single analysis.

*H1: Greater student engagement leads to higher likelihood of student success*

First, some scholars have argued that student engagement is the most important factor regarding student success (CCSSE, Greene 2008). According to this line of thought, community colleges must invest time and energy training professors to create classroom environments that encourage students to participate actively. If students are adequately engaged, they will be much more likely to succeed in their programs (Caporrimo 2007, Greene 2008, Handelsmen et al 2005, Kuh et al 2008). Therefore, student success hinges on the ability of teachers and the methods used in the classrooms (Caporrimo 2007, Greene 2008, Handelsmen et al 2005).

*H2: More contact with advisors/advising leads to higher likelihood of student success*

Second, others have posed that advising is the single most important service that can be given to students (Scott-Clayton 2011). Therefore, according to the advising hypothesis, if a community college invests in high quality advising, their students are much more likely to succeed. It is believed that developing an education plan and checking in regularly with an advisor will keep students on track to set goals and achieve them.

*H3: Greater student connection to the school community leads to higher likelihood of student success*

Third, some argue that a student's connection with the school community is the most important factor determining success (O'Gara et al. 2009, Astin 1977). Students must make meaningful, personal connections with others at the school, whether with staff, administrators, professors or students, in order to be successful. On this view, the friendliness and attention to the lives of students is paramount in their overall success. Connections can be defined as learning a student's name, having substantial conversations, and other actions that create a sense of community and belonging for the students.

*H4: Higher than average grit scale score leads to higher likelihood of student success*

Fourth, a recent hypothesis put forward by Duckworth et al. (2007) is the so-called “grit” scale. According to this hypothesis, grit measures a person’s “perseverance and passion for long-term goals” (2007, 1087). In Duckworth et al.’s original article, the grit concept was applied directly to educational attainment (as well as a few other applications) and found to have a positive effect on student success. This confirmed earlier work by Duckworth and Seligman (2005) that came to similar conclusions about the connection between self-discipline and academic success. Strayhorn (2013) confirmed grit’s validity as a predictor of success for a minority population in higher education. Segal (2008) also found a correlation between inner motivation and higher test scores. Chamorro-Premuzic and Furnham (2003) found personality traits had an effect on educational success. Several others have found this as well (Komarraju et al. 2009, Dollinger et al. 2008, Poropat 2009, Conard 2006).

It should be noted that, by its very nature, the grit scale measures something that is out of a school’s control: the commitment students have to their own success. It is believed that if students have the desire and fortitude to complete what they set out to do, they are much more likely to be successful. Therefore, it seems likely that students with the most grit will have the highest likelihood of making it through the system.

*H5: Increased prevalence of outside-of-school factors leads to changes in student confidence.*

A fifth and final hypothesis to explain student success is the presence of outside factors that could either hinder or promote student success. Such outside factors are lack of finances, lack of support from family and friends, or the presence of other responsibilities such as children or time-intensive employment. Svanum and Bigatti (2006) found that work activity affected the effort students could put toward their courses, and therefore negatively affected their grades. Markel and Frone (1998) had similar findings almost a decade earlier. Bozick (2006) found that students who live at home and work more than 20 hours each week are more likely to drop out of school in their first year. Trockel, Barnes, and Egget (2000) found that several factors had either positive or negative effects on success in first year college students. In this instance, as in the grit hypothesis, there may be little that the school can do to mitigate or even perceive the presence of these factors. We define “outside factors” as those that take place off of the school campus. While this may be a broad category, it has important implications for school administrators and policymakers. If the reason that many students are failing is because of outside factors, this presents an entirely different set of concerns to community college administrators than, for instance, a lack of quality advising. In addition, policymakers would be interested to know whether low student success rates are attributable to education policy, or to the difficulties in the outside lives of students.

Figure 1 summarizes the five hypotheses explored in this analysis.

**Figure 1: Summary Hypotheses**

<b>Hypotheses</b>	<b>Representative Studies</b>
H1: Greater classroom engagement leads to higher likelihood of student success	Caporrimo 2007, Greene 2008, Handelsmen et al. 2005, Kuh et al. 2008
H2: Higher quality advising leads to higher likelihood of student success	Scott-Clayton 2011
H3: Greater student connection to the school community leads to higher likelihood of student success	O’Gara et al. 2009, Astin 1977
H4: Higher than average grit score leads to higher likelihood of student success	Duckworth et al. 2007, Strayhorn 2013
H5: Increased prevalence of outside-of-school factors affects likelihood of student success	Trockel, Barnes, and Egget 2000, Bozick 2006, Svanum and Bigatti 2006

## **METHODOLOGY OVERVIEW**

Few studies, if any, have attempted to combine the perspectival and experiential aspects of the qualitative studies with a statistically rigorous quantitative method. To do so would give such a study relevance to the student perspective, while also retaining the credibility needed to convince policymakers and practitioners. Therefore, this analysis follows a mixed methods approach.

A mixed methods approach seeks to combine the best attributes of quantitative and qualitative research and mitigate the shortcomings of both. Accordingly, Valerie Caracelli defines “a mixed method study is one that planfully juxtaposes or combines methods of difference types (qualitative and quantitative) to provide a more elaborated understanding of the phenomenon of interest (including its context) and, as well, to gain greater confidence in the conclusions generated by the evaluation study.”<sup>45</sup> Operationalizing Caracelli’s definition, a study of DE students’ perspectives, which should be both phenomenological and pluralistic in analysis, is well suited for a mixed methods design.

The research team explored the five hypotheses in Figure 1 using two methods. The first was a survey administered electronically to students at nine Texas community colleges. The second method involved focus groups at two community colleges that were outside the survey sampling frame but which were similar with regard to student body composition. The goal of the focus groups was to collect data related to the hypotheses in order to provide a narrative of student experiences. Additionally, the focus groups provided DE students an opportunity to express opinions and insights not often mentioned in the academic literature. Using each method provided findings which were integrated together to support our study’s ultimate conclusions and policy recommendations.

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<sup>45</sup> Burke et al. (2004, p. 112)

## SURVEY METHODOLOGY

The following sections outline the major concepts needed to understand the study's regression model and results.

### 1. Survey Sampling Frame and Participation

Selected community colleges were asked to participate in the survey, and administrators at each institution were in charge of distributing the survey to their college's students.

#### *Sampling Frame*

We chose to study community colleges which served a higher than average percentage of economically disadvantaged students. In Texas, 41% of all students entering college require some form of DE, and of those, 80% attend a community college (THECB 2012, 2013). This makes DE primarily an issue for community colleges. Students of low socioeconomic status are also more likely to need DE (CCA 2011).

Economic situations vary according to a student's place of residence, especially in a state as large and diverse as Texas. For example, the cost of living in Dallas is quite different than the cost of living in Brownsville (a 10 point difference on a 100 point scale) (Sterling's Best Places 2010). Accounting for these regional differences helped us compare "apples to apples." In order to pinpoint the schools that serve the most disadvantaged students relative to other schools, it was necessary to account for these regional variations.

The Texas Higher Education Coordinating Board (THECB) splits the state into 10 geographic regions. Within the regions, institutions with similar economic environment and student population are grouped. We narrowed our research focus to the five regions with the highest total student populations. This allowed us to make intra-regional comparisons while still maintaining the ability to generalize our results across the entire state. By narrowing our study in this way, we retained 74% of the two-year institutions in Texas and 88% of the students at two-year institutions.

Next, we identified those schools that have typically served an above average share of disadvantaged students relative to their region. We used the percentage of Federal Pell grant recipients as our proxy for low socioeconomic status (SES). Pell grants were a useful proxy for socioeconomic status because they provide a uniform standard of demonstrable financial need. However, they are not a perfect measure because the size of the award is partially based on the tuition rate, which varies by institution. We assume that the regional groupings used in our study offset some of the potential discrepancies, as does our focus on the number of recipients rather than the amount of the awards. All 16 two-year institutions with Pell grant reciprocity rates above the regional average were included in the sample. Nine of the 16 agreed to participate and administer the survey to their students.

#### *Survey Administration*

The survey was administered in late March and early April 2013 to the nine participating community colleges. Those colleges were Paris Junior College, Northeast Texas Community College, Weatherford College, Coastal Bend College, Southwest Texas Junior College, Lee

College, South Texas College, McLennan Community College, and Laredo Community College. Administrators at each college sent the survey out via e-mail, and the research team accepted responses from each institution for twenty-one days. Survey responses were collected electronically through Qualtrics survey software.

Respondents who elected to participate were entered into a drawing for one \$250 gift cards. The drawing was not mentioned in the subject line of the email, in order to avoid providing improper incentive. The survey was approved by Texas A&M University's Institutional Review Board (IRB), as well as the local review board for each participating institution that had one. The survey did not ask students for any potentially embarrassing or incriminating questions, and the responses have been de-identified.

### *Survey Design*

The survey was designed with groups of multiple questions used to test each of the five hypotheses used in this study. The survey also included a number of questions to control for the effects of different factors in the student population, such as demographic information and educational background. In addition, the survey also included a segment of questions used to obtain the students' expectations of their own future success. This group of questions was combined into a continuous variable and used as the dependent variable in our study. Each of these aspects of the survey design is described in greater detail in the sections that follow.

For the purposes of our analysis, we needed to split the survey respondents into different groups. Therefore, it was necessary to construct the survey with proper branching to direct certain groups to certain questions, or out of the survey entirely. For instance, students who are under 18 could not be included in the study, and therefore the survey was designed in such a way that these students would not be allowed to complete the survey. In addition, we asked students to indicate whether they fell into a category that is automatically exempted from DE, such as former US soldiers. These students could not be included in our analysis because they are exempted from placement exams, which are a key component of our RD design.

The respondents who were still eligible for analysis were then asked to indicate whether they were required to take a placement exam. Being required to take a placement exam indicates that the student did not receive a high enough score on other standardized tests to be automatically exempted from DE. In addition, students were asked to indicate which classes they had taken. This question lists all DE courses offered at the institution the respondent attends. By asking students about the specific classes they took, the survey attempted to avoid the problem of students' confusion about whether they were, in fact, enrolled in DE courses. If the student indicated that he or she had taken any one of these DE courses, the student was coded as a DE student. The students who indicated that they had taken "none" of these courses were coded as non-DE students.

## **2. Three Analytic Models**

Ultimately, three models were created which will be referred as Models 1, 2, and 3 throughout the report.

- Model 1 tested the hypotheses for all non-DE students (i.e. all students in our sample who reported never taking a DE course).
- Model 2 tested the hypotheses for all DE students, which includes every student in our sample who indicated that they took a DE course.
- Finally, Model 3 tested for differences between DE and non-DE students using an RD research design. Here we included the students, both DE and non-DE, who were most academically similar and closest to the placement test cutoff score. The DE students included in Model 3 can be thought of as the nearly college ready students, while the non-DE students included in Model 3 can be thought of as the barely college ready students.

By comparing the results across the three models, we could gain a more nuanced and robust understanding of which hypotheses were influential. We were able to find out whether certain hypotheses might affect student groups differently, depending on whether they are in DE or not. Solutions are often offered for community college students generally, without regard for the inherent differences that may exist between student groups; this approach can reliably reveal those differences

The purpose of the RD design is to roughly simulate a controlled experiment in situations where such a design is not feasible. The ideal form of the RD design for a DE study would involve comparing students from two groups whose scores are close to a placement exam cutoff score, either just above or just below the cutoff. This separates respondents into DE students (just below the cutoff) and non-DE students (just above the cutoff). The DE students are the treatment group, while the non-DE students are the control group. The students in these two groups, it is assumed, are relatively similar academically and therefore a comparison between the two is valid. Comparing the two groups allows inferences to be made about how different factors influence DE and non-DE students. Using an RD design was therefore desirable for our study because it allowed us to understand the effects of each hypothesis on similar DE and non-DE students.

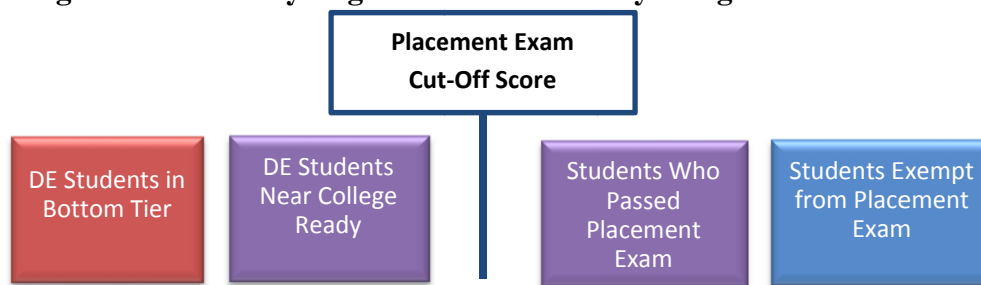
In order to use a regression discontinuity design in analyzing the results of our survey, we developed a variation on the ideal RD design. In designing this variation, we needed to account for the fact that we would not have access to student scores on placement tests. In addition, it is likely that students had not taken the same placement tests because there are currently several tests in use across the state.<sup>46</sup> However, it was desirable to focus on students close to the cutoff score since those students were presumably the most similar, and only a small difference in degree separated them into DE and non-DE cohorts. In order to determine which students to include in this type of analysis, we first narrowed the sample of non-DE students to those who took a placement test but took no DE courses. This was chosen as a method for dividing those not in DE into two groups. Those who are not required to take a placement exam were automatically exempted due to satisfactory scores on standardized tests such as TAKS, ACT, SAT, etc. Thus, those who were still required to take a DE placement test, but who did not place into DE, were considered closer to the dividing line than their automatically exempted non-DE peers. In order to determine which DE students would be evaluated under the RD design, we excluded any students who were enrolled in the lowest level DE courses at their institution. (See

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<sup>46</sup> As a result of HB 1244's passage in the 82<sup>nd</sup> Legislative Session, there will be only one placement test in use beginning in the fall of 2013

Figure 2.) The assumption was, in a tiered DE system, students who placed into the lowest level DE courses had the lowest placement test scores. Therefore, it is thought the RD design effectively removed those students who are academically the least similar – those who automatically placed out of DE and DE students in the lowest tier. This enabled us to compare the most similar student, to determine more effectively what effect DE has had on them and how different factors influence them.

**Figure 2: The Fuzzy Regression Discontinuity Design**



The ideal RD design would match each survey respondent with his or her exact scores on a standardized placement exam. This would require all students included to have taken the same exam and for these scores to be known to the researcher and matched to each student for placement in either the control or treatment group. However, this type of comprehensive knowledge of students' test scores and the standardization of placement exams and program types is virtually impossible in the current educational environment (though the state is moving toward a standard statewide placement exam.) The high variability of program structures and other institutional factors has significantly discouraged anyone from attempting a survey of multiple schools while still employing an RD design. But as Shadish, Cook, and Campbell (2002) write, "a fuzzy cutoff RD design may produce better estimates than many other quasi-experiments if the fuzziness is not too great" (229). Therefore, although imperfect, the fuzzy regression discontinuity design allowed us to achieve a higher level of certainty in the results of our analysis because similar students are being compared. This, in turn, enabled us to see the true effects of DE on students and how the state may need to devise policy differently for DE students and non-DE students.

One concern with any RD design is the bandwidth, or in other words, the rule about how far from the cut-off score a person can be and still remain in the analysis sample. Narrower bandwidths lead to more reasons to believe the treatment and control groups are similar, but smaller samples for analysis. Researchers typically adjust the bandwidths to help demonstrate the robustness of their analyses. Because no test scores are available to establish the bandwidths, and respondents self-selected into categories broader than those which would have been established by test scores, adjusting the bandwidth with precision is not feasible.

### 3. Factor Analysis

Another key component of our research design is factor analysis. We used factor analysis to summarize the answers to multiple survey questions. Factor analysis addresses an important issue in understanding survey results: individual questions cannot capture everything. Because of this, it is "necessary to ask a series of questions about the phenomenon and then

appropriately combine the resulting responses into a single measure or ‘factor’” (Fricker, Kulzy, and Applegate 2012, 1). Using advanced statistical methods, factor analysis collapses responses to multiple questions into a few or even a single factor, which is a weighted average of the question responses. The “factors” created are continuous variables that can be used in regressions and other methods of quantitative analysis.

Employing factor analysis provides two distinct benefits: simplicity and robustness. First, factor analysis takes what is complex and makes it simple. Understanding survey responses can be daunting because questions often simultaneously measure numerous, distinct phenomena. Though researchers may have some idea of how questions should be thematically grouped together, this is often difficult to verify. Factor analysis allows the researcher to “disentangle complex interrelationships in their major distinct regularities” by combining and weighting the questions (Rummel Summary 2013). Thus, the researcher can have the mathematical verification needed to establish a few factors that accurately and simply represent the broad ideas captured by the questions asked. Second, factor analysis is more robust and nuanced than most other methods of analyzing responses to multiple questions. A typical analysis method is to take a group of questions and find the mean of each respondent’s answers to the question group. While attractive for its ease, this method cannot verify a number of its inherent assumptions. Using a mean requires the researcher to justify the belief that all of the questions affect respondents in a similar fashion. It must also be argued that all of the questions should be weighted equally. Factor analysis, on the other hand, provides a robust method for weighting questions appropriately, and does not assume all questions affect the population in the same way. Ultimately, factor analysis is a much more nuanced way to understand responses to survey questions because it provides statistical justification for the way questions are collapsed and weighted in factor variables.

The simplicity and robustness of factor analysis made it an ideal method for analyzing our survey results. Our survey groups questions into five modules, which correspond with the five hypotheses put forward in our study. Though the questions for each module are similar in nature, they may at times capture distinct concepts. Factor analysis offered a nuanced, robust method for grouping the question responses into just a few, discreet variables. These were then used in our larger model, which tests all of our hypotheses together in a regression. Additionally, using factor analysis removed some of the inherent subjectivity in interpreting and grouping responses together. Instead, we were able to make groups based on rigorous statistical analysis.

## **Components of the Regression Model**

One of the more complex challenges of our study was defining and measuring success for community college students. A broad assumption in most education literature is that student success is indicated by the graduation rate. Within that, there are interim outcome measures that are often used, such as completion of first semester courses, completion of first year courses, completion of remedial coursework, or successful transfer to a four-year institution. In addition, researchers sometimes use long term outcome measures, such as the ability of students to earn more income than their peers who did not attend college. With his approach, researchers try to determine whether education had a measurable economic effect on an individual’s future, thus showing whether the education was worth the investment. These different types of outcome measures are important for knowing whether a student has succeeded in his or her educational program.



What can be done when outcome data is difficult or impossible to obtain? This question leaves researchers in a challenging situation. One option is to conduct a longitudinal study that tracks students through the system and keeps record of outcome measures; however, the problem with this method is that the sampling frame is often severely limited in its scope due to logistical and cost concerns. This can significantly detract from the usefulness of such studies because they must limit the number of institutions and students who participate. A second option is to conduct a survey and extrapolate the likely student success rate by using outcome data reported by the entire institution. This method, however, cannot connect the outcomes to any individual respondent. Thus, the studies rely heavily on extrapolated statistical methods and likelihoods rather than the reported experience of individual students. The first option fails in its scope, and the second fails in its lack of connection to individual respondents.

In this study, we attempted to find a *via media* between the two approaches by developing a proxy for success – the Anticipated Academic Success Index (AASI). Our study employs an index generated from student responses to five questions that assess their expectations of their own future academic success. The questions require students to indicate their confidence in their education plan (question 1) and their ability to achieve high grades (question 2) in their current courses. These questions track interim outcome measures. The index also uses degree completion questions, such as student confidence in finishing their degree (question 3) when they expect (question 4). These two questions track the primary success measure, the graduation rate. Finally, the index includes a question about achieving future goals (question 5). This final question is a long term outcome measure. The anticipated success method addresses an inherent weakness of the longitudinal approach by allowing the survey to be administered to a much broader pool of respondents quickly, at low cost, and without breaching confidentiality or privacy. Additionally, because each respondent reports his or her own information, AASI addresses the weakness of the extrapolation approach by connecting outcomes to individual respondents

This approach is based in part on literature which finds a connection between student predictions and achieved success. An early study by Keefer (1969) demonstrated that student predictions of their future grades were not only accurate, but more accurate than standardized test scores and high school GPA. Gadzella et al. (1976) also found, in agreement with several earlier studies, that students were optimistic, but credible, in predicting their future success. Further support for these results was provided recently by Hacker et al. (2000) and Svanum and Bigatti (2006). In the same line of argument, Mattern and Shaw (2010) found generally that students' self-assessment of their ability had a demonstrable connection to future academic outcomes. It is also important to note that Gadzella et al. (1976) found that students' grade predictions became more accurate as the semester progressed, which suggests that our data may have gained additional credibility because the assessment was performed after spring break. Together, this literature provides the basis in our study for connecting students' anticipated success with students' realized success. Moreover, combining a brief set of expectation-related questions using factor analysis is not without precedent, as this is the approach used by Henson (1976). The Anticipated Academic Success Index is, therefore, a rather helpful proxy for researchers to use in place of student success.

As is the case with all approaches to measuring success, AASI has certain limitations. Although it is based in the literature, AASI itself has not yet been tested by other studies. Future

research should be conducted to demonstrate the usefulness and accuracy of AASI as a proxy for success.

## 1. Dependent Variable: Anticipated Academic Success Index

In order to determine student success, a proxy variable, which asks students to anticipate their success on a number of future outcomes, was developed. Students were asked to rate their confidence (on a scale ranging from “very confident,” “confident,” “somewhat confident,” “not very confident,” to “no confidence”) regarding the following five statements:

- 1) I have a good plan for my education.
- 2) I will get high grades in the classes I am taking this semester.
- 3) I will finish my degree.
- 4) I will finish my degree when I expect.
- 5) I will achieve my goals.

The first two statements represent interim outcomes which are necessary on the path to successful completion of DE. Statements three and four are related to the educational outcome: earning a degree. The final statement was used to measure students’ expectation that they would achieve their ultimate goals, whatever those might be.

Taken together, student responses to these statements allowed us to create what we have called the Anticipated Academic Success Index (AASI) for each respondent. Factor analysis was used to ensure that the statements were conceptually similar (i.e. that they measured the same concept).

**Figure 3: Success Factor Frequency Graph**

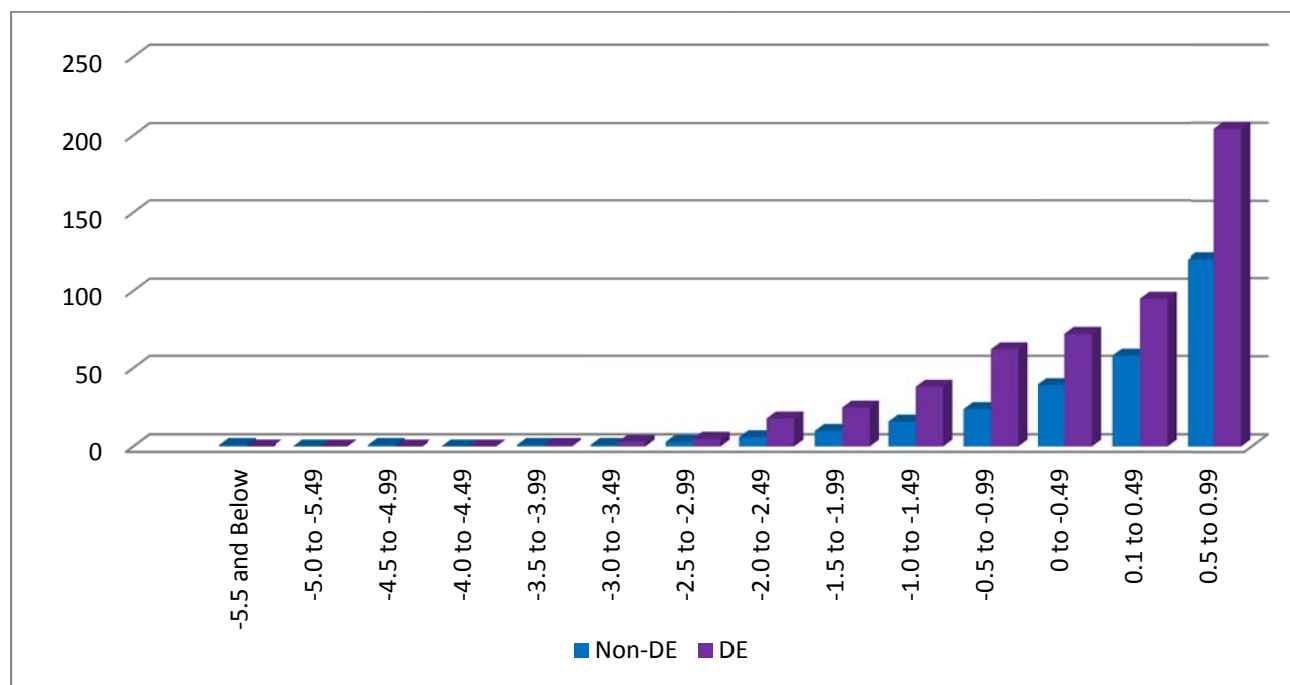


Figure 3 shows that DE and non-DE students are similarly distributed, which adds to our ability to validly compare them.

## 2. Control Variables

Control variables were used to account for potential influences on student success that were not related to the hypotheses under study. For instance, a control variable for age was used to determine whether the age of a given respondent was a more important influence on student success than, say, a student's engagement in the college community or grit (both of which the survey specifically targeted as possible influences on student success). Each control variable was used as a sort of insurance that the measurement of the influence of each hypothesized factor was in fact measuring the impact of that factor, as opposed to the influence of some other, unanticipated influence, like age, sex, minority status, or any number of others.

The following table features the descriptive statistics of our dataset. Each variable was used as a control variable in the major regression table that produced the results of our study. The following paragraphs will treat each group of controls in turn, with a brief explanation of why they were used.

As Figure 4 demonstrates, respondents were generally demographically similar.

**Figure 4: Descriptive Statistics for Control Variables**

<b>Variable</b>	<b>DE Students in Bottom Tier</b>	<b>Near the Line (DE)</b>	<b>Near the Line (non-DE)</b>	<b>Exempt from Placement Exam</b>
<b>Demographics</b>				
Male	0.229	0.189	0.324	0.259
Children Present	0.440	0.463	0.280	0.227
Respondent's First Language	0.827	0.821	0.815	0.867
Minority status	0.515	0.531	0.473	0.436
Single (relationship)	0.531	0.578	0.684	0.721
Grants	0.625	0.678	0.578	0.575
Age: 18 to 19	0.204	0.178	0.368	0.392
Age: 20 to 21	0.160	0.168	0.219	0.208
Age: 22 to 24	0.094	0.110	0.070	0.107
Age: 25 to 29	0.097	0.136	0.114	0.031
Age: 30 to 39	0.185	0.221	0.140	0.082
Age: 40 to 49	0.147	0.126	0.026	0.113
Age: 50 and over	0.110	0.057	0.061	0.063
<b>Educational Background</b>				
GPA	3.047	3.102	3.447	3.493
Full Time Student	0.707	0.715	0.815	0.727
Attended Texas high school	0.726	0.763	0.745	0.822
Graduated from high school or earned GED	0.735	0.710	0.728	0.689
Parents Higher education	0.308	0.3	0.447	0.424
First Generation College Student	0.584	0.605	0.482	0.544
Enrolled in a Math DE	0.867	0.842	0	0
<b>Natural Confidence</b>				
Always confident	0.320	0.336	0.271	0.208
Usually confident	0.540	0.536	0.614	0.689
Occasionally confident	0.103	0.110	0.087	0.094
Rarely confident	0.031	0.015	0.017	0.006
Never confident	0.003	0	0.008	0

## *Demographics*

As is customary, our study controlled for several demographic variables: sex, dependent children<sup>47</sup>, English as first language, minority status<sup>48</sup>, marital situation<sup>49</sup>, government grants, and age<sup>50</sup>.

The “grants” control variable is important to our analysis. This indicates whether a student received government grants or assistance to attend college. We have used this as a proxy for low socioeconomic status. Controlling for the effect of low SES helped us separate the impact of the hypotheses from the effects of each student’s financial situation. This was important to consider because low SES students are underprepared at a higher rate than others, which suggests that there may be systematic differences in this population.

## *Educational Background*

In addition to demographic factors, our study controlled for variables related to a student’s education background, including the following: high school grades<sup>51</sup>, Texas public or charter high school attendance<sup>52</sup>, high school completion<sup>53</sup>, parents’ higher education<sup>54</sup>, and first generation college student<sup>55</sup>. This background information accounts for education-related issues that may affect students both before attending college and after they enroll and begin. Additionally, it seems reasonable to believe that such background factors may influence a student’s anticipated academic success.

Ongoing education-related factors are also held constant in our analysis. These ongoing factors include full-time student status and enrollment in math DE courses. The first controls for whether a student is part-time or full-time, which could potentially affect the amount of time a student can spend on schoolwork. The second controls for students who only took DE math courses, but were deemed adequately prepared for reading and writing courses. Controlling for enrollment in only math DE courses accounts for any differences between students who only took math and those who also (or only) require DE courses in reading and writing.

## *Current Institution*

Our study also controlled for each participating institution. This was done in order to account for the differences between institutions, which might allow the respondents from one

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<sup>47</sup> The survey asked students to indicate whether they have children who “live with you and depend on you for their care.”

<sup>48</sup> Our study defined “minority” as all non-white students. Thus, students were a “1” in the minority variable if they indicated that they were Hispanic, Black, Native American, Asian, or Other.

<sup>49</sup> Our study defined “single” as all students who indicated that they had never been married. Students were a “0” if they indicated that they were married, divorced, widowed, or separated.

<sup>50</sup> The effects of age are grouped into smaller denominations for the younger age groups, but larger for older age groups. This is a standard way to group ages for studies of higher education.

<sup>51</sup> Students indicated their high school grades by ranges, such as “A” or “A- to B+”, etc. These were converted into a grade point average on a four point scale. Thus, the sample average is 3.2, which would be a low to mid B.

<sup>52</sup> Students were included in this group for attending a public or charter school in Texas at the high school level. They did not have to graduate from a Texas public or charter school to be included in this group.

<sup>53</sup> Our study included as a “1” in this group students who had graduated from high school and those who had successfully attained a GED.

<sup>54</sup> Respondents were coded a “1” for this variable if they indicated that either or both of their parents had received an associate, bachelor, master, or doctoral degree.

<sup>55</sup> Students were coded a “1” for this variable if they indicated that they were a first generation college student.

institution to unduly influence the results. This also helps control for the effect of particularly low-performing local high schools.

### *Natural Confidence*

Lastly, our study controlled for the effect that a student's natural confidence may have on the results. This was needed because our study relies on students' predictions of their own future success. As such, it is possible that some students may naturally be more confident about their future success than others. This is a personality trait that could make the confident students systematically different from others. To account for this possibility, a question was placed in the survey to ask students whether they are typically confident in their decisions. We then controlled for their natural confidence based on their response to reduce the extent to which personality might bias our results.

### **3. Independent Variables: The Five Hypotheses**

For each hypothesis, we created a set of questions which would act as a measure of the influence of a given hypothesis. For instance, to determine the quality of advising (*H2*) for respondents, we asked a series of questions regarding their experiences with academic advisors. The statements we used to evaluate students' experience with academic advising were:

- 1) My advisors helped me to create a long-term plan.
- 2) My advisor clearly explained how my placement test scores determined if I was ready for college level courses or needed to take developmental education.
- 3) My advisor explained developmental education to me in detail.
- 4) My advisor was knowledgeable about the developmental education program.
- 5) I was able to meet with an academic advisor at times convenient for me.

Students not enrolled in DE courses were given a nearly identical version of the statements, edited to remove mention of DE. Using factor analysis, we determined that the questions regarding advising dealt with two distinct, but related concepts: use of advising and experience with advising. Therefore, we included both factors in our analysis.

Similarly, a set of questions was used to determine a respondent's grit level. As with advising, factor analysis was used to generate a more nuanced understanding of the grit factor. Factor analysis indicated that grit was composed of two separate factors: "diligence" and "resilience." The questions used to determine grit are as follows<sup>56</sup>:

1. New ideas and projects sometimes distract me from previous ones
2. Setbacks don't discourage me
3. I have been obsessed with a certain idea or project for a short time but later lost interest
4. I am a hard worker
5. I often set a goal but later choose to pursue a different one
6. I have difficulty maintaining my focus on projects that take more than a few months to complete
7. I finish whatever I begin

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<sup>56</sup> These questions come from Duckworth et al. (2007)

## 8. I am diligent

Figure 5 shows that the diligence factor (drawn from factor analysis) is highly correlated with the grit scale, while the resilience factor appears to be measuring something conceptually different than grit.

**Figure 5: Factor Analysis applied to Grit**

	<b>Grit Scale</b>	<b>Diligence</b>	<b>Resilience</b>
<b>Grit Scale</b>	1.000		
<b>Diligence</b>	0.9864	1.000	0.000
<b>Resilience</b>	-0.0402	0.000	1.000

The research team created groups of questions which were used to test each of the five hypotheses. Those questions were designed so that the team could analyze the impact of each hypothesis on the dependent variable, students' predicted success (see Appendix B for a representation of questions used to generate each hypothesis factor and Appendix C for a distribution of the factors). The five hypotheses and corresponding factors used in this analysis are shown in Figure 6.

**Figure 6: Summary of Hypotheses and Factors**

<b>Hypotheses</b>	<b>Factors Generated to Test Hypotheses</b>
H1: Greater classroom engagement leads to higher likelihood of student success	Class Experience
H2: Higher quality advising leads to higher likelihood of student success	Advising Use, Advising Experience
H3: Greater student connection to the school community leads to higher likelihood of student success	Name, Interaction
H4: Higher than average grit score leads to higher likelihood of student success	Grit, Resilience
H5: Increased prevalence of outside-of-school factors affects likelihood of student success	Money, Time, Support, Withdraw

## SURVEY RESULTS

The following section details the results of our major regression model for each group. Please note that the models all used the Anticipated Academic Success Index (AASI) as the dependent variable. We also controlled for all of the control variables listed in the control variables section of the methodology. Finally, all hypotheses were tested at the same time in the model. The results that follow take account of the effect of all factors at the same time. We only

reported as significant those results that were at the 5% confidence level, unless otherwise noted. There were 780 usable responses.

## H1: Classroom Engagement

As is the case in prior research, we found that classroom engagement is significantly and positively related to anticipated student success. Students who report that they felt engaged in class were more likely to also report they expected to succeed academically; however, we only found this pattern for non-DE students. It is not significant for DE students. In the RD model, there was a significant and positive relationship for non-DE students. However, it was not significant for the near the line DE students. Our tests showed that the non-DE students and DE students, holding all other things equal, are significantly different from one another. Ultimately, this suggests that a more engaged classroom environment could generate positive gains for those not in DE courses, but we found no reason to believe it will have any of these positive gains for DE students.

Perhaps DE students do not systematically respond to classroom engagement because the determinants of their success lie elsewhere. These DE students have had setbacks and endured hardships. They have financial and other barriers to face. An engaged classroom, as important as it may be, cannot address these other factors. Classroom engagement certainly does not negatively affect DE students' success, but it is not the silver bullet that will solve all DE students' problems.

## H2: Advising

Advising use alone is not statistically significant for any of the groups we tested. Advising experience was significant for the DE student group, but it was negatively correlated with the success variable.<sup>57</sup> It was not significant for the non-DE or near the line groups.

It is perhaps a bit surprising that a better advising experience would be negatively correlated with anticipated success, meaning that as students have better advising experiences, they are less likely to predict success. This can probably be explained when we consider which students are most likely to spend a significant amount of time seeking help from an advisor. The students who struggle the most in DE will probably seek out the most help from an advisor, especially when they fear they are likely to fail. This could explain the findings in a reasonable way. We do not interpret the findings to suggest that high quality advising would *cause* a decreased likelihood of success.

## H3: Community Connection

We tested the community connection hypothesis using two factors: community interaction and learning students' names. Both factors were not statistically significant for any student group in our population.<sup>58</sup> This leads us to reject the community connection hypothesis.

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<sup>57</sup> In this case, the F test is numerically significant with an F value of 4.43 and a P value of 0.04. See appendix F for details.

<sup>58</sup> The F test of both the Interact and Name factors, testing for the school community hypothesis, for non-DE students was not significant, with an F value of 0.69 and a P value of 0.50. The F test for DE students was not significant, with an F value of 2.85 and a P value of 0.06



We have no reason to believe that a better connection to the school community in any way *negatively* affects students; however, we did not find statistical support for this line of thinking. Therefore, though institutions are encouraged to try to create an inviting school community, we cannot provide any support for believing this will increase the predicted likelihood of students' success.

One explanation for these results could be that students need the support of their existing familial and social relationships, rather than of the school community, because they are attending college close to home. As will be discussed in the Outside Factors hypothesis results, support from friends and family is significant and positive for all groups. In addition, students who attend community college typically do so close to their home, which means they are still surrounded by their primary social network of family and friends. Perhaps this means many students are not necessarily in need of a close connection to their school, because of the close proximity of other established relationships.

#### H4: Grit

The first grit factor, which measures a student's overall diligence, is statistically significant and positively correlated with the dependent variable for all DE students and all non-DE students. It is also significant and positive for both groups near the line, but the effect lessened somewhat for the near the line DE students, and was only significant at the 10% level.<sup>59</sup> Though only significant at the 10% level, we determined that the finding was still important to report because grit is a unique intrinsic factor that has not yet been heavily tested. We found no statistical difference between the two near the line groups.

The findings lead us to suggest that the grit hypothesis is supported for all groups. Thus, grit is an important factor to consider for all students at community colleges. When comparing students who are closest to the cutoff score, however, grit may play a slightly stronger role in the success of those students just above the line.

The second grit factor, which measures a student's self-reported resilience in overcoming setbacks, was significant and positive for all DE students.<sup>60</sup> It was not statistically significant for non-DE students. For the groups near the line, resilience was not significant for those non-DE students above the line. Interestingly, it was significant and influential for DE students.<sup>61</sup> In addition, the positive effect for DE students near the line was more than double the effect for DE students generally.

These findings lead us to suggest that resilience increases in importance as students become closer to the cutoff score. Placing into DE may have been a disappointing experience for them, which means that those students who have the most inner resilience were best equipped to deal with this setback and anticipate success in the future.

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<sup>59</sup> The F test of the grit factor is numerically significant with an F value of 3.73 and a P value of 0.05. The coefficient is 0.15.

<sup>60</sup> The F test is numerically significant with an F value of 11.52 and a P value of 0.001. The coefficient is -0.22.

<sup>61</sup> The results for this factor (labeled "setbackfact" in Appendix C) appear negative in the regression results but this is merely a result of the wording of the questions for this factor. A negative "setbackfact" result suggests students who are more resilient in the face of setbacks are more likely to succeed.

## H5: Outside Factors

The money factor, which measures students' confidence that they will be able to pay for college, is significant for DE students. The more confidence DE students report in their finances, the higher their likelihood of anticipated success. Money was not a significant factor for non-DE students or the near the line groups.

The time factor, which measures students' confidence that they will have adequate time to prepare for their classes apart from work and other responsibilities, was not significant for any of the groups we tested. This suggests that time-intensive responsibilities outside of school do not have a systematic effect, either positive or negative, on students' anticipated success.

The support factor, which measures the support that students have from family, friends, classmates, and administrative staff, was significant and positive for all of the groups in our study.<sup>62</sup> For all community college students, whether they are in DE or not, supportive relationships increase students' anticipated success.

The withdraw factor, which combines several outside factors that could cause students to leave school, was not significant for any group. Thus, students who reported the presence of outside factors that could cause withdrawal were not systematically less likely to anticipate success.

Figure 7 is a representation of the results discussed above.

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<sup>62</sup> The F test is numerically significant with an F value of 5.55 and a P value of 0.02. The coefficient is 0.21.

**Figure 7: Results Summary**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	
	<b>Non-DE (all non-DE students in our dataset)</b>	<b>DE (all DE students in our dataset)</b>	<b>Barely college ready (Non-DE)</b>	<b>Nearly college ready (DE)</b>
H1: Classroom Engagement	Yes, positive	--	Yes, positive	--
H2: Advising (used)	--	--	--	--
H2: Advising (experience)	--	Yes, negative	--	--
H3: Community Connection (name)	--	--	--	--
H3: Community Connection (interaction)	--	--	--	--
H4: Outside Factors (money)	--	Yes, positive	--	--
H4: Outside Factors (time)	--	--	--	--
H4: Outside Factors (support)	Yes, positive	Yes, positive	Yes, positive	Yes, positive
H4: Outside Factors (withdraw)	--	--	--	--
H5: Grit (diligence)	Yes, positive	Yes, positive	Yes, positive	Yes, positive (10% level)
H5: Grit (resilience)	--	Yes, positive	--	Yes, positive

Key: (Supported? If yes, which direction?) Significance measured at the 5% level unless otherwise noted.

## FOCUS GROUP METHODOLOGY

The focus groups were conducted in an effort to supplement the survey data with more personal narrative. We believed that in meeting students face to face and hearing their answers to questions about their experience in DE, we would be able to discern common threads across students to which we otherwise might have been less sensitive (e.g. if we had conducted an online survey only). We also wanted to give students a chance to express thoughts about their experiences in a more open-ended forum, with fewer pre-conceived notions of what their

problems and setbacks in DE might be. In other words, we wanted to see whether issues not already addressed in the extant literature might arise in our conversations with students.

Of the five hypotheses proposed in this project, we set out to consider only two in evaluating the focus group data: the student engagement hypothesis (H1) and the GRIT hypothesis (H4). The most fundamental questions researchers asked of students were designed to relate, albeit loosely, to these hypotheses. With respect to the two hypotheses above, the questions were: “How seriously do you think your teachers take DE?” and “What is the attitude of the other students in your DE courses?” (H1); “What makes DE successful? Is it the person in the course or the program itself?” and “What motivates you to succeed in DE?” (H4). These hypotheses were chosen because they lent themselves more readily to analysis in the focus group setting, and would have been more difficult to draw out in the online survey. We also faced the prospect of conducting relatively few focus groups, so concentrating on a smaller range of issues helped us make the most of our time with students. Finally, we hoped that in the more open-ended focus group format, students would feel welcome to make recommendations for change in DE. Since our survey did not include any section related to recommendations, we relied on the focus groups to gather any data of that variety.

Two schools were willing to participate. To preserve anonymity, they are referred to here as Community College A and Community College B. Both colleges are located outside the survey’s sampling frame. In asking schools from outside our survey sampling frame to participate in the focus groups, we sought to increase the validity of our study, since the focus group participants would come from institutions not represented in our sampling methodology. In particular, including schools from regions with fewer community college students in the focus groups helped us improve overall generalizability, as the survey tended to include only colleges in regions with higher numbers of community college students. The focus groups also made our study more robust; we heard the unique opinions of more students and took new concepts and approaches to DE from them. Furthermore, each college that participated in the focus groups represented a different average SES population relative to state averages.

As many colleges include multiple levels, or tiers, in their DE programs (several levels of difficulty in math, from more to less remedial, for instance), we strove to include students from as many levels and subjects as possible. Additionally, we recruited students who were currently enrolled in DE and students who had successfully completed DE courses. Every participant in our focus groups was either currently enrolled in DE courses or had previously been enrolled in a DE course.

The focus groups were conducted in April, 2013. Students were recruited using fliers, which were sent to participating institutions. As an incentive, the research team offered a Visa gift card in the amount of \$20 to each participant. At least one moderator and two scribes were present for each focus group. The moderator asked the questions and guided conversation while the two scribes took notes on who was speaking and what was being said. Students were asked to provide a false name so that moderators (and later transcribers) could recognize them without making reference to their names. With participants’ permission, audio recordings of each focus group were made. Later, each focus group was transcribed using a combination of the audio files and notes taken during the focus groups.

The moderator began each session with an “ice-breaker” question, which asked for a general description of the DE program at the relevant institution. Over the course of the session, students were asked two questions related to the student engagement hypothesis (H1), one question related to the GRIT hypothesis (H4), and one question related to recommendations for the DE program.

## Analysis

We analyzed and represented the findings of our focus groups using frequency tables and concept maps. As we analyzed and attempted to code student responses from the focus groups, we realized that attaching specific statements directly to our hypotheses was ultimately an arbitrary and highly subjective task. There was no way to agree, for instance, that one particular statement about an experience in DE fit neatly into the confines of our established hypotheses. We agreed that a more accurate representation of the focus groups’ content could be achieved by allowing the statements themselves to generate more organic categories and themes from the discussion. In this way, we avoided any temptation to force students’ commentary into preconceived notions of DE problems and strengthened one of our original goals for the focus groups: to allow students to raise issues that we might otherwise have overlooked.

Frequency tables were constructed as a straightforward method of understanding responses to a variety of focus group questions. The responses addressed in the frequency tables include statements about positive, negative, or neutral experiences with teachers, attitudes of other students, and overall DE experience. The frequency tables also tallied responses to questions about motivation, testing requirements and the nature of success in DE. For instance, a frequency chart from Community College B representing a breakdown of statements about experiences with DE teachers would look like this:

**Figure 8: Example of Focus Group Response**

Experience with Teachers	Percent
Positive	36.5%
Negative	34.5%
Both	29.0%

In this case, 36.5% of statements made about experience with teachers were positive, 34.5% were negative, and 29% of responses suggested some combination of positive and negative experiences with teachers in DE.

Other frequency tables tallied “yes” and “no” responses to specific questions about certain aspects of DE programs. To take another example from Community College B, an example of a “yes/no” frequency table might look like this:

**Figure 9: Example of Focus Group Response**

Aware of Test Requirements/Consequences	Percent
Yes	50%
No	50%

These results are simple enough to interpret: 50% of responses to a question about awareness of placement test requirements and consequences suggested students knew about the consequences, while the remaining 50% of responses suggested students did not know about them.

Concept maps were used both to display results of the frequency tables in a new way and to capture student statements that were not represented in the frequency tables. For instance, some students made recommendations concerning potential changes to DE which seemed to suggest positive or negative experiences with some aspect of DE. However, because these statements did not mention the specific experiences or circumstances which presumably led to the recommendation, they were not always represented in the frequency tables. Because we wanted to avoid minimizing the impact of these statements simply because they were not mentioned frequently or did not relate a specific experience, we used concept maps to include them in our findings. For example, one student at Community College A made the following statement: “And I think the teachers really need to voice that. They really need to ask that question of their students. The way I’m teaching you, is it working? Are you understanding it? Is there something that I can do to, you know, teach it a different way or method. Or giving you different options with different tools? I think that’s something they need to do.” Another student recommended a different approach: “I wish they had more tutors.” These statements do not capture an individual experience with some aspect of DE programs or correspond obviously with a question, and so could not be coded according to the standards of the frequency tables (“positive” or “negative”). However, in both cases, the students appear to make substantive recommendations relative to DE (and to the organic categories which arose in conversations across focus groups) which presumably rely on experiences with DE that were not expressed apart from the recommendation itself.

## FOCUS GROUP RESULTS

### Community College A

The research team conducted a focus group at Community College A on April 4, 2013. Ten students participated in the group, all of whom were currently enrolled in DE coursework. Students from developmental mathematics, developmental English, and developmental writing were all represented. Before the focus group began, students were asked to participate in an “ice breaker.” Each student wrote down the first three words that came to mind when thinking about the words “developmental education.” The responses were tallied (for a visual representation, see Appendix J) and students were asked to reflect briefly on the responses of their peers. After any discussion of the “ice breaker” words, the focus group proceeded and students were asked to respond to the following questions:

- 1) What is the attitude of the other students in your DE courses?
- 2) How seriously do you think your teachers take DE?
- 3) What makes DE successful? Is it the person in the course or the program itself?

It is important to note that these do not represent an exhaustive list of the questions asked. Other questions which arose from the conversations themselves were raised, and some of them

generated interesting feedback. A copy of the question bank used by the moderators during the focus groups is available in Appendix F.

### *Frequency Tables: Community College A*

The frequency tables show student responses to a variety of questions broken down to percentages.

**Figure 10: Focus Group Responses – Community College A**

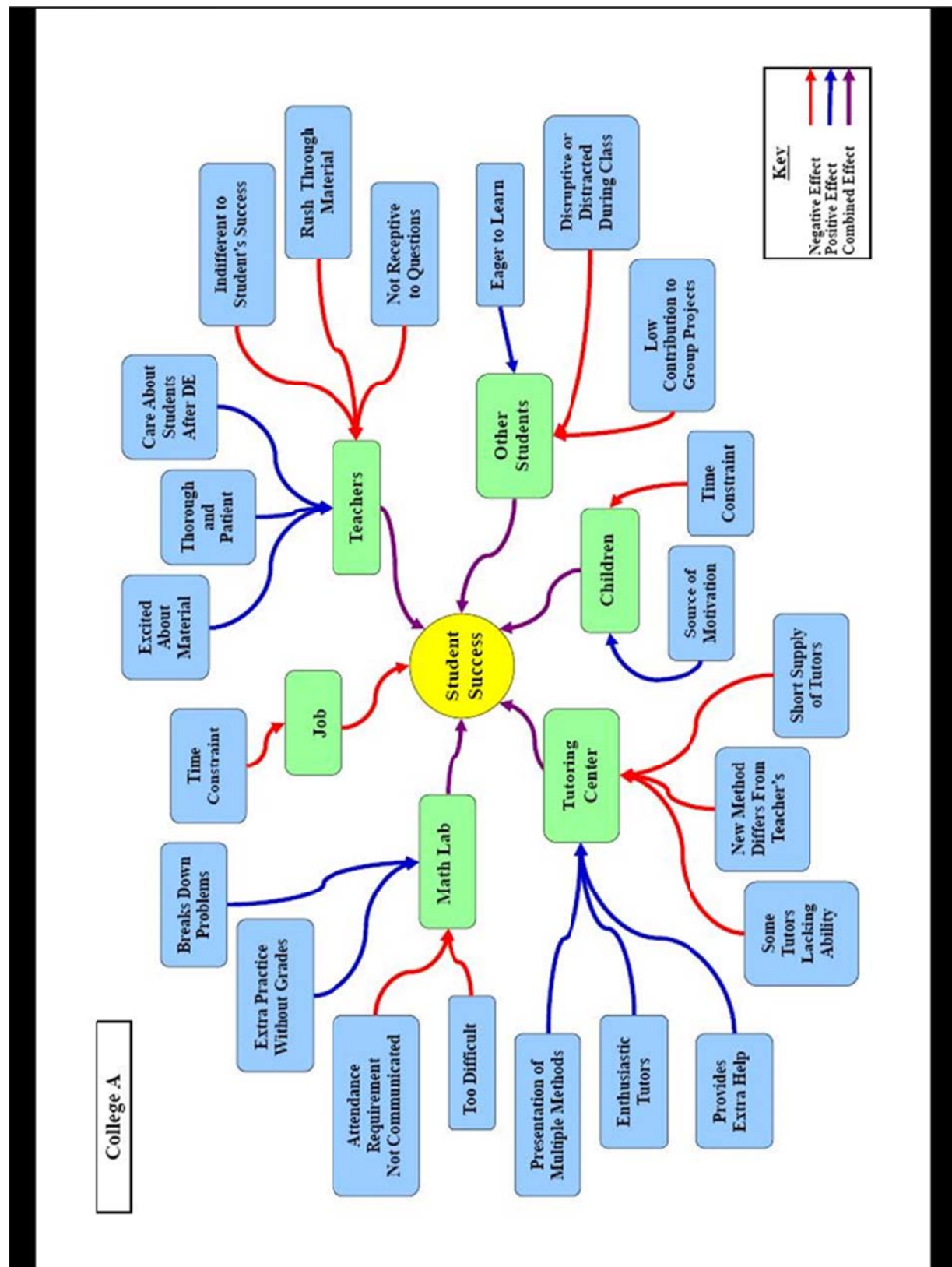
<b>Overall Experience in DE</b>	<b>Percent</b>
Positive	42%
Negative	49%
Neutral	8%
<b>What Makes DE Successful?</b>	
Student	44%
Program	22%
Both	33%
<b>Attitudes of Other Students in DE</b>	
Positive	23%
Negative	77%
<b>Source of Motivation</b>	
Family	100%
<b>Aware of Test Requirements/Consequences</b>	
Yes	14%
No	86%

### *Concept Map: Community College A*

The primary findings represented in the concept map for Community College A demonstrate that a number of factors, including interactions with teachers and outside factors, can have both positive and negative effects on DE students. Students made a number of comments about the impact of teachers, with some noting negative experiences and others positive ones. Some teachers were reported to care a great deal about their students even after they completed DE coursework, while others were said to be indifferent to students' performance. The tutoring center at Community College A drew a variety of comments from participants. Some found the extra help useful and were especially drawn to the new problem solving approaches and methods demonstrated at the center. On the other hand, some students disliked the tutoring center for precisely the same reason: learning from tutors whose methods and problem solving approaches differed from those of their primary teacher was sometimes confusing and problematic. Perceptions of a math lab were similar: some students noted that the extra practice was helpful, while others reported that communication about attendance policies in the lab was poor and that the problems were too difficult. Outside factors, such as having children, were perceived by some students as a negative influence on success, while for others, children provided important motivation and positively influenced success.



Figure 11: Concept Map, Community College “A”





## Community College B

Two focus groups were conducted at Community College B on April 11, 2013. Ten students participated in the first focus group, and 15 in the second. As in the focus group at Community College A, students were asked to participate in an “ice breaker” activity, which asked for a general description of the DE program at the relevant institution. After discussion of the “ice breaker” concluded, students were asked the following questions:

- 1) What are the attitudes of the other students in your DE courses?
- 2) How seriously do you think your teachers take developmental education?
- 3) What changes, if any, would you make to any of your courses?
- 4) What motivates you to succeed in developmental education?

Students participating in the second focus group at Community College B were asked the same questions, with one additional question:

- 1) Is there anything important that you think we didn’t talk about today? Is there anything you really want to speak about?

As with the focus group conducted at Community College A, these questions do not represent an exhaustive list of those asked during the focus groups at Community College B. Other questions which arose organically from the conversation were also asked.

### *Frequency Tables: Community College B*

The frequency tables show student responses to a variety of questions broken down to percentages.

**Figure 12: Focus Group Responses – Community College B**

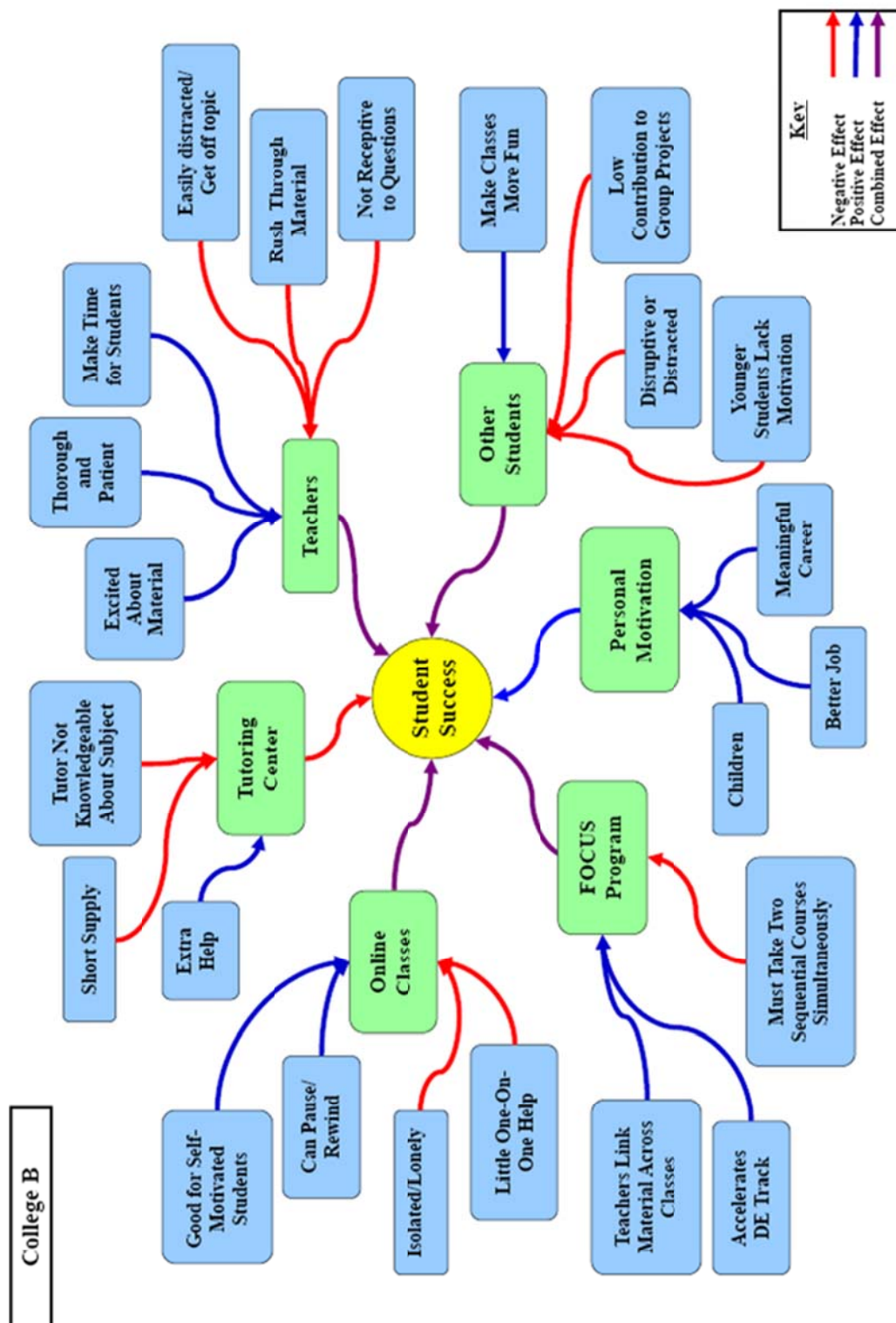
<b>Overall Experience in DE</b>	<b>Percent</b>
Positive	44.5%
Negative	46%
Neutral	17.5%
<b>What Makes DE Successful?</b>	
Student	16.5%
Program	63.5%
Both	20%
<b>Attitudes of Other Students in DE</b>	
Positive	19%
Negative	50%
Both	31%
<b>Source of Motivation</b>	
Family	37.5%
Career	12.5%
Self-Improvement	12.5%
Money	37.5%

<b>Experience with Teachers</b>	<b>Percent</b>
Positive	36.5%
Negative	34.5%
Both	29%
<b>Aware of Test Requirements/Consequences</b>	
Yes	50%
No	50%

### *Concept Map: Community College “B”*

One of the most interesting findings in the concept map for Community College B was that DE students reported mostly negative experiences with tutoring, though some positive experience was also reported. Students reported that a tutoring center at Community College B provided extra help, but also that experiences there were sometimes negative; some tutors weren’t perceived as knowledgeable, and the center itself was perceived as understaffed. Student comments regarding online classes noted positive and negative experiences and effects: self-motivated students were able to get ahead and make use of the online classes, while others felt this environment was isolated and even lonely. Taking the concept map as a whole, it is perhaps interesting to note that for nearly every factor addressed in the focus groups at Community College B, students reported both positive and negative effects on their ultimate success, suggesting that no single factor is likely to affect students in the same way or even in the same direction (positive or negative).

Figure 13: Concept Map, Community College “B”



## Summary: Focus Group Results

The focus groups provided a number of important findings with regard to student experience in DE. Drawing on the information provided above in the frequency tables and concept maps, the research team proposed four important results from the focus groups:

- 1) Miscommunication, both with regard to how students are placed into DE courses and about the nature of the courses themselves, is prevalent. Students offered striking examples of this problem:
  - “I was just told that I was required to take this test [a DE placement test], and it doesn't affect you in any way. So I was focused on getting it in and getting out.”
  - “I didn't know for a long time that my pre-algebra class was a developmental class. I didn't know for months. I didn't realize it. I just thought that was college algebra.”
  - “I will say that when I started last semester that pre-algebra lab, it took me seven weeks to figure out I was supposed to be going to the math lab! I had seven weeks of zeros!”
  - “[information was available] only during orientation when they give us like this booklet. But after that, like...you don't hear much more than that after. And that's like only right when you start.”
  - “Well, I took, um, a lot of dual credits during high school, so when I came here, I didn't have to go to the orientation. So I don't have a booklet. I didn't even know about the learning communities or focus groups.”
- 2) Outside factors have both positive and negative impacts on the experiences of students in DE. For instance, some saw work outside of school and/or presence of children as a hindrance to success in DE:
  - “I have the graveyard shift and then come home, get my kids ready for school, take them to school, I come to school. When I leave school, if I don't go to sleep before I pick them up, then I'm here doing studying and then I try to get my sleep in, cook for them, go back to work. That's just my routine.”On the other hand, some students suggested that those same outside factors could represent a positive impact on their experience and ability to succeed in DE:
  - “My motivation comes from my child. I have to be motivated because of her. She will not see a failure.”
  - “It's personal for me too, because I got a 5 year plan. I got 3 kids dependent on me. That's my strive, that's my determination. I'm going to do it.”
- 3) After financial aid is deposited into students' bank accounts, many DE classes experience a considerable drop in attendance:
  - “As soon as that money went into the account, a lot of people just dropped because they got, yeah, 10,000 bucks in their account.”
  - “My experience is, once checks got handed out, my class went from... what? Like 25 people? To like... what, 15 now?”
- 4) Students were generally content to be in DE:
  - “We all need it! You can say what you want but at the end of the day, we all need it.”

- “I’m like her because at first I was offended. I thought it was a resource class until I got in it. Then I realized it was there to help me.”
- “If it wasn’t for the DE classes, I wouldn’t have been graduating this year even though it put me back.”
- “So I like these classes, they get you ready. I’m motivated to go on to college level math.”

## CONCLUSIONS

The results of the focus groups and electronic survey are extremely compelling and, at times, even surprising. The purpose of these brief conclusions is to draw out the systematic themes present in both portions of the analysis. The conclusions will be followed by recommendations to policymakers and other DE stakeholders in Texas.

The first important and overarching conclusion that can be drawn from our analysis of the data is that certain factors have little to no impact on DE students’ anticipated success. Advising, community engagement, and classroom engagement were all insignificant for DE students. This leads us to believe that these aspects of DE programs themselves do not systematically affect the success or lack thereof of DE students. Perhaps classroom engagement is a poor measure of teacher quality and actually captures other aspects of the institution. However, this finding is at least minimally challenged by the focus group findings, which indicate that some students were positively affected by the resources made available to them. Although more research is needed to determine the reasons behind this apparent contradiction, a reasonable justification is simply that other factors matter more to a student’s anticipated success than institutional resources such as classroom engagement and quality advising.

The second overarching conclusion that is apparent based on our findings is that a student’s life situation or intrinsic personal characteristics are significant for DE students. Grit, financial situation, and outside support were all significant for DE students. This finding is supported by the focus group results, in which students reported feeling stressed by lack of finances and the importance of having people in their life supporting and aiding them in their academic endeavors. Essentially, a DE student’s life situation and intrinsic personal characteristics have significant and measurable effects on their predicted academic success. Programs that target these aspects of DE may prove more effective than programs designed to foster engagement.

The third and final broad conclusion demonstrated in our findings is that DE and non-DE students are different from each other. What significantly and positively affects one group has no effect on the other. For example, resilience (a subset of the grit hypothesis) was significant and positive for DE and near the line DE students but not for non-DE students. It is also important to note even amongst DE students, significant difference exist. This conclusion is especially significant and relevant for policy makers, as policies which fail to recognize the varied characteristics of these groups will run the risk of leaving the specific needs of certain groups unaddressed; a blanket policy could positively impact one group while hindering the success of another.

These conclusions, while not exhaustive, highlight the key findings of our research. We believe that they are significant and important, and that they will help policy makers make more informed decisions about the future of DE in Texas. With these conclusions in mind, a number of specific recommendations follow.

## RECOMMENDATIONS

Based on our analysis of our survey and focus group data, we were able to make some important and perhaps surprising conclusions about DE in Texas. While more research is needed to better establish and corroborate these findings, these recommendations can help in the effort to resolve systematic problems Texas DE programs.

**1) In creating policy designed to assist underprepared students, recognize that community college students are not a homogeneous group.**

The first recommendation is based on a prominent finding from the survey data, which indicates that community college students are not a homogeneous group with regard to their experiences and needs. DE and non-DE students have considerably different needs. We recommend that any policies attempting to improve the effectiveness of DE programs consider this finding carefully. Policies which overlook the differences between these groups are, according to our findings, more likely to fail to achieve their goals.

**2) Expand the progress made in HB 1244 (which requires a uniform placement test across institutions) by more adequately informing students about the importance of DE placement exams and the nature of DE.**

The second recommendation is based on a prominent finding from our focus groups: students are misinformed about or unaware of the methods used to determine placement in DE. In particular, our focus groups revealed that some students did not understand the role of DE placement tests. In addition, some students remained unaware of their placement in a DE course even after months in the classroom. As we investigated the current DE landscape to prepare our own research methods, we noticed considerable variety in admissions requirements as well as accepted placement exams. There was little consistency across placement tests, and even less across programs. Fortunately, with the passage of HB 1244 in 2011 which is currently in effect, the legislature allows only once placement test to be used for determining college readiness starting in the Fall of 2013 (Texas Higher Education Coordinating Board 2012). Additionally, the bill does not allow for institutions of higher education to adopt higher testing requirements than those mandated by the state. However, our research suggests that uniformity in placement tests will not solve all misinformation issues surrounding DE. We propose adding additional stipulations to the bill which require all institutions of higher education to adequately inform students taking the placement exam both of its gravity and what specific scores mean for them. Still, HB 1244 is an important first step in making the DE process more understandable and consistent, especially for the students themselves.

We suggest creation of specific requirements for the content of the test itself. In particular, we believe a prominent, visible statement on the test booklet itself detailing the nature

of the test and its role in determining college placement, including the fact that DE courses do not accrue college credit, is needed. In place of or in addition to the statement in the test document, a uniform pamphlet which explains in detail the cut off scores for placement into DE could also be useful to prospective students. While these examples represent only two potential options for ensuring that all students are equally informed about the gravity of the placement test, the important point is that, while HB 1244 makes an important step toward equity, students need more information about the placement test and its impact on their future in higher education.

**3) Standardize the number of classes that are offered and the placement scores required for each class or “tier” in DE programs statewide.**

The third recommendation is based on finding from the survey and focus groups. Every community college examined in the study approached DE differently. Some had two DE math classes, while others had as many as four.<sup>63</sup> These differences are not only potential causes for confusion and misinformation among current DE students, but also create equity problems. For example, according to variation in programmatic structure across institutions, the same student would have noticeably different experiences in DE depending on where she went to school. In one program, her placement test score might put her on a track which required completion of two or even three DE courses (she might start in the lowest “tier” and advance from there) before she could begin credit-bearing courses, while in another program, that same score could require her to complete only one DE course. By standardizing the number of classes that are offered and the placement scores required for each class or “tier,” the legislature can help eliminate the potential for confusion and misinformation.

**4) Avoid reforming the Texas high school core curriculum in ways that will likely increase enrollment in DE.**

The final recommendation is based on our overall analysis of the situation surrounding DE in Texas. While policymakers have recognized the importance of DE’s role in remediating students who enter post-secondary education underprepared, they have also allowed the rigor of high school curricula to slip. Recent changes to the required curriculum, which remove essential courses and eliminate testing requirements, are unlikely to lead to better prepared high school students. Instead, we anticipate that this will exacerbate the problem, leaving Texas taxpayers to continue funding what amounts to an extended high school education in DE. In other words, Texans may wind up paying for the same thing twice. Legislators, aides, analysts, and all Texans must recognize that by easing high school requirements at such a dramatic rate, we are only postponing the inevitable, forcing community colleges and other institutions of higher learning to make an attempt to bring underprepared students up to speed. It is a tall order.

These proposed recommendations do not, of course, represent all that can be done to redesign DE in order to make it more beneficial for students and other stakeholders, like Texas taxpayers. However, we believe that they represent a move in the right direction toward evidence-based policies that will help students be as successful as possible. As we found and stated in our conclusions, there are systematic and significant differences between DE and non-

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<sup>63</sup> See Appendix L for further explanation.



DE students, and amongst DE students themselves. More research is needed in order to ensure that both groups are given the resources they need to be successful.

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## **APPENDIX A: Survey Instrument**

**Capstone Student Research Project**  
**George Bush School of Government and Public Service**  
**Texas A&M University**  
**December 10, 2012**  
*Survey of Student Needs*

**Note:** This survey will be administered online through the survey software Qualtrics. Students will follow a link sent to them via email. The survey will include branching so that students answering questions in a certain fashion will follow a different question sequence than others. This will be denoted by the instructions in brackets.

1. Please indicate from the list below which school you are currently enrolled in:

Choose an item.

- ☐ Coastal Bend College
- ☐ Northeast Texas Community College
- ☐ Tyler Junior College
- ☐ Southwest Texas Junior College
- ☐ Galveston College
- ☐ Lee College
- ☐ Paris Junior College
- ☐ Tarrant County College
- ☐ Weatherford College
- ☐ South Texas College
- ☐ Houston Community College
- ☐ McLennan Community College
- ☐ Laredo Community College

2. Indicate which of the following are your reasons or goals for attending this college: (select all that apply)

	Primary goal	Secondary goal	Not a goal
a. Complete a certificate program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Obtain an associate's degree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Transfer to a four year college	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Obtain or update job related skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Self-Improvement or personal enjoyment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Change careers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Pressure from outside sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. For the following statements please indicate your level of CONFIDENCE.

	very confident	confident	Somewhat confident	not very confident	no confident
a. I have a good plan for my education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I will pass all of the classes I am taking this semester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I will get high grades in the classes I am taking this semester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I will finish my degree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I will finish my degree when I expect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I will achieve my goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Please respond to the following 8 items. There are no right or wrong answers!

	Very much like me	Mostly like me	Somewhat like me	Not much like me	Not at all like me
a. New ideas and projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

sometimes distract me from previous ones.

- |                                                                                                     |                          |                          |                          |                          |                          |
|-----------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| b. Setbacks don't discourage me.                                                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. I have been obsessed with a certain idea or project for a short time but later lost interest.    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. I am a hard worker.                                                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. I often set a goal but later choose to pursue a different one.                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. I have difficulty maintaining my focus on projects that take more than a few months to complete. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. I finish whatever I begin.                                                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h. I am diligent.                                                                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5. Please indicate your sex

- ☐ Male  
☐ Female

6. What is your racial/ethnic identification?

- ☐ American Indian or Native American  
☐ Asian, Asian American, or Pacific Islander  
☐ Native Hawaiian  
☐ Black or African American, Non-Hispanic  
☐ White, Non-Hispanic  
☐ Hispanic, Latino, Spanish  
☐ Other

7. Mark your age group:

- ☐ Under 18  
☐ 18 to 19  
☐ 20 to 21  
☐ 22 to 24  
☐ 25 to 29  
☐ 30 to 39  
☐ 40 to 49  
☐ 50 to 64  
☐ 65+

8. What is your marital status?

- ☐ Single  
☐ Married  
☐ Separated  
☐ Divorced

☐ Widowed

9. Do you have children who live with you and depend on you for their care?

☐ Yes

☐ No

10. Is English your native (first) language?

☐ Yes

☐ No

11. Did you attend a public or charter school in Texas?

☐ Yes

☐ No

12. Please check all that apply.

☐ Graduated from a Texas High School

☐ Attended a Texas High School

☐ Attended a Texas Middle School or Intermediate School

☐ Attended a Texas Elementary School

13. In what range was your overall high school grade average?

☐ A

☐ A- to B+

☐ B

☐ B- to C+

☐ C

☐ C- or lower

☐ N/A

14. Are you a first generation college student?

☐ Yes

☐ No

15. Have you ever or are you currently serving in the armed forces of the United States or the Texas National Guard?

☐ Yes

☐ No

16. I am a student who is serving on active duty as a member of the armed forces of the United States, the Texas National Guard, or as a member of a reserve component of the armed forces of the United States and has been serving for at least three years preceding enrollment.

☐ Yes

☐ No

17. I am a student who on or after August 1, 1990, was honorably discharged, retired, or released from active duty as a member of the armed forces of the United States or the Texas National Guard or services as a member of a reserve component of the armed forces of the United States.

☐ Yes

☐ No

18. What is the highest academic credential you have received?

☐ None

☐ High school diploma or GED

☐ Vocational/technical certificate

☐ Associate's degree

☐ Bachelor's degree

☐ Master's/doctoral/professional degree

19. What is the highest level of education obtained by your mother or father.

	Mother	Father
a. Not a high school graduate	<input type="checkbox"/>	<input type="checkbox"/>
b. High school diploma or GED	<input type="checkbox"/>	<input type="checkbox"/>
c. Some college, did not complete degree	<input type="checkbox"/>	<input type="checkbox"/>
d. Associate degree	<input type="checkbox"/>	<input type="checkbox"/>
e. Bachelor's degree	<input type="checkbox"/>	<input type="checkbox"/>
f. Master's degree	<input type="checkbox"/>	<input type="checkbox"/>
g. Doctorate degree	<input type="checkbox"/>	<input type="checkbox"/>
h. Unknown	<input type="checkbox"/>	<input type="checkbox"/>

20. Did you receive a Pell Grant to attend this college?

☐ Yes

☐ No

☐ Unknown

21. Which of the following are sources you used to pay your tuition at this college? (select all that apply)

	Major source	Minor source	Not a source
a. My own income/savings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Parent or spouse/significant other's income/savings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Employer contributions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Scholarships and private grants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Student loans (bank, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Government grants and assistance (eg. Pell grant)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. Please select one of the following that describes your student status:

☐ Full time student (12 or more hours)

☐ Part time student

23. Are you currently enrolled in a vocational program? Such as: nursing aids, licensed vocational nurses, automotive mechanics, medical secretaries, cosmetologists, and real estate sales agents.

☐ Yes

☐ No

24. Please respond to the following items regarding your personal characteristics and life situation:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a. I have the time management skills necessary to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I will be able to obtain the academic assistance or support that is necessary for me to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I have support from my immediate family to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I have the support of my friends to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I have the support of classmates to succeed in college	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I will have the money necessary to pay the tuition required in order to attain my educational goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. I will have the money necessary to pay for my living expenses while I attain my educational goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. I will have the money necessary to pay for school supplies (books, computers, etc.) that are essential for attaining my educational goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Time spent working will interfere with my ability to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Time spent caring for dependents will interfere with my ability to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Commitments other than work and family will interfere with my ability to succeed in college.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Before I could register for my first semester/quarter at this college, I was REQUIRED to take a placement test (THEA, ACCUPLACER, ASSET, COMPASS, etc.) to assess my academic skills in reading, writing, and/or math.

☐ Yes

☐ No

26. The results of the placement test(s) I took at this college indicated that I NEEDED to take a developmental/basic skills/college prep course...

☐ In MORE THAN ONE academic skills area (reading, writing, and/or math)

☐ In ONE academic skill area (reading, writing, or math)

☐ None of the academic skill areas (reading, writing, or math)

☐ Not applicable; I did not take a placement test

27. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

☐ MATH 0304: Intermediate Algebra

☐ MATH 0303: Introductory Algebra

☐ MATH 0300: Basic Mathematics

☐ READ 0302: College Reading

☐ READ 0301: Reading Improvement

☐ ENGL 0302: Basic Writing Skills

☐ ENGL 0301: Introduction to writing Skills

☐ None

28. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

☐ MATH 0305 College Preparatory Review

☐ MATH 0310 Pre-Algebra Mathematics

☐ MATH 0321 Beginning Algebra

☐ MATH 0322 Intermediate Algebra

☐ RDNG 0122,0222 Remedial Reading

☐ RDNG 0311 Preparatory Reading I

☐ RDNG 0312 Preparatory Reading II

☐ ENGL 0122,0222 Remedial English

☐ ENGL 0311 Fundamentals of Grammar and Composition I

☐ ENGL 0312 Fundamentals of Grammar and Composition II

☐ ENGL 0313 Workplace Communication

☐ None

29. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).



- |                                                            |                                                             |
|------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> ENGL 0301 - Basic Writing I       | <input type="checkbox"/> READ 0302 - Reading Improvement II |
| <input type="checkbox"/> ENGL 0302 - Basic Writing II      | <input type="checkbox"/> ESOL 0301 - ESL Conversation I     |
| <input type="checkbox"/> MATH 0301 - Pre-Algebra           | <input type="checkbox"/> ESOL 0302 - ESL Conversation II    |
| <input type="checkbox"/> MATH 0303 - Beginning Algebra     | <input type="checkbox"/> ESOL 0303 - ESL Conversation III   |
| <input type="checkbox"/> MATH 0305 - Intermediate Algebra  | <input type="checkbox"/> None                               |
| <input type="checkbox"/> READ 0301 - Reading Improvement I |                                                             |

30. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

- |                                                                                                  |                                                                                               |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <input type="checkbox"/> DMTH 0301 Developmental Mathematics                                     | <input type="checkbox"/> DMTH 0323/Math 1314 Fast Track: Intermediate Algebra/College Algebra |
| <input type="checkbox"/> DMTH 0311 Developmental Mathematics I Modular (online)                  | <input type="checkbox"/> READ 0311 Developmental Reading I                                    |
| <input type="checkbox"/> DMTH 0302 Developmental Mathematics II                                  | <input type="checkbox"/> READ 0312 Developmental Reading II                                   |
| <input type="checkbox"/> DMTH 0312 Developmental Mathematics II Modular (online)                 | <input type="checkbox"/> WRIT 0311 Developmental Writing I                                    |
| <input type="checkbox"/> DMTH 0303 Intermediate Algebra                                          | <input type="checkbox"/> WRIT 0312 Developmental Writing II                                   |
| <input type="checkbox"/> DMTH 0313 Intermediate Algebra Modular (online)                         | <input type="checkbox"/> STSS 0300 Study                                                      |
| <input type="checkbox"/> DMTH 0322/Math 1332 Fast Track: Developmental Math II/Contemporary Math | <input type="checkbox"/> None                                                                 |

31. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

- |                                                                             |                                                                |
|-----------------------------------------------------------------------------|----------------------------------------------------------------|
| <input type="checkbox"/> READ 0301 - Basic Developmental Reading            | <input type="checkbox"/> MATH 0102 - Elementary Algebra Lab    |
| <input type="checkbox"/> READ 0302 - Intermediate Developmental Reading     | <input type="checkbox"/> MATH 0103 - Intermediate Algebra Lab  |
| <input type="checkbox"/> READ 0303 - Advanced Developmental Reading         | <input type="checkbox"/> ENGL 0101 - Basic English Lab         |
| <input type="checkbox"/> READ 0101 - Basic Developmental Reading Lab        | <input type="checkbox"/> ENGL 0102 - Developmental Writing Lab |
| <input type="checkbox"/> READ 0102 - Intermediate Developmental Reading Lab | <input type="checkbox"/> ENGL 0301 - Basic English             |
| <input type="checkbox"/> READ 0103 - Advanced Developmental Reading Lab     | <input type="checkbox"/> ENGL 0302 - Developmental Writing     |
| <input type="checkbox"/> MATH 0301 - Basic Mathematics                      | <input type="checkbox"/> ENGL 0101 - Basic English Lab         |
| <input type="checkbox"/> MATH 0302 - Elementary Algebra                     | <input type="checkbox"/> ENGL 0102 - Developmental Writing Lab |

☐ MATH 0303 - Intermediate Algebra ☐ None

☐ MATH 0101 - Basic Mathematics Lab

32. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

☐ ENGL 0324: Writing Techniques I

☐ Math 0108: Intermediate Algebra Part II

☐ ENGL 0325: Writing Techniques II

☐ Math 0109: Intermediate Algebra Part III

☐ MATH 0101: Pre-Algebra Part I

☐ MATH 0302: Pre-Algebra

☐ MATH 0102: Pre-Algebra Part II

☐ MATH 0304: Beginning Algebra

☐ MATH 0103: Pre-Algebra Part III

☐ MATH 0350: Intermediate Algebra

☐ MATH 0104: Beginning Algebra Part I

☐ RDNG 0160: College Study Skills

☐ MATH 0105: Beginning Algebra Part II

☐ RDNG 0361: Reading Techniques I

☐ MATH 0106: Beginning Algebra Part III

☐ RDNG 0363: Reading Techniques II

☐ MATH 0107: Intermediate Algebra Part I

☐ None

33. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

☐ Math 310: Pre-Algebra

☐ Read 302: Advanced College Reading Skills

☐ Math 320: Introductory Algebra

☐ ENGL 301: Fundamentals of Writing I

☐ Math 330: Intermediate Algebra

☐ ENGL 302: Fundamentals of Writing II

☐ Math 342: Pre-Statistics

☐ None

☐ Read 301: Intermediate College Reading Skills

34. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

<input type="checkbox"/> MATH 0301 – Developmental Mathematics	<input type="checkbox"/> DEVR 0100 - Special Tutorial/Reading
<input type="checkbox"/> MATH 0302 – Elementary Algebra	<input type="checkbox"/> DEVR 0301 - Developmental Writing I
<input type="checkbox"/> MATH 0303 – Pre-College Algebra	<input type="checkbox"/> DEVR 0302 - Developmental Writing II
<input type="checkbox"/> DEVR 0301 - Developmental Reading I	<input type="checkbox"/> DEVR 0100 - Special Tutorial/Writing
<input type="checkbox"/> DEVR 0302 - Developmental Reading II	<input type="checkbox"/> None

35. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

<input type="checkbox"/> READ 0070 Developmental Reading I	<input type="checkbox"/> ENGL 0091 Writing Skills III
<input type="checkbox"/> READ 0080 Developmental Reading II	<input type="checkbox"/> MATH 0080 Basic Mathematics
<input type="checkbox"/> READ 0090 Developmental Reading III	<input type="checkbox"/> MATH 0085 Introductory Algebra
<input type="checkbox"/> ENGL 0071 Writing Skills I	<input type="checkbox"/> MATH 0090 Intermediate Algebra Part I and Geometry
<input type="checkbox"/> ENGL 0081 Writing Skills II	<input type="checkbox"/> None

36. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

<input type="checkbox"/> ENGL 0301 Basic English I	<input type="checkbox"/> MATH 0301 Intermediate Algebra
<input type="checkbox"/> ENGL 0101 Development in Writing I	<input type="checkbox"/> LSKL 0301 Reading II
<input type="checkbox"/> ENGL 0302 Basic English II	<input type="checkbox"/> LSKL 0302 Reading III
<input type="checkbox"/> ENGL 0102 Development in Writing II	<input type="checkbox"/> LSKL 0303 Study Skills I
<input type="checkbox"/> MATH 0103 Elementary Algebra Laboratory	<input type="checkbox"/> LSKL 0304 Study Skills II
<input type="checkbox"/> MATH 0106 Intermediate Algebra Laboratory	<input type="checkbox"/> LSKL 0306 Skill Development in Math
<input type="checkbox"/> MATH 0300 Elementary Algebra	<input type="checkbox"/> None

37. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

- |                                                                                     |                                                                                               |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Math 0101 - Developmental Math                             | <input type="checkbox"/> ENGL 0320 - Advanced Grammar and TOEFL Preparation                   |
| <input type="checkbox"/> Math 0102 - Basic Mathematics                              | <input type="checkbox"/> ENGL 0340 - English Grammar and Conversation for Foreign Speakers I  |
| <input type="checkbox"/> Math 0106 - Fundamentals of Math I Bridge                  | <input type="checkbox"/> ENGL 0343 - Advanced Conversation for Foreign Speakers               |
| <input type="checkbox"/> Math 0108 - Fundamental of Math II Bridge                  | <input type="checkbox"/> ENGL 0347 - Grammar and Composition for Foreign Speakers II          |
| <input type="checkbox"/> Math 0112 - Intermediate Algebra Bridge                    | <input type="checkbox"/> ENGL 0349 - Advanced Composition for Foreign Speakers                |
| <input type="checkbox"/> Math 0306 - Fundamentals of Mathematics I                  | <input type="checkbox"/> GUST 0100 - Developmental Reading                                    |
| <input type="checkbox"/> Math 0308 - Fundamentals of Mathematics II                 | <input type="checkbox"/> GUST 0339 - Introduction to Reading                                  |
| <input type="checkbox"/> Math 0311 - Introduction to Statistics for Non-STEM Majors | <input type="checkbox"/> GUST 0340 - Developmental Reading for Non-Native Speakers of English |
| <input type="checkbox"/> Math 0312 - Intermediate Algebra                           | <input type="checkbox"/> GUST 0341 - Developmental Reading I                                  |
| <input type="checkbox"/> ENGL 0100 - Developmental English                          | <input type="checkbox"/> GUST 0342 - Developmental Reading II                                 |
| <input type="checkbox"/> ENGL 0300 - Fundamentals of Grammar and Composition I      | <input type="checkbox"/> None                                                                 |
| <input type="checkbox"/> ENGL 0310 - Fundamentals of Grammar and Composition II     |                                                                                               |

38. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

- |                                                                      |                                                                                             |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Math 0100: Basic Concepts in Arithmetic     | <input type="checkbox"/> English 0300: Basic Grammar and Composition I                      |
| <input type="checkbox"/> Math 0101: Basic Applications of Arithmetic | <input type="checkbox"/> English 0301: Basic Grammar and Composition II                     |
| <input type="checkbox"/> Math 0102: Pre-Algebra I                    | <input type="checkbox"/> English 0310: Developmental Composition I for Non-Native Speakers  |
| <input type="checkbox"/> Math 0103: Pre-Algebra II                   | <input type="checkbox"/> English 0311: Developmental Composition II for Non-Native Speakers |
| <input type="checkbox"/> Math 0104: Pre-Algebra III                  | <input type="checkbox"/> Reading 0300: Fundamentals of Reading                              |

- ☐ Math 0105: Beginning Algebra I
- ☐ Math 0106: Beginning Algebra II
- ☐ Math 0107: Beginning Algebra III
- ☐ Math 0300: Basic Mathematics
- ☐ Math 0301: Pre-Algebra
- ☐ Math 0307: Elementary Algebra
- ☐ Math 0311: Intermediate Algebra

- ☐ Reading 0301: Introduction to College Reading
- ☐ Reading 0302: Reading Comprehension and Analysis
- ☐ Human Development 001R: Reading Remediation
- ☐ Human Development 001M: Math Remediation
- ☐ Human Development 001W: Writing Remediation
- ☐ None

39. Below is a list of Developmental Education/basic skills/college prep courses. Please mark ALL classes that you have taken or are currently enrolled in. If you have not taken any of these courses please check the box marked none (refer to your course syllabus/ course guides/ transcripts for clarification).

- |                                                       |                                                                       |
|-------------------------------------------------------|-----------------------------------------------------------------------|
| <input type="checkbox"/> ENGL 0375 Writing I (3-3-0)  | <input type="checkbox"/> MATH 0374 Basic Mathematics (3-3-0)          |
| <input type="checkbox"/> ENGL 0376 Writing II (3-3-0) | <input type="checkbox"/> MATH 0375 Pre-College Mathematics I (3-3-0)  |
| <input type="checkbox"/> READ 0375 Reading I (3-3-0)  | <input type="checkbox"/> MATH 0376 Pre-College Mathematics II (3-3-0) |
| <input type="checkbox"/> READ 0376 Reading II (3-3-0) | <input type="checkbox"/> None                                         |

If respondents answer "None" skip to question 52.

40. Were you aware that your test score on the SAT/ACT, COMPASS, ASSET, ACCUPLACER, etc. would determine your placement in developmental education?

- ☐ Yes
- ☐ No

41. How many times did you take COMPASS, ASSET, THEA or ACCUPLACER?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more

42. Were you aware that your developmental education classes would not count for college credit hours towards your degree?

- ☐ Yes
- ☐ No

43. How likely is it that the following issues could cause you to withdraw from your developmental education course(s) or this college?

	Very likely	Likely	Unlikely	Very Unlikely	N/A
a. Working full time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Caring for dependents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Academically unprepared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Lack of finances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Transfer to a four year University	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Family pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Peer pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Failing grades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

43. Please indicate whether you have used the following services at your college. If you answer “yes,” please indicate your level of satisfaction with that service, if no, please select not applicable.

	Yes or No		Indicate your level of satisfaction.					
	Yes	No	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
a. Learning lab	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Tutoring center	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Independent tutors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Assigned learning community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Study group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Instructor help outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

44. Did you feel you were adequately prepared for college coming out of high school?

- ☐ Very prepared
- ☐ Prepared
- ☐ Neutral
- ☐ Unprepared
- ☐ Very unprepared

45. This set of questions will ask you about your developmental education experience:

	Very Encouraged	Encouraged	Neutral	Discouraged	Very discouraged
a. How did you feel when you were placed in developmental education?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. How did your classmates seem to feel about being placed in developmental education?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. Please mark the answer that most closely describes you:

- ☐ I am always confident in my decisions
- ☐ I am usually confident in my decisions
- ☐ I am occasionally confident in my decisions
- ☐ I am rarely confident in my decisions
- ☐ I am never confident in my decisions

47. This set of questions asks you about your experiences in your developmental education classes:

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
a. I am learning and involved in my developmental education class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Others appear to be learning and involved in my developmental education class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I want to learn and be involved in my developmental education class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The format of my class promotes student learning and involvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. My instructor stimulates student learning and involvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

48. This set of questions asks you about your experience with your academic advisor:

	Yes	No	N/A
a. I was aware that academic advising was available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I used the available academic advising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Others were aware that academic advising was available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Others used the available academic advising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



49. Please indicate your level of agreement with the following statements describing your advising experience:

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
a. My advisors helped me to create a long-term plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My advisor clearly explained how my placement test scores determined if I was ready for college level courses or needed to take developmental education.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. My advisor explained developmental education to me in detail.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My advisor was knowledgeable about the developmental education program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I was able to meet with an academic advisor at times convenient for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

50. Mark the answer that best represents the quality of your interactions with people at this college.

My interactions with \_\_\_\_\_ were:

	Very positive	Positive	Neutral	Negative	Very Negative
a. Other students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Tutors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Instructors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Administrative staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Advisors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

51. Please indicate your level of agreement with the following statements describing your college experience:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a. At least one college staff member (other than an instructor) learned my name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. At least one other student whom I didn't know previously learned my name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- |                                                                                                 |                          |                          |                          |                          |                          |
|-------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| c. At least one instructor learned my name.                                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. I learned the name of at least one other student in most of my classes.                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. The very first time I came to this college I felt welcome.                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. The instructors in my developmental education classes want me to succeed.                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. The academic and students support services available at this college were clearly explained. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Respondents who answered “None” will skip to this set of questions.

52. Did you feel you were adequately prepared for college coming out of high school?

- ☐ Very prepared  
☐ Prepared  
☐ Neutral  
☐ Unprepared  
☐ Very unprepared

53. This set of questions will ask you about your experience after you received your first semester course schedule:

- |                                                                                    | Very<br>Encouraged       | Encouraged               | Neutral                  | Discouraged              | Very<br>Discouraged      |
|------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. How did you feel about the classes you were going to take?                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. How did your classmates seem to feel about the classes they were going to take? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

54. Please mark the answer that most closely describes you:

- ☐ I am always confident in my decisions  
☐ I am usually confident in my decisions  
☐ I am occasionally confident in my decisions  
☐ I am rarely confident in my decisions  
☐ I am never confident in my decisions

55. This set of questions asks you about your experiences in your classes:

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
a. I am learning and involved in my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Others appear to be learning and involved in my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I want to learn and be involved in my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The format of my classes promote student learning and involvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. My instructors stimulate student learning and involvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

56. How likely is it that the following issues could cause you to withdraw from your courses or this college?

	Very likely	Likely	Unlikely	Very Unlikely	N/A
a. Working full time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Caring for dependents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Academically unprepared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Lack of finances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Transfer to a four year University	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Family pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Peer pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Failing grades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

57. This set of questions asks you about your experience with your academic advisor:

	Yes	No	N/A
a. I was aware that academic advising was available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I used the available academic advising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Others were aware that academic advising was available.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Others used the available academic advising.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

58. Please indicate your level of agreement with the following statements describing your advising experience:

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
a. My advisors helped me to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- create a long term plan.
- b. My advisor clearly explained how my placement test scores determined which classes I had to take. ☐ ☐ ☐ ☐ ☐
- c. My advisor explained the academic program at my school to me in detail. ☐ ☐ ☐ ☐ ☐
- d. My advisor was knowledgeable about the academic programs at my school. ☐ ☐ ☐ ☐ ☐
- e. I was able to meet with an academic advisor at times convenient for me. ☐ ☐ ☐ ☐ ☐

59. Mark the answer that best represents the quality of your interactions with people at this college.

My interactions with \_\_\_\_\_ were

- |                         | Very<br>positive         | Positive                 | Neutral                  | Negative                 | Very<br>Negative         |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Other students       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Tutors               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Instructors          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Administrative staff | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Advisors             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

60. Please indicate whether you have used the following services at your college. If you answer “yes,” please indicate your level of satisfaction with that service, if no, please select not applicable.

- |                                     | Yes or No                |                          | Indicate your level of satisfaction. |                          |                          |                          |                          |                          |
|-------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                                     | Yes                      | No                       | Very Satisfied                       | Satisfied                | Neutral                  | Dissatisfied             | Very Dissatisfied        | Not Applicable           |
| a. Learning lab                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Tutoring center                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Independent tutors               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Assigned learning community      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Study group                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Instructor help outside of class | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

61. Please indicate your level of agreement with the following statements describing your college experience:

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
a. At least one college staff member (other than an instructor) learned my name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. At least one other student whom I didn't know previously learned my name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. At least one instructor learned my name.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I learned the name of at least one other student in most of my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. The very first time I came to this college I felt welcome.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. The instructors in my classes want me to succeed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. The academic and students support services available at this college were clearly explained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you would like to be entered into the drawing for a \$250 Gift Card, please enter your name and email address below. This information will not be linked to your answers above and will be removed as soon as the winners are selected. Thank you for your participation.

Name: \_\_\_\_\_  
 Email: \_\_\_\_\_

Thank you for your interest in taking the survey, but all participants must be at least 18 years old.

The Bush School of Government and Public Service  
 Texas A&M University  
 GBS-FS-20120530a

## APPENDIX B: Factors Linked to Survey Questions

Hypothesis	Factors	Question(s)
Control Variable: Confidence	success	3 a, c, d, e, f
H1: Student Engagement	classexp	47 a, b, c, d, e 55 a, b, c, d, e
H2: Advising	advuse	48 a, b, c, d 57 a, b, c, d
	advexperience	49 a, b, c, d, e 58 a, b, c, d, e
H3: School Community	interact	50 a, b, c, d, e 59 a, b, c, d, e
	name	51 a, b, c, d, e 61 a, b, c, d, e
H4: Grit	grit	4 a, c, d, e, f, h
	resilience	4 b, g
H5: Outside Factors	money	24 f, g, h
	time	24 I, j, k
	support	24 b, c, d, e
	withdraw	43 a, b, d, f, g 56 a, b, d, f, g

## APPENDIX C: Regression Table (All Models)

	(Model 1)	(Model 2)	(Model 3)
	Non-DE	DE	Near the Line, DE and non-DE
male	0.153 (1.56)	-0.055 (0.58)	-0.173 (1.42)
children	0.134 (0.87)	0.042 (0.43)	0.080 (0.59)
first_lang	0.564*** (3.07)	0.100 (0.91)	0.347** (2.21)
fulltime	0.114 (0.98)	0.194** (2.31)	0.199 (1.55)
gpa	0.212** (2.10)	0.030 (0.49)	0.105 (1.22)
mathde		-0.126 (1.26)	-0.025 (0.16)
first_gen	0.038 (0.33)	0.128 (1.36)	0.038 (0.30)
age18to19	0.229 (0.95)	0.269 (1.37)	0.509* (1.71)
age20to21	0.295 (1.32)	0.008 (0.04)	0.171 (0.53)
age22to24	0.047 (0.18)	0.060 (0.29)	0.214 (0.72)
age25to29	0.259 (1.04)	0.033 (0.20)	0.452* (1.72)
age30to39	0.037 (0.18)	-0.097 (0.58)	0.055 (0.21)
age40to49	0.276 (1.28)	-0.190 (1.05)	0.224 (0.84)
educhighschoolged	-0.294*** (2.62)	-0.293*** (3.29)	-0.336*** (2.75)
tx_school	-0.056 (0.54)	0.000 (0.00)	0.024 (0.19)
parent_highered	-0.239** (2.22)	0.230** (2.22)	-0.063 (0.48)
minority	-0.015 (0.11)	0.024 (0.24)	0.064 (0.47)
single	0.037 (0.23)	-0.038 (0.35)	-0.144 (0.85)
grants	-0.136 (1.53)	-0.064 (0.70)	-0.072 (0.61)
coastbend	0.133	-0.141	0.083

	(0.56)	(0.49)	(0.32)
<b>netx</b>	0.331		0.108
	(1.37)		(0.40)
<b>swtxjc</b>	0.208	0.212	0.181
	(0.91)	(1.04)	(0.84)
<b>lee</b>		0.124	0.154
		(0.58)	(0.69)
<b>weatherford</b>	-0.027	0.040	0.065
	(0.13)	(0.20)	(0.31)
<b>larado</b>	0.365*	0.383**	0.237
	(1.66)	(2.06)	(1.19)
<b>paris</b>	0.014	0.273	0.187
	(0.06)	(1.50)	(0.72)
<b>stx</b>	0.326	0.270	
	(1.11)	(1.17)	
<b>mclennan</b>	-0.007	0.130	0.166
	(0.03)	(0.68)	(0.83)
<b>alwayscon</b>	1.171*	-0.734***	0.235
	(1.81)	(2.79)	(0.46)
<b>usualcon</b>	1.163*	-0.900***	-0.055
	(1.85)	(3.35)	(0.11)
<b>occasioncon</b>	0.447	-1.156***	-0.532
	(0.69)	(4.22)	(1.02)
<b>rarecon</b>		-0.836**	
		(2.14)	
<b>nevercon</b>	-3.532***		-4.664***
	(3.98)		(4.69)
<b>deindicator</b>			-21.842
			(1.53)
<b>meadviseused</b>	-4.505	10.033**	-6.868
	(0.88)	(2.12)	(0.57)
<b>advusedeindicator</b>			21.740
			(1.53)
<b>advusefact</b>	0.056	-0.052	-0.109
	(0.84)	(1.02)	(0.94)
<b>cross_advusefact</b>			0.143
			(1.01)
<b>advexpfact</b>	0.048	-0.102**	0.069
	(0.91)	(2.14)	(0.57)
<b>cross_advexpfact</b>			-0.220
			(1.53)
<b>moneyfact</b>	0.041	0.127***	0.010
	(0.98)	(2.88)	(0.12)



<b>cross_moneyfact</b>			0.099
			(0.92)
<b>timefact</b>	0.009	-0.007	-0.066
	(0.19)	(0.18)	(0.80)
<b>cross_timefact</b>			0.059
			(0.57)
<b>supportfact</b>	0.156**	0.213***	0.220**
	(2.51)	(4.19)	(2.14)
<b>cross_supportfact</b>			-0.015
			(0.11)
<b>gritfact</b>	0.230***	0.216***	0.241**
	(3.59)	(4.97)	(2.27)
<b>cross_gritfact</b>			-0.095
			(0.78)
<b>setbackfact</b>	-0.055	-0.080**	0.052
	(1.04)	(2.20)	(0.59)
<b>cross_setbackfact</b>			-0.273**
			(2.49)
<b>classexpfact</b>	0.280***	0.080*	0.325**
	(3.45)	(1.67)	(2.51)
<b>cross_classexpfact</b>			-0.270*
			(1.70)
<b>interactfact</b>	-0.004	0.088*	-0.099
	(0.07)	(1.79)	(1.04)
<b>cross_interactfact</b>			0.233*
			(1.73)
<b>namefact</b>	0.047	0.071	0.125
	(0.99)	(1.55)	(1.08)
<b>cross_namefact</b>			-0.004
			(0.03)
<b>withdraw</b>	-0.003	-0.028	0.119
	(0.05)	(0.68)	(1.35)
<b>cross_withdraw</b>			-0.134
			(1.18)
<b>Constant</b>	2.289	-9.533**	6.069
	(0.45)	(2.02)	(0.50)
<b>Observations</b>	272	508	304
<b>R-squared</b>	0.64	0.42	0.55
<b>Robust t statistics in parentheses</b>			
<b>* significant at 10%; ** significant at 5%; *** significant at 1%</b>			

### F-Test of Regression Discontinuity Analysis (DE Students)

<b>test</b>	<b>moneyfact + cross_moneyfact = 0</b>	<b>test</b>	<b>advusefact + cross_advusefact=0</b>
	F( 1, 247) = 2.37		F( 1, 247) = 0.16
	Prob > F = 0.1251		Prob > F = 0.6903
<b>test</b>	<b>timefact + cross_timefact=0</b>	<b>test</b>	<b>advexpfact + cross_advexpfact=0</b>
	F( 1, 247) = 0.01		F( 1, 247) = 4.43
	Prob > F = 0.9081		Prob > F = 0.0363
<b>test</b>	<b>supportfact + cross_supportfact=0</b>	<b>test</b>	<b>interactfact + cross_interactfact=0</b>
	F( 1, 247) = 5.55		F( 1, 247) = 2.28
	Prob > F = 0.0192		Prob > F = 0.1321
<b>test</b>	<b>gritfact + cross_gritfact=0</b>	<b>test</b>	<b>namefact +cross_namefact=0</b>
	F( 1, 247) = 3.73		F( 1, 247) = 2.21
	Prob > F = 0.0546		Prob > F = 0.1384
<b>test</b>	<b>setbackfact + cross_setbackfact =0</b>	<b>test</b>	<b>withdraw + cross_withdraw=0</b>
	F( 1, 247) = 11.52		F( 1, 247) = 0.04
	Prob > F = 0.0008		Prob > F = 0.8485
<b>test</b>	<b>classexpfact + cross_classexpfact=0</b>		
	F( 1, 247) = 0.41		
	Prob > F = 0.5203		

## APPENDIX D: Descriptive Statistics for Factors

### All Students in Sample

Variable	Obs.	Mean	Std. Dev	Min	Max
success	780	0.0016642	1.0023010	-5.58641	0.965984
moneyfact	780	-0.0006171	0.9995851	-2.30946	1.75802
timefact	780	0.0035411	0.9970117	-1.40054	2.57461
supportfact	780	0.0043995	0.9979134	-4.58184	1.07196
gritfact	780	-0.0077178	1.0081370	-2.95489	1.82117
setbackfact	780	-0.0045239	1.0031630	-3.29452	6.21745
classexpfact	780	0.0045859	0.9883432	-4.79753	1.42609
advusefact	780	0.000506	1.0018420	-0.719095	2.40385
advexpfact	586	1.38E-08	1.0000000	-2.989848	1.175262
interactfact	780	0.0020666	1.0014290	-4.84635	1.36945
namefact	780	-0.0032339	1.0014090	-5.23125	1.19832
withdraw	780	0.0089147	0.9913978	-1.79525	3.1712

### Students Exempt from Placement Exam

Variable	Obs	Mean	Std. Dev.	Min	Max
success	158	0.0323843	0.968954	-4.52542	0.9663
moneyfact	158	-0.0815749	0.999813	-2.31213	1.76001
timefact	158	-0.0890953	0.890947	-1.40327	2.57417
supportfact	158	-0.0402353	0.922461	-2.91333	1.07358
gritfact	158	-0.1224656	1.009702	-2.95756	1.8222
setbackfact	158	-0.0477297	0.950371	-3.29458	2.99763
classexpfact	158	0.0476078	0.878277	-2.6456	1.12599
advusefact	158	0.053867	0.97779	-0.71775	2.40725
advexpfact	103	-0.0011782	1.086319	-2.99523	1.176537
interactfact	158	-0.1441525	1.00196	-3.80584	1.3683
namefact	158	-0.0897482	1.163719	-5.2337	0.936981
withdraw	158	0.0539248	0.893174	-1.79818	3.17134

### Students Who Passed Placement Exam (Near the Line, DE)

Variable	Obs	Mean	Std. Dev.	Min	Max
success	114	0.1342939	1.076675	-5.59408	0.9663
moneyfact	114	-0.006079	1.013244	-2.31213	1.76001
timefact	114	-0.07218	1.003072	-1.40327	2.57417
supportfact	114	0.0855537	0.958005	-4.58664	1.07358
gritfact	114	0.0459165	1.014391	-2.59113	1.75544
setbackfact	114	0.0402299	1.157091	-2.61176	6.21966
classexpfact	114	0.2315698	0.7108963	-1.58458	1.42538
advusefact	114	-0.016642	0.9980337	-0.717751	2.40725
advexpfact	78	-0.007807	0.9331457	-2.343157	1.176537
interactfact	114	-0.050334	1.123254	-4.84356	1.3683
namefact	114	0.0722451	0.9937563	-4.44708	0.936981
withdraw	114	-0.041163	0.9156955	-1.79818	3.17134

### DE Students Near College Ready (Near the Line, DE)

Variable	Obs	Mean	Std. Dev.	Min	Max
success	190	-0.0527647	1.057728	-3.56377	0.965984
moneyfact	190	0.0169024	1.042735	-2.30946	1.75802
timefact	190	0.1031815	1.053715	-1.40054	2.57461
supportfact	190	-0.0107492	1.106815	-4.26412	1.07196
gritfact	190	0.1560927	1.03112	-2.6291	1.82117
setbackfact	190	-0.0007296	0.860245	-3.0474	2.32986
classexpfact	190	0.035225	1.035002	-3.3007	1.12643
advusefact	190	-0.0331824	0.9980515	-0.719095	2.40385
advexpfact	158	-0.0403372	1.028158	-2.543074	1.175262
interactfact	190	0.0036986	1.024452	-3.30999	1.36945
namefact	190	0.0502291	0.9276727	-4.23191	0.936269
withdraw	190	-0.1110968	1.005574	-1.79525	2.76138

### DE Students in Bottom Tier

Variable	Obs	Mean	Std. Dev.	Min	Max
success	318	-0.0290319	0.955461	-3.32511	0.965984
moneyfact	318	0.0322257	0.96985	-2.30946	1.75802
timefact	318	0.0186031	1.008637	-1.40054	2.57461
supportfact	318	0.0070309	0.981729	-3.50974	1.07196
gritfact	318	-0.0653512	0.982372	-2.76364	1.82117
setbackfact	318	-0.0028459	1.051986	-3.29452	4.29438
classexpfact	318	-0.1136475	1.080388	-4.79753	1.12643
advusefact	318	-0.000597	1.020529	-0.7191	2.40385
advexpfact	247	0.0283184	0.970628	-2.32997	1.175262
interactfact	318	0.0970336	0.934079	-2.76355	1.36945
namefact	318	-0.0168662	0.958214	-2.97507	1.19832
withdraw	318	0.0767318	1.050302	-1.79525	3.1712

## APPENDIX E: Descriptive Statistics for Control Variables (by group)

### Students Exempt from Placement Exam

Variable	Obs	Mean	Std. Dev.
Male	158	0.2594937	0.4397506
Children Present	158	0.2278481	0.4207778
Respondent's First Language	158	0.8670886	0.3405584
Full Time Student	158	0.7278481	0.4464828
GPA	158	3.493671	0.4618825
Enrolled in a Math DE	158	0	0
First Generation College Student	158	0.5443038	0.4996169
Age: 18to19	158	0.3924051	0.4898387
Age: 20to21	158	0.2088608	0.4077872
Age: 22to24	158	0.1075949	0.3108534
Age: 25to29	158	0.0316456	0.1756113
Age: 30to39	158	0.0822785	0.2756623
Age: 40to49	158	0.1139241	0.3187292
Age: 50andover	158	0.0632911	0.2442601
Attended Texas high school	158	0.8227848	0.3830649
Graduated from high school or earned GED	158	0.6898734	0.464016
Parents Higher education	158	0.4240506	0.4957694
Minority status	158	0.4367089	0.4975551
Single (relationship)	158	0.721519	0.4496767
Grants	158	0.5759494	0.4957694
Always confident	158	0.2088608	0.4077872
Usually confident	158	0.6898734	0.464016
Occasionally confident	158	0.0949367	0.2940595
Rarely confident	158	0.0063291	0.0795557
Never confident	158	0	0

### Students Who Passed Placement Exam (Near the Line, non-DE)

Variable	Obs	Mean	Std. Dev.
Male	114	0.3245614	0.4702779
Children Present	114	0.2807018	0.4513259
Respondent's First Language	114	0.8157895	0.3893673
Full Time Student	114	0.8157895	0.3893673
GPA	114	3.447368	0.5736408
Enrolled in a Math DE	114	0	0
First Generation College Student	114	0.4824561	0.5018983
Age: 18to19	114	0.3684211	0.4845061
Age: 20to21	114	0.2192982	0.4155979
Age: 22to24	114	0.0701754	0.2565702
Age: 25to29	114	0.1140351	0.3192572
Age: 30to39	114	0.1403509	0.3488843
Age: 40to49	114	0.0263158	0.1607794
Age: 50andover	114	0.0614035	0.2411289
Attended Texas high school	114	0.745614	0.4374383
Graduated from high school or earned GED	114	0.7280702	0.4469184
Parents Higher education	114	0.4473684	0.4994175
Minority status	114	0.4736842	0.5015115
Single (relationship)	114	0.6842105	0.4668818
Grants	114	0.5789474	0.4959078
Always confident	114	0.2719298	0.4469184
Usually confident	114	0.6140351	0.4889717
Occasionally confident	114	0.0877193	0.2841352
Rarely confident	114	0.0175439	0.1318659
Never confident	114	0.0087719	0.0936586

### DE Students Near College Ready (Near the Line, DE)

Variable	Obs	Mean	Std. Dev.
Male	190	0.1894737	0.3929198
Children Present	190	0.4631579	0.4999582
Respondent's First Language	190	0.8210526	0.3843209
Full Time Student	190	0.7157895	0.4522292
GPA	190	3.102632	0.6516105
Enrolled in a Math DE	190	0.8421053	0.3656057
First Generation College Student	190	0.6052632	0.4900855
Age: 18to19	190	0.1789474	0.3843209
Age: 20to21	190	0.1684211	0.3752285
Age: 22to24	190	0.1105263	0.314373
Age: 25to29	190	0.1368421	0.3445886
Age: 30to39	190	0.2210526	0.4160522
Age: 40to49	190	0.1263158	0.3330826
Age: 50andover	190	0.0578947	0.2341613
Attended Texas high school	190	0.7631579	0.4262678
Graduated from high school or earned GED	190	0.7105263	0.4547163
Parents Higher education	190	0.3	0.4594683
Minority status	190	0.5315789	0.5003201
Single (relationship)	190	0.5789474	0.4950324
Grants	190	0.6789474	0.4681145
Always confident	190	0.3368421	0.4738791
Usually confident	190	0.5368421	0.4999582
Occasionally confident	190	0.1105263	0.314373
Rarely confident	190	0.0157895	0.1249896
Never confident	190	0.3368421	0.4738791



### DE Students in Bottom Tier

Variable	Obs	Mean	Std. Dev.
Male	318	0.2295597	0.4212125
Children Present	318	0.4402516	0.4971997
Respondent's First Language	318	0.827044	0.3788053
Full Time Student	318	0.7075472	0.4556061
GPA	318	3.04717	0.646008
Enrolled in a Math DE	318	0.8679245	0.3391064
First Generation College Student	318	0.5849057	0.4935149
Age: 18to19	318	0.2044025	0.4038999
Age: 20to21	318	0.1603774	0.367534
Age: 22to24	318	0.0943396	0.2927613
Age: 25to29	318	0.0974843	0.2970835
Age: 30to39	318	0.1855346	0.3893433
Age: 40to49	318	0.1477987	0.3554597
Age: 50andover	318	0.1100629	0.3134614
Attended Texas high school	318	0.7264151	0.446501
Graduated from high school or earned GED	318	0.7358491	0.4415749
Parents Higher education	318	0.3081761	0.4624675
Minority status	318	0.5157233	0.5005404
Single (relationship)	318	0.5314465	0.4997966
Grants	318	0.6257862	0.4846819
Always confident	318	0.3207547	0.4675023
Usually confident	318	0.5408805	0.4991114
Occasionally confident	318	0.1037736	0.3054472
Rarely confident	318	0.0314465	0.1747963
Never confident	318	0.0031447	0.0560772

## **APPENDIX F: Focus Group Moderator Guide and Question Bank**

### **Introduction**

**Welcome and thank you for coming today.**

#### **Purpose of the Discussion**

- Hear about your experiences in [Institution Name] and also developmental education
- Understand the perspective of a developmental education and non-developmental student
- We are using the term “developmental education” we are interested in your experiences in Math 0300, Math 0301, Math 0303, Math 0305, Engl 0309, Engl 0310, Read 0307, Read 0308, Read 0309 (classes reflected each specific institution)

#### **Introduce Primary Facilitator and Co-facilitator and roles**

- Primary Facilitator—Asks all of the questions.
- Note Taker—Take notes and monitor the recording equipment.

#### **Confirm permission to record the session.**

##### **Privacy and Confidentiality**

- Only research team members will have access to audio-recordings and transcripts of the focus groups.
- Will use descriptors rather than names in the transcripts.
- As we reflect on what you’ve shared, summarize it, and report about it, we will never, ever share information that would allow you to be identified

#### **Ground rules**

- We would appreciate everyone’s participation.
- All ideas are equally valid.
- There are no right or wrong answers—we are interested in your experiences
- Everyone’s views should be heard and respected.
- Please remember that what’s said inside this room today must stay here. It’s important that you respect the privacy of other participants.

**Any questions?**

**Ice- Breaker:**

**Hand out notecards and request students to write three words that describe their experience in their developmental education program.**

**Moderator quickly finds common themes and discusses with the group.**

1. What are your current career or educational goals?<sup>64</sup>
  - a. “For example, my goals are...” (around the room discussion)

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<sup>64</sup> [http://plus50.aacc.nche.edu/documents/publications/7\\_ConductingFocusGroupsAndUsingFocusGroupData.pdf](http://plus50.aacc.nche.edu/documents/publications/7_ConductingFocusGroupsAndUsingFocusGroupData.pdf)

- b. Probe: Are you looking to re-enter/enter the workforce, change careers, increase your skills in your current profession, or something else?
  - 2. What do others say about developmental education (DE)?<sup>65</sup>
    - a. Probe: What do other students say? What do parents say? What do teachers say? Is there a certain perception surrounding developmental education?
    - b. Subquestions:
      - i. Are you motivated to continue DE?<sup>66</sup>
        - 1. Probe: What sort of things do you enjoy about DE courses? Do you believe the DE course is benefitting your college future?
      - ii. How seriously do you think your teachers take DE courses?<sup>67</sup>
        - 1. Probe: Do they seem enthusiastic about the subject? Did the professor treat you with respect?
  - 3. How did you feel when you learned you were going to be enrolled in the DE program?<sup>68</sup>
    - a. Probe: How do you think other students felt when they were going to be enrolled in the DE program? Were you disappointed or did this seem appropriate? Did it seem to fit your skill level?
  - 4. What is the attitude of the other students in your DE courses?<sup>69</sup>
    - b. Probe: How much time do they spend on DE coursework?<sup>70</sup> Do they take group work seriously? Do they seem motivated and engaged?
  - 5. What makes DE successful? Is it the person or the program?<sup>71</sup>
    - c. Probe: Does someone need to be very self-motivated to survive in DE?
  - 6. How has developmental education met your needs as a student?<sup>72</sup>
    - d. Probe: Do you still feel the need to enter a DE course? If it was not required, would you be willing to take a DE course? Why? Did the course help build your skill level for a college course? Did you learn new skills or refresh on old ones?<sup>73</sup>
      - i. Do you think your placement test score accurately placed you in the right class? Why?
        - 1. Probe: Were the classes appropriately challenging? Did they suit your skill level or were they too easy/too hard?
      - ii. What do you believe is the purpose of DE?
        - 1. Probe: What do you expect to get out of the courses? How do the courses help you as a student?
      - iii. What are some potential benefits of the DE program

## Questions About Program Quality/Structure

- 1. What kind of changes, if any, would you make to your developmental education program?

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<sup>65</sup> Survey question 42

<sup>66</sup> Survey question 3

<sup>67</sup> Survey question 38

<sup>68</sup> Survey question 32

<sup>69</sup> Survey question 34

<sup>70</sup> Collin College DE advising questionnaire

<sup>71</sup> TACC Final Report - Administrative Questions on Page 96

<sup>72</sup> British Columbia 2012 Developmental Questionnaire Q20

<sup>73</sup> British Columbia 2012 Developmental Questionnaire Q31

- a. Probe: Would you change the length of the courses? Would you require students to take more or fewer DE classes? Would you prefer to take your DE class online or in a traditional classroom setting? Would you change the time of day for your classes (night/day classes)?
2. Do you think it is important to have an advisor assisting you from the beginning of your college career?<sup>74</sup>
  - a. Probe: Why? How did the advisor help you?
3. Do you think it is important to have a personal connection with someone outside the classroom but within the university?<sup>75</sup>
  - a. Probe: Is there help available outside of the course? What is included in the DE program aside from classes and assignments?
4. How was the DE enrollment process?<sup>76</sup>
  - a. Probe: Is it easy to understand what kind of courses you're supposed to be taking or what you need to do to get into a college course?
5. How available were your professors outside your DE courses?<sup>77</sup>
  - a. Probe: Are teachers available to assist you with college advising or homework help? Are you close to your teachers? Do you seek out teacher assistance outside of class if you need it?
6. How do teachers structure classes?
  - a. Probe: How frequently do your instructors ask you to participate or work collaboratively in small-group activities? How frequently you work with other students during class?
7. What kind of homework do you receive?
  - a. Probe: Does it seem comparable to high school work or is it more difficult? Is it challenging enough or too challenging?

### Wrap Up

- Summarize what was said.
- Thank you for coming today.
- Remember that the thoughts you shared with us today will be used to improve the developmental education experiences for incoming students (reminder of purpose of discussion).
- Remember that your identity will remain private (reminder of confidentiality of information and privacy).
- Remember that what is said in the room stays in the room.
- Distribute business cards/contact information—if they have questions or concerns.

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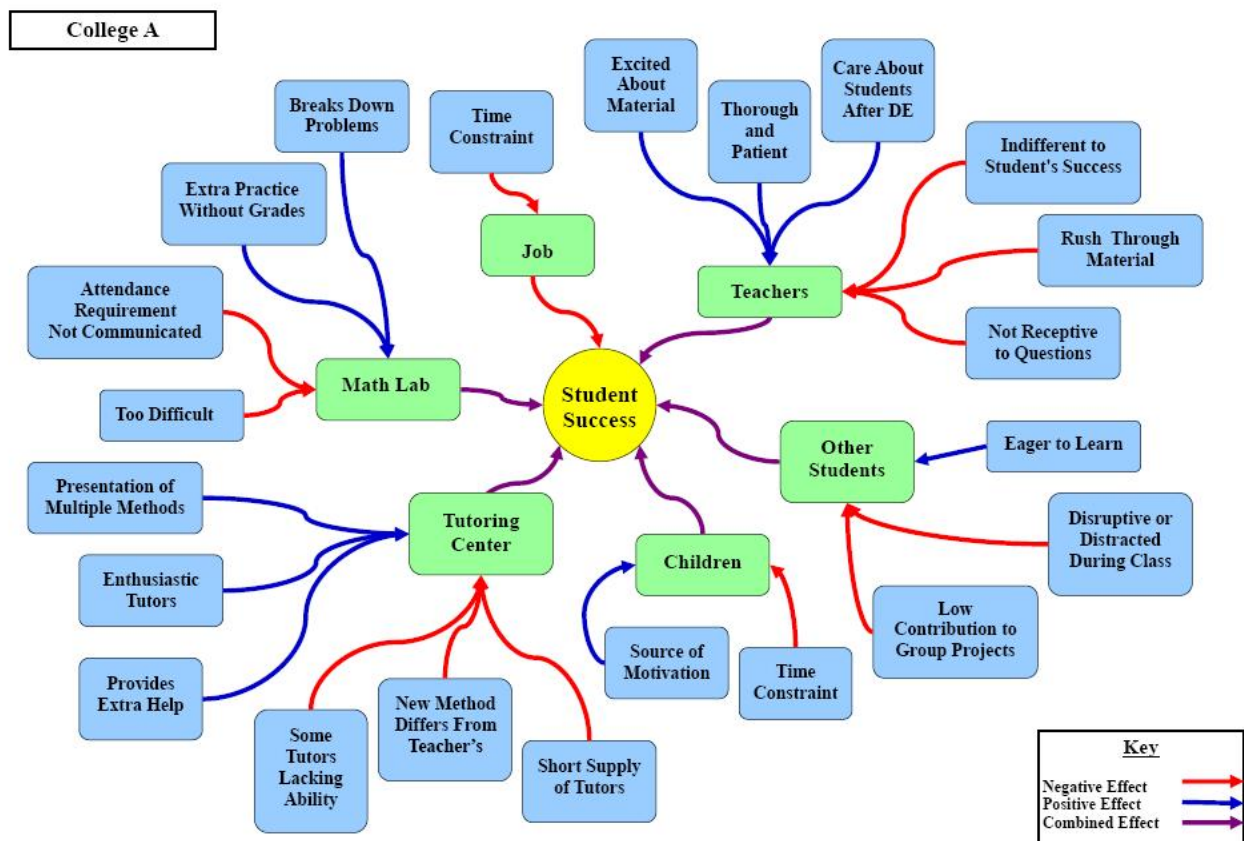
<sup>74</sup> Developmental Education Program Survey 2011, Texas Higher Education Data, <http://www.txhighereddata.org/interactive/DEPS.cfm>

<sup>75</sup> Survey question 36

<sup>76</sup> Boylan, Hunter R. and Saxon, D. Patrick, Affirmation and Discovery: Learning from Successful Community College Developmental Programs in Texas. P.98

<sup>77</sup> Survey question 35 & 36

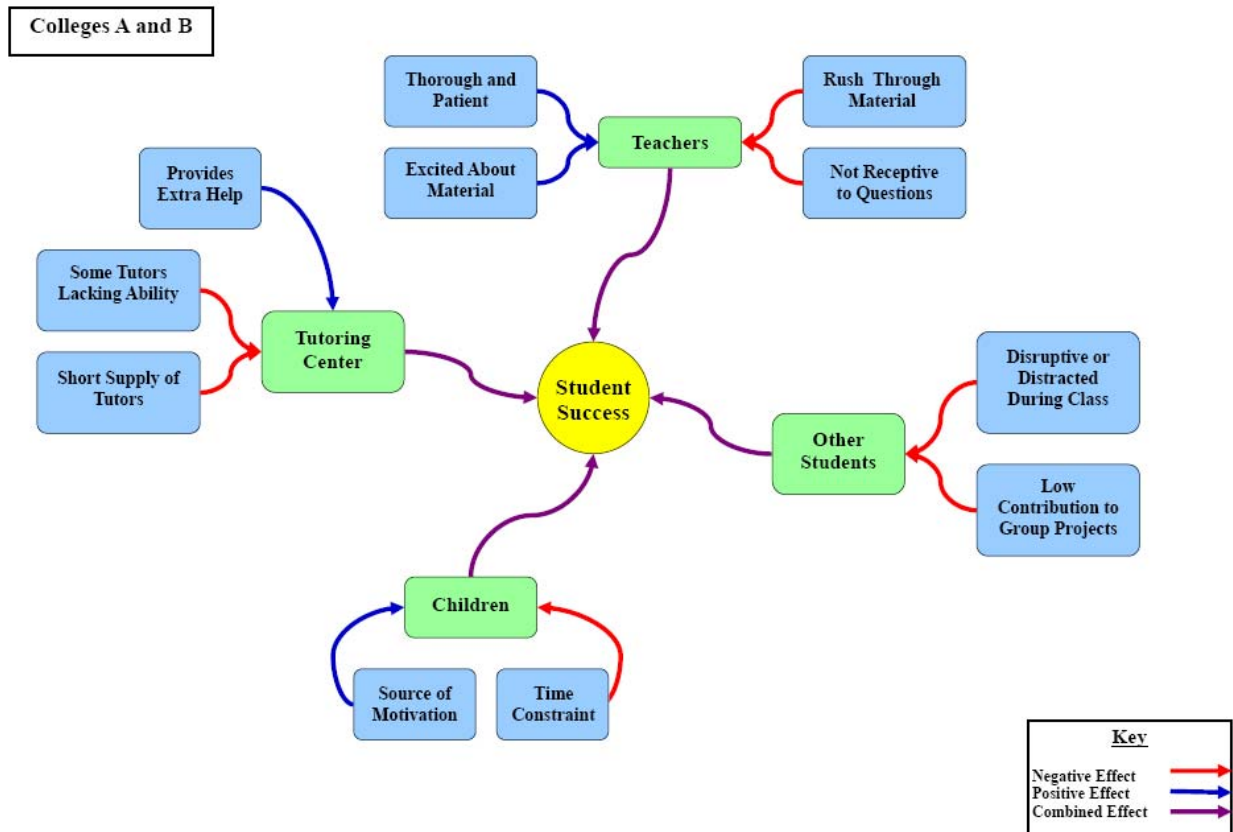
## APPENDIX G: Concept Map, Community College “A”



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## APPENDIX I: Concept Map, Community Colleges “A” and “B” (combined)



## APPENDIX J: Focus Group Wordle

The following graphic was generated based on the focus groups' ice breaker activity. Every word that students used is included in the graphic. The larger the word, the more frequently it was used.





## APPENDIX K: Frequency of Responses Across All Survey Questions

1. Please indicate from the list below which school you are currently enrolled in:

Schools	DE	Non-DE	All
Coastal Bend College	4.57	6.79	5.34
Northeast Texas Community College	4.19	5	4.47
Southwest Texas Junior College	15.24	15	15.16
Lee College	4.95	5.36	5.09
Weatherford College	14.86	22.5	17.52
Laredo Community College	13.33	6.79	11.06
Paris Junior College	23.05	14.64	20.12
South Texas College	5.14	5.36	5.22
McLennan Community College	14.67	18.57	16.02
Total	100.00	100.00	100.00

2. Indicate which of the following are your reasons or goals for attending this college: (select all that apply)

Educational Goals	DE	Non-DE	All
Complete a certificate program	23.05	22.50	22.86
Obtain an Associate's Degree	65.71	56.07	62.36
Transfer to a four year college	54.86	61.43	57.14
Obtain or update job related skills	46.86	33.21	42.11
Self-Improvement or personal enjoyment	48.19	36.43	44.10
Change careers	26.29	14.29	22.11
Satisfy family and/or friends	5.90	3.93	5.22

3. Your sex

Sex	DE	Non-DE	All
Female	78.24	71.38	75.88
Male	21.76	28.62	24.13
Total	100	100	100

4. What is your racial/ethnic identification? (mark only one)

Race/Ethnicity	DE	Non-DE	All
Native American	1.53	1.43	1.49
Asian	0.95	0.36	0.75
Black	4.77	2.51	3.99
White	48.09	55.2	50.56
Hispanic	42.18	39.07	41.1
Other	2.48	1.43	2.12
Total	100	100	100

5. Mark your age group:

Age Group	DE	Non-DE	All
18 to 19	19.43	37.86	25.84
20 to 21	16.19	20.71	17.76
22 to 24	10.1	9.29	9.81
25 to 29	10.86	7.14	9.57
30 to 39	19.62	11.07	16.65
40 to 49	14.48	7.5	12.05
50 to 64	8.57	6.43	7.83
65+	0.76	0	0.5
Total	100	100	100

6. What is your marital status?

Marital Status	DE	Non-DE	All
Single	54.68	70.71	60.27
Married	31.55	22.14	28.27
Separated	4.21	1.07	3.11
Divorced	9.37	5	7.85
Widowed	0.19	1.07	0.5
Total	100	100	100

7. Do you have children who live with you and depend on you for their care?

Dependent	DE	Non-DE	All
No	55.15	74.64	61.94
Yes	44.85	25.36	38.06
Total	100	100	100

8. Is English your native (first) language?

English native language	DE	Non-DE	All
No	17.52	15	16.65
Yes	82.48	85	83.35
Total	100	100	100

9. Did you attend a public or charter school in Texas?

<b>Attend public or charter school in Texas</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
No	26.48	21.07	24.6
Yes	73.52	78.93	75.4
Total	100	100	100

	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Graduated from a Texas High School	83.68	95.02	87.81
Attended a Texas High School	61.92	74.21	66.39
Attended a Texas Middle School or Intermediate School	58.55	70.14	62.77
Attending a Texas Elementary School	56.22	68.33	60.63

10. In what range was your overall high school grade average?

<b>Average Grade</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
A	10.1	30.36	17.14
A- to B+	37.14	45.71	40.12
B	21.14	12.86	18.26
B- to C+	21.33	7.5	16.52
C	5.33	2.5	4.35
C- or lower	2.86	0.71	2.11
N/A	2.1	0.36	1.49
Total	100	100	100

11. Are you a first generation college student?

<b>First generation college student</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
No	40.46	49.1	43.46
Yes	59.54	50.9	56.54
Total	100	100	100

12. Have you ever or are you currently serving in the armed forces of the United States or the Texas National Guard?

<b>Served in arm forces?</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Yes	5.52	7.86	6.34
No	94.48	92.14	93.66
Total	100	100	100

13. I am a student who is serving on active duty as a member of the armed forces of the United States, the Texas National Guard, or as a member of a reserve component of the armed forces of the United States and has been serving for at least three years preceding enrollment.

<b>Serving armed forces</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Yes	17.24	9.09	13.73
No	82.76	90.91	86.27
Total	100	100	100

14. I am a student who on or after August 1, 1990, was honorably discharged, retired, or released from active duty as a member of the armed forces of the United States or the Texas National Guard or services as a member of a reserve component of the armed forces of the United States.

<b>Retire from armed force after August 1, 1990</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Yes	62.07	68.18	64.71
No	37.93	31.82	35.29
Total	100	100	100

15. What is the highest academic credential you have received?

<b>Highest academic credential</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
None	1.14	2.5	1.61
High school diploma or GED	72.76	70.71	72.05
Vocational/technical certificate	14.86	11.43	13.66
Associate's degree	9.9	10.36	10.06
Bachelor's degree	0.95	4.29	2.11
Master's/doctoral/professional degree	0.38	0.71	0.5
Total	100	100	100

16. Did you receive a Pell Grant to attend this college?

<b>Pell Grant</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
No	33.47	44.11	37.2
Yes	66.53	55.89	62.8
Total	100.00	100.00	100.00

17. Which of the following are sources you used to pay your tuition at this college? (select all that apply)

<b>Major sources of tuition</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
My own income/savings	19.62	24.64	21.37
Parent or spouse/significant other's income/savings	20.76	20.36	20.62
Employer contributions	4.00	1.07	2.98
Grants and scholarships	15.62	28.57	20.12
Student loans (bank, etc.)	20.38	13.21	17.89
Public assistance	65.14	57.86	62.61

18. Please select one of the following that describes your student status

<b>Student Status</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Part-time	28.95	23.93	27.2
Full-time	71.05	76.07	72.8
Total	100.00	100.00	100.00

19. Before I could register for my first semester/quarter at this college, I was REQUIRED to take a placement test (THEA, ACCUPLACER, ASSET, COMPASS, etc.) to assess my academic skills in reading, writing, and/or math.

<b>Required to take placement test</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Yes	82.86	42.5	68.82
No	17.14	57.5	31.18
Total	100.00	100.00	100.00

20. The results of the placement test(s) I took at this college indicated that I NEEDED to take a developmental/basic skills/college prep course...

<b>Results of test</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
In MORE THAN ONE academic skills area (reading, writing, and/or math)	31.05	3.21	21.37
In ONE academic skill area (reading, writing, or math)	49.71	7.14	34.91
None of the academic skill areas (reading, writing, or math)	4.95	34.29	15.16
Not applicable; I did not take a placement test	14.29	55.36	28.57
Total	100.00	100.00	100.00

<b>DE indicator</b>	<b>Freq.</b>	<b>Percent</b>
Non-DE	280	34.78
DE	525	65.22
Total	805	100

<b>Deep DE</b>	<b>Freq.</b>	<b>Percent</b>
No	512	63.6
Yes	293	36.4
Total	805	100

GPA distribution

<b>GPA</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
1	2.92	0.72	2.14
2	5.45	2.51	4.41
2.5	21.79	7.53	16.77
3	21.6	12.9	18.54
3.5	37.94	45.88	40.73
4	10.31	30.47	17.4
Total	100	100	100

Graduate from Texas High School

<b>Graduate from Texas High School</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
No	38.48	25	33.79
Yes	61.52	75	66.21
Total	100	100	100

Tuition Payback

<b>Tuition Payback</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
No	86.19	85.35	85.9
Yes	13.81	14.65	14.1
Total	100	100	100

Parents Higher Education Background

	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Mother Higher Education	23.06	33.58	26.75
Father Higher Education	20.94	32.28	24.93
Both Parents Higher Education	11.42	19.68	14.31

Please mark the answer that most closely describes you:

<b>Confidence</b>	<b>DE</b>	<b>Non-DE</b>	<b>All</b>
Always confident	32.57	23.21	29.32
Usually confident	54.1	66.43	58.39
Occasionally confident	10.67	8.93	10.06
Rarely confident	2.48	1.07	1.99
Never confident	0.19	0.36	0.25
Total	100	100	100

## APPENDIX L: DE Tiers Across Institutions

School Name	Number of Tiers		
	Math	Read	English/ Writing
Coastal Bend	2	2	2
Galveston	3	2	2
Laredo	3	2	2
Lee	3	2	2
McLennan Community College	4	3	2
Northeast Texas	3	2	2
Paris Junior College	3	3	2
Southwest Texas Junior College	3	3	2
Weatherford	3	2	2