FIRST-YEAR LATINX STUDENTS NAVIGATING MATHEMATICS COURSE
SELECTION AND AB 705 DURING YEAR 1 IMPLEMENTATION

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In
Educational Leadership

by

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CERTIFICATION OF APPROVAL

I certify that I have read *First-Year Latinx Students Navigating Mathematics Course Selection and AB 705 During Year 1 Implementation* by Erika Flores, and that in my opinion this work meets the criteria for approving a dissertation submitted in partial fulfillment of the requirements for the degree: Doctor of Education in Educational Leadership at San Francisco State University.

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Latinx students are entering the community college system in growing numbers, yet representation of Latinx students rapidly decreases at each successive level of higher education. Race-neutral policies have minor impact on Latinx student achievement, particularly when implementation practices of such policies are based on deficit discourse. In math particularly, Latinx students experience low achievement due to educational stratification and adopted narratives of low abilities. Latinx students enroll in community college with high aspirations, and colleges must maintain a vision of Latinx student excellence in order to impact success. This mixed methods study examines Latinx student's navigation of their math course selection in the first-year implementation of AB 705, a policy aimed at increasing student successful closing the achievement gaps of college-level math and English completion by minoritized students, at a competitive community college campus. Using a survey and focus groups to collect data, and Latcrit theory to discuss the racialized experiences of Latinx community college students in the light of a new educational policy, I push for the inclusion of Latinx student narratives and a shift in the discourse around Latinx students and math achievement.

I certify that the Abstract is a correct representation of the content of this dissertation.

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Chapter One: Introduction

Introduction

Latinx students are entering higher education in growing numbers. A majority of these students are beginning their academic paths through the community colleges (Chapa & Schink, 2006; Marwick, 2004; Ngo & Melguizo, 2016; Crisp & Nora, 2010) where institutional policies, including assessment and placement, are impacting persistence and success rates. While Latinx students enter community college with a number of different goals, including receiving a vocational certificate, achieving an associate degree, or transferring, 85% of Latinx students in California enter community college with the goal of transferring to a four-year university (Crisp & Nora, 2010; Lorch, 2014).

Latinx students are currently the largest college-age population in California and nearly half of the students in California community colleges are Latinx (California Community Colleges Chancellor's Office, 2018). Successful completion of higher education by Latinx students remains one of the lowest in proportion to other groups. With the growing pace at which Latinx students are entering college, the rate at which they are successfully completing a bachelor's degrees is only 13% nationwide (Fong, Krause, Acee, & Weinstein, 2016; Lorch, 2014). Of Latinx students who enter community college with the goal of transferring, less than 25% will transfer (Crisp & Nora, 2010).

By design, community colleges are constantly operating under conflicting demands (Melguizo, Kosiewicz, Prather & Bos, 2014). As open access institutions, they are responsible for educating students at all levels of college preparedness, with a number of different educational goals including transferring to a four-year institution, receiving an associate degree, completing a vocational certificate, learning English as a second language, personal enrichment, or one of a number of other goals while also under the pressure to maintain academic rigor (Cohen & Brawer, 2003).

In recent years, assessment tools have been used by community colleges to measure student academic skill and predict student academic ability for the purpose of placing students at a determined appropriate level of course in the subjects of mathematics and English. Assessment tests utilized tended to vary and were determined by the individual campus. Assessment tests that determine eligibility for a specific level of course often varied within a given college district (Melguizo, Kosiewicz, Prather & Bos, 2014). For example, the same mathematics assessment score, using the same Accuplacer computer-based assessment tool, placed students at different mathematics course levels within Hill View's (a pseudonym) two college district. If the purpose of assessment tests are to assess skill and predict successful course outcomes, the individual college's ability to determine placement based on campus level interpretations of a test score created an arbitrary placement system that had the effect of keeping some students out of college-level courses. So, although the community

colleges are accessible to all as open access institutions, college level and degree applicable courses remained inaccessible to some, mainly minoritized students.

Assessment and placement in community colleges created an equity issue as access to higher education can be essentially denied to the largest student population in California through the policies and practices that placed them in developmental education. The resulting low college completion rates delay or deny access to higher earning positions and impede the socioeconomic mobility of entire communities (Bailey, Jeong, & Cho, 2010; Ngo & Kwon, 2015). Although the number of Latinx students who enter higher education is rising, representation of Latinx students rapidly decreases at each successive level of higher education (Chapa & Schink, 2006). Placing into developmental, or non-credit bearing or transferable, courses, Latinx students begin in and remain in lower levels of higher education longer than other groups of students. Many Latinx student do not persist beyond developmental education, particularly in developmental mathematics (Bailey, Jeong & Cho, 2010).

Latinx students are underachieving in community college math. Research shows assessment and placement policies and practices play a significant role in the outcomes of students with placements impacting enrollment, successful completion of gatekeeper, or first college-level and transferrable, courses, and academic goals (Melguizo & Ngo, 2015). In California, low pass rates and high rates of “stop out” and “drop out” of minoritized students led to a California statewide mandated change in developmental

English and mathematics education through Assembly Bill (AB) 705. AB 705 came at a time where the educational success of minoritized students is as important as ever. With the growing population of Latinx communities in California and the growing school aged population of Latinx students (Chapa & Schink, 2006), there is the opportunity to put in place policies that will support communities of color, including Latinx.

The intent of AB 705 is to “prohibit a community college district or college from requiring students to enroll in remedial English or mathematics coursework that lengthens their time to complete a degree” and to “maximize the probability that the student will enter and complete transfer-level coursework in English and mathematics within a one-year timeframe” (California Legislative Information, 2019). The bill points to the overuse of assessment tests in the community colleges as well as their inability to effectively predict student success above other assessment methods, including high school performance. AB 705 has as its aim to move community colleges to implement interventions that support the increase of successful course completion and degree achievement of those students that have been disproportionally impacted under previous practices.

As its focus, AB 705 prohibits community colleges from requiring students to enroll in developmental courses. It requires that community colleges use high school coursework, high school grades, and high school grade point average for assessment and placement, in lieu of what had become common practice of requiring assessment

testing and basing placement on a single test. Single-test assessment and remedial education have both been under scrutiny for their ineffectiveness (Marwick, 2004; Ngo & Kwon, 2015; Scott-Clayton, Crosta, & Belfield, 2014). Single-test assessments have been shown to inadequately place students into appropriate levels of math, and developmental education has not consistently shown to effectively prepare students for college-level coursework (Calcagno & Long, 2008; Melguizo, Bos & Prather, 2011; Scott-Clayton, Crosta & Belfield, 2014). In a study at a Hispanic serving institution (HSI), research found that students placed in a mathematics course through a test alone placed in the lowest level course with more frequency, but when using both a test score and high school course information they had a more even placement distribution among the possible mathematics courses with equal or greater successful completion. Changing assessment practices created greater and more equitable access and successful completion (Ngo & Kwon, 2015).

AB 705 is a progression or revision of the Student Success Act of 2012 which was an update to the Matriculation Act of 1986. Educational policies that aim to improve success of low performing students are not uncommon. Like previous educational policies in the California Community Colleges, AB 705 grew from poor performance and completion data, particularly for minoritized students that were not corrected or improved through the educational policies that preceded it with the same aim. The implementation of AB 705 is based on outcomes data. While the outcome data

for Latinx students is readily available, the experiences of Latinx students are given less attention and as a result remain less understood (Gandara & Contreras, 2009). Thus, Latinx students' actual experiences are absent from the development of policy and are often not considered in policy implementation at the campus level. AB 705, as a new policy, provides an opportunity for more research on the experiences of Latinx students in navigating community college. Student experience can provide valuable input when setting practices that are intended to support their success.

Education history in the United States shows that Latinx students have experienced low achievement rates in mathematics at every level of education (Bailey, Jeong, & Cho, 2010), whether compared to other groups or not. In mathematics, current literature on Latinx students mainly focuses on the achievement gap using deficit rhetoric, with the exception of a growing number of researchers who utilize Critical Race Theory and LatCrit to put forward asset-based approaches and critiques of the structures of schooling and experiences of Latinx students. Most examine this issue through a comparison of Latinx students to other ethnic and racial groups, often using White achievement levels as the level of achievement to strive for. What this literature does not typically discuss is why Latinx students want to go to college, their feelings about mathematics, and their cumulative experience with mathematics and education.

Using Latcrit theory, which critically examines Latinx experiences in modern society, this study examines how Latinx students at Hill View community college

navigate community college mathematics and make meaning of AB 705 and its ability to impact their success. Numerous AB 705 planning meetings at Hill View presented the opportunity to seek student input in terms of gauging student understanding of this new policy, but often staff and faculty can work under the impression they have a full understanding of how students receive information, how they process it, what supports them, what their goals are, and what they need. This behavior is not unique to Hill View and can be found throughout the educational systems. With few guidelines from the state in the beginning as to how to proceed with implementation, and a continued focus on outcomes and results over student input and experience, this study hopes to inform new policies and practices that can help create more successful outcomes in Latinx student success while giving voice to the Latinx student group who as a whole are missing from the dominant narrative of their lived educational experience.

Study Significance

The experience of Latinx students in education is and has been highly influenced by a perpetuation of the experiences of the Latinx community in American society. The reason a conversation can be had about Latinx student mathematics and educational experience is because Latinx as a concept of ethnic categorization exists and allows for such conversations. The Latinx ethnic group, as well as other ethnic determinations, are constructs that allow for conversations of one group in comparison another. One group above or below another. One group better than another. Colonialism of, what are

referred to as, Latin countries has had a long-lasting impact on the modern experience of peoples in the United States and throughout the Americas through coloniality. Coloniality, defined as “long-standing patterns of power that emerged as a result of colonialism” (Maldonado-Torres, 2007), is ever present in the experience of Latinx people through systemic racism. The same ethnic and racial categories that during colonialism were created for the delineation of a labor hierarchy today exists in the form of a meritocratic system that employs a racial hierarchy to validate the abilities, experiences, and mobility of groups of people.

When discussing the academic performance of Latinx students and when comparing one ethnic group of students against another, the idea of meritocracy continues to be validated as evidential of a racial inferiority of one group versus another. In contrast of this, I will attempt to write this paper without discussing the performance of Latinx students in comparison to other groups, outside of discussing the work of others in the literature review section. In doing so, I hope to present a shift to current discourse of Latinx student achievement as far away from a conversation about meritocracy to one that examines Latinx students in terms of their own experiences and ideas around their goals and success. I continue to use the ethnic/racial category of Latinx to examine the real narratives of a group of students that are experiencing the oppressions via a categorization that is imposed upon them yet is utilized by them to create perceptions of self. A Latinx student is no less affected by the place in society

that Latinx people are restrained to simply because ethnicity is a social construct. Still, the perceptions of this race of students can be challenged and that is what I hope to do through this paper. To share how students see themselves in opposition to how they are seen at Hill View.

The education of Latinx, and other minoritized students, is and can be discussed from any number of differing perspectives. As can the mathematics education of Latinx students. When a group of students, be they grouped by race or ethnicity, socioeconomic status, immigration status, gender, culture, or any additional othering grouping, are not behaving or performing to what has been set as a normalized standard, the conversation can quickly and without protest turn to prescriptive interventions with the aim of altering student behavior and performance to meet said standard. Potential issues with this approach include the lack of recognition or attention to how the institutions behave and impact the performance of students, and the lack of discussion around how race and oppression influence education. Mathematics is a field imbued with whiteness. From the discourse around it, to how it is taught, and who belongs in the field, racial ideologies shape the experience of non-white students, but those ideologies are rarely approached as something to be altered or fixed. Meritocracy protects these systems from being questioned or faulted in any way. More often than not, they are not even considered a topic of discussion. Moreover, to ask how Latinx, or other minoritized students, experience mathematics and education implies there could

exist a non-dominant or a racialized experience, contradicting a race-neutral approach to educational policies.

Latinx students have a lived experience with mathematics sequence completion that has historically been low, including in community college (Bahr, 2010). With new state mandates addressing the issue of inequitable low performance, student input is valuable for successful policy implementation as the ability of research findings that do not include Latinx student input to inform policy are limited (Crisp, Taggart & Nora, 2015). Latinx student experience and research that provides an understanding of the factors that impact their success can increase the usefulness of the results. Mathematics requirements act as a gatekeeper to successful educational major and goal completion for Latinx students (Malcom & Feder, 2016, pp. 23, 84), regardless of the students' academic goal as mathematics is typically a required subject. Successful completion of a higher education degree impacts the financial opportunities and upward mobility of a growing number of Latinx individuals and communities. Barriers to this achievement stagnates the ability to diversify entire fields and professions that require advanced mathematics and science education. It also perpetuates a caste-like system where Latinx communities are disproportionally represented in manual and agricultural labor fields.

The issue of Latinx degree completion is currently an important topic not only for the impact to Latinx students and communities, or to diversifying professional fields, but with the California Community College's new funding formula shifting from

being heavily FTE based to now focusing more on successful degree completion, especially of historically low performing groups including Latinx students (extranet.cccco.edu), an opportunity has once again been created to expand the conversation and do things differently. This is important as funding often determines institutional initiatives, policies and practices while also producing potential levers for change as these opportunities, created by shifts in funding and focus, can benefit from input from the groups of students that they will impact most.

This study examines how Latinx students at Hill View community college navigated their mathematics enrollment. By also collecting student experience and input, I draw implications from this research to propose avenues about how student input and a changed perspective of student needs can inform successful policy implementation now and in the future. First, I provide background to the problem statement. Next, I review literature on race neutral policies, education and racial ideologies, deficit discourse and literature on Latinx mathematics achievement and abilities, and Latinx students in mathematics. I propose my theoretical framework using Latcrit theory to analyze the experience of Latinx students navigating community college through a lens of intersectionality. I then present my conceptual framework which draws from ecological systems theory to represent the layers of oppression that impact Latinx mathematics learners and student identities. Finally, I describe my methodology which will rely on student surveys and focus groups to analyze Latinx

student experiences with making meaning of their navigation through Hill View
Community college mathematics and AB 705.

Chapter Two: Literature Review

Introduction

This literature review intends to utilize existing literature focusing on deficit discourse of Latinx students in education and systemic barriers to Latinx mathematics achievement to set the urgency for a shift in systemic oppression against Latinx students in education. Literature on Latinx student aspirational capital and a critique of the cultural concept of *Ganas* will hopefully serve to elevate the discourse of motivation and critical resilience of the Latinx student.

Theoretical Framework

Latinx Critical Theory, or Latcrit, takes up a critical lens to “understand the oppressive aspects of society” William Tierney (1993) created by racist power structures and adds to the conversation the different intersectionalities that Latinx people experience as forms of oppression and racism such as immigration status, language, ethnicity and race, culture, socioeconomic status, and gender (Solórzano & Bernal, 2001) in different aspects/contexts of society including education. “LatCrit theory challenge the dominant discourse on race and racism as they relate to education by examining how educational theory and practice are used to subordinate and marginalize Chicana and Chicano students” (Solórzano & Bernal, 2001).

Solórzano and Bernal (2001) put forth a framework of Latcrit in education using five themes. The first requires maintaining race and racism at the intersection of other

forms of subordination. Secondly, Latcrit challenges dominant frameworks in education including meritocracy, equal opportunity, and race-neutrality as frames that intend to keep racial subordination of Latinx students hidden, invalid, or without merit. Third, Latcrit is committed to social justice and transformational resistance against oppression. Fourth, it legitimizes the experience of Latinx students and promotes the use of counter-storytelling, testimonios, and narratives. Finally, Latcrit “insists on analyzing race and racism in education by placing them in both a historical and contemporary context”. I hope to use Latcrit theory to discuss education from the perspective of the racialized and other experiences of Latinx community college students in the light of a new educational policy aimed at improving their success in higher education.

Using LatCrit theory to examine education offers a way to understand the experiences of Latinx students and focuses research on how Latinx students respond to their experience in the educational system. Latcrit theory acknowledges the importance of “viewing laws within the proper historical and cultural context to deconstruct their racialized content and challenge ideas such as color-blindness and meritocracy” (Bernal, 2002). Not only do educational policies not fully represent Latinx students’ experiences, but they negatively impact the Latinx student within systems of education. Research that frames Latinx student achievement through discussions of an achievement gap fail to properly represent the issues that surround Latinx achievement. Latcrit theory allows for the analysis of the issue of Latinx achievement through a frame

that better represents the complexities by which it is impacted. Using methodologies such as narrative, ethnography, *testimonio* and counter stories within the context of learning mathematics and education, Latcrit allows for the realities of Latinx students to represent the intersectionality's of their experiences as valid and as valuable, especially as they stand in contrast to the dominant narratives surrounding Latinx youth (Zavala, 2014).

Conceptual Framework

Using existing literature on Latinx counter stories and narratives about their experiences in higher education and what they attribute to their success and barriers, I hope to demonstrate the importance and value of Latinx student input for improving policies and practices tied to AB 705. Latcrit proposes that race-neutral policies, such as AB 705, fail to reference the potential of policies to perpetuate low achievement of Latinx students while further advantaging White communities because of their reflection of the dominant culture's educational experiences (Bernal, 2002). Therefore, my conceptual framing of Latinx students navigating college successfully focuses on the experience of Latinx students during year one implementation of AB 705. As in the work from Yosso, Smith, Ceja and Solórzano (2009), Latinx student experience of microaggressions, and what Yosso et al. call micro-invalidations, remarks that diminish, dismiss or negate the realities and histories and work to create a negative campus

culture for Latinx students. A negative campus culture inhibits the possibility of Latinx students feeling accepted and validated, which impacts persistence and success.

The framework below attempts to capture the layers of influences on Latinx students as they navigate the community college setting, and in many ways mathematics achievement within this setting. It recognizes the impact of the multiple layers of oppression on Latinx student navigating community college math. For example, as captured in the outermost layer, larger discourses that frame Latinx students as deficient are both general to schooling experiences, and specific to racial hierarchies of success in mathematics that position Latinx and other minoritized students at the bottom (Martin, 2012).

Figure 1. Conceptual Framework for Latinx community college mathematics navigation.

This conceptual framework draws on ecological systems theory to acknowledge the web of structural influences on Latinx student development in relation to their achievement in mathematics (Bronfenbrenner, 1979). At the center lies the Latinx student, situated below the levels of influences that directly impact their performance, identities, and outcomes. In the following sphere, the microsystem, are the influences which the student carries with them on a daily basis, even as they shift. Research on Latinx students often attribute their outcomes on internal motivation factors- at times

discussing them in terms of resilience, aspirations, or *Ganas* (Cabrera, Lopez & Saenz, 2012; Campa, 2010; Crisp, Taggart & Nora, 2015). Latinx student achievement is impacted by internal motivations and their self-perception of their abilities and belongingness in higher education. As for their mathematics performance, low placement, including developmental mathematics courses, impacts student perceptions of their mathematic abilities and may impact their motivation with internalized feelings of inferiority and stereotype threat (Walton & Spencer, 2009) in their mathematics courses.

Those influences in the microsystem are themselves influenced by the factors in the mesosystem. Resilience research, for example, attributes said positive resilience in the Latinx student on their family, home culture, and friend groups. At the same time, negative influences on Latinx student resilience include a discriminatory campus climate, experiencing microaggressions in class or from students and faculty, or an unsupportive campus culture. Feeling unsupported in their mathematics courses and experiencing microaggressions by the instructor, or students, has a negative impact on student resilience (Solórzano, 1998; Solórzano, Villalpando, & Oseguera, 2005).

At an institutional level, Latinx student achievement is impacted by the structures in the exosystem that influence both the meso and microsystems: poor counseling models offered through the community college, ineffective and discriminatory assessment and developmental institutional policies, and state and

federal financial aid policies. As research has demonstrated, students are susceptible to redirection or cooling-out as a result of poor counseling, advising, and an institutions inability to support student aspirations (Clark, 1960). Latinx students can experience this at a higher rate, particularly those that aspire to STEM majors (Chang, Eagan, Lin, & Hurtado, 2011).

All of these structures are influenced by the factors in the macro system which inculcate the values, norms, belief systems, and ideologies that influence the direction of policies. Systemic racism paves the way for educational stratification which uses deficit frameworks that base perceptions of ability on class and race, normalizing low expectations and securing less opportunities and poor outcomes for Latinx students, thus maintaining them in a place of subordination. Latinx students experience the impact of this racism at several points in their educational journey including low mathematics placements, poor counseling, and negative experiences in mathematics and STEM education. As will be demonstrated later in this paper, self-expressed goals and aspirations, a motivation to challenge racists microaggressions, creating supportive counterspaces, and building community are different forms of transformational resistance displayed by Latinx students against educational oppression.

Literature Review

The articles selected for this literature review are peer-reviewed, educational research articles that mainly focus on mathematics education, achievement gaps, and

Latinx students. They were found in education-based journals using the keywords: mathematics, Latinx, Hispanic, community college, two-year college, identity and learner. Articles that were excluded from this paper included those that focused on the mathematics education of English Language Learners, pre-service teachers, and foreign studies. With articles that examined the research of Latinx mathematics education, further articles from their reference lists were retrieved.

Deficit Discourse

Deficit discourse about Latinx academic achievement in education is prevalent in mathematics education research. Often, Latinx and minoritized student achievement is discussed in terms of underachievement and failure to reach the normalized White male standard of achievement (Martin, 2012). The literature on the barriers to normalized achievement for Latinx students provide a comprehensive list of deficits including their economic status, immigration status, English language proficiency, low personal aspirations, poor K-12 education and the inability persist in higher education (Kao & Thompson, 2003). These barriers are often a reality for Latinx students, but they are limited in their ability to explain the existence of the prevalent achievement gaps.

Kao and Thompson (2003), examined the stratification within schools that impact performance. While education, and the community college system in particular, is often viewed as an equalizer, a means to promote social equality by making higher

education accessible to all, it can also be viewed as perpetuating the status quo and social injustices that inhibit Latinx students from receiving better and more equitable learning opportunities (Hallinan, 2001). The question of equal access to education must include discussions of social and education stratification. Latinx students, as well as poor and other minoritized students, experience tracking within their schools. Latinx students are disproportionately tracked (Cavazos, Johnson, Fielding, Cavazos, Castro & Vela, 2010) into low-ability groups in elementary school and non-college bound tracks in middle and high school (Kao & Thompson, 2003) and into developmental education in college. It is also the case that tracking can be influenced by English language proficiency which can be detrimental to Latinx students who may have high or advanced abilities but who are tracked into lower-ability groups because of English-language proficiency (Kanno, 2018).

In addition to being limited to low-ability course offerings, Latinx students lag behind White students in their participation in advanced mathematics courses past Algebra (Kao & Thompson, 2003; Sanchez, Usinger & Thornton, 2015). Tracking impacts Latinx students' course taking patterns. Being placed in a lower-track, a non-college bound track in K-12 or a developmental track in college, can be due to educator perceptions about Latinx student's motivation and abilities based on perceptions about race and class (Valencia, 2002). Whatever the case, tracking leads to negative attitudes in students towards school and learning and influences pursuit of mathematics courses,

majors and related careers. As discussed by Kao and Thompson (2003), students tracked in low-ability groups have lower achievement rates than students tracked in higher-ability groups. Tracking maintains the status quo and keeps students labeled low-ability as such.

Latinx Students in Mathematics

Research on the mathematics performance of minoritized students identifies many factors for performance and achievement. In early education, Latinx and other minoritized student groups are disproportionally stratified within schools according to educator perceived ability groups, otherwise known as tracking (Ballon, 2008; Kao & Thompson, 2003). Tracking can lead to negative attitudes towards learning in students, and non-college bound labeling of students whose college going aspirations are then not supported by teachers and counselors (Huerta, McDonough & Allen, 2018), and solidifies the hierarchy of mathematics ability with minoritized students at the bottom systemically (Martin, 2012). In 2004, Collatos, Morrell, Nuno and Lara found that in California almost 70% of all Latinx high school students were enrolled in classes that did not meet the minimum course requirement of instate four-year universities with only 22% of Latinx students completing the courses required for eligibility. Looking at Latinx participation in STEM education, majors, and careers, there is a robust body of literature that explores Latinx underperformance and low participation in math, as a required subject for STEM, from kindergarten through high school graduation

(Cannady, 2014; Gamoran & Hannigan, 2000; Reigle-Crumb, Moore & Ramos-Wada, 2011). Exploring the pipeline metaphor, for example, one STEM trajectory is traditionally presented to STEM aspiring students and where Latinx students are ultimately pushed out or discouraged from pursuing. The traditional trajectory necessitates completing Algebra in middle school and calculus by the end of high school with calculus in high school being a predictor and gatekeeper to the STEM field (Cannady, 2014). There in fact is no real reason to set these milestones when the trajectories to STEM can look many different ways and reaching these milestones can be a function of opportunity when, for example, calculus is not widely offered in high schools with large Latinx and Black student populations (Cannady, 2014).

While research on Latinx mathematics performance at the college level is growing, the more commonly identified factors for high achievement include self-efficacy, resilience and motivation. According to a study by Stevens, Olivarez, Lan and Tallent-Runnels (2004) many Latinx students who start college with a major in a mathematics related field change their major. Their study examined the effects of self-efficacy on mathematics achievement, using a comparison of Latinx and White students. The researchers found that self-efficacy, defined as individuals when faced with a task, use a self-referent process to judge their abilities and self-regulate, influences academic achievement and mediates academic ability, played a major role in achievement. If a student believes they can successfully complete a task, they will

continue to work on it and employ different strategies in order to complete it (Willingham, 2009).

Stevens et al. (2004), looking at a group of Latinx and White students in an algebra class, found that Latinx students, when compared with White students, expressed lower ability and less confidence in doing mathematics, all the while valuing mathematics more than their White counterparts but expressing lower intentions to take more mathematics classes. Latinx student's lowered confidence and interest in pursuing more mathematics was attributed to their cumulative experiences with low performance in mathematics through all grade levels, having less experiences to build confidence, and less opportunities to see people similar to them who have succeeded in mathematics. Experiences in education, and in this case with Latinx students and mathematics, matter and as such input on experiences is important when creating policies and practices to support Latinx student success in math.

Butty (2001) in her study of Black and Latinx students found that positive attitudes about mathematics emerge through the use of teaching that employs multiple approaches to problem solving, active student inquiry, and linking mathematics to students' daily life. These teaching approaches lead to self-efficacy and resilience which leads to success in mathematics. Though the study pointed to the benefits of classroom reform, student achievement still necessitated self-efficacy. Latinx students also have to

be resilient. Resilience is defined as the ability to cope with adversity and overcome incredibly challenging circumstances (Hassinger & Plourde, 2005).

Latinx student achievement is often talked about in the literature as due to Latinx student resilience (Crisp, Taggart & Nora, 2015) the ability to succeed despite barriers. A different framing of Latinx student resilience using the Latcrit perspective includes Latinx student behavior, such as creating counter spaces where Latinx students build supportive and validating communities (Yosso, Smith, Ceja, & Solórzano, 2009), as resistance to an educational system that rejects them. Another framing is critical resilience where Latinx students succeed because of an understanding of the layered complex barriers in a deliberate effort to change their circumstances and those of their communities (Campa, 2010). Labeled as “at-risk”, due to high dropout rates (Cavazos et al., 2010; Greene, Marti & McClenney, 2008; Stevens et al., 2004), Latinx students who succeed are said to have resilience. While seemingly complimentary, resilience literature further implies that Latinx students who do not succeed is due in part to their lacking resilient abilities, and in particular in mathematics must be due to their unwillingness to put in effort, versus being the result of systemic racism (Zavala & Hand, 2017). Once again, this is a deficit framing of Latinx students.

According to Cavazos et al. (2010) students develop resilience through familial support that results in high expectations, having high and concrete goals, high intrinsic motivation that results from experiencing enjoyment, interest and a positive outlook

towards educational challenges, having a strong locus of control in believing that hard work and effort in their academics is important, and having high self-efficacy. As discussed in Steven et al. (2004) self-efficacy is defined as mediating ability. In the study by Cavazos, high achieving college students believed they were not smart, but that effort and perseverance was important for their success. It is important to look deeper into the statements of successful students who although high achieving still believe they lack academic ability. The students from this study, and others like them, reinforce the dominant narrative that Latinx students lack academic ability, regardless of whether they do or do not achieve academically.

Stinson's (2004, 2006) research on African American student achievement in mathematics is helpful in understanding deficit discourse and the issues surrounding mathematics education research and Latinx students. Similar to African American students, the achievement gap of Latinx students is known to educators and researchers, but there is less research that examines the complexities of its existence. Deficit literature is by nature outcomes based, as such it leads to suggested interventions that aim to fix the deficiencies (Stinson, 2006). This approach not only assumes a monolithic experience of students grouped by any one race or ethnicity, but it cannot attempt to address the sociocultural issues behind achievement gaps when they are not considered. Focusing on and adding to the already known gap and deficiency literature has the effect of reaffirming minoritized students at the bottom of the racial hierarchy of

mathematics ability (Martin, 2012). Simply continuing to focus on the achievement gaps does little to create change and much to define the gaps as given and inevitable.

Latinx Student Aspirations

Deficit perceptions of Latinx students, particularly deficit perceptions of Latinx student abilities in fields like mathematics that are imbued with whiteness, show up in institutional policies, teacher pedagogies, and are a reflection of societal perceptions that extend to these fields. They lead to discriminatory practices and discourses that impact both opportunities for Latinx students and communities as well as self-perceptions of those students and communities and lowered aspirations. Deficit self-perceptions and lowered aspirations in a racialized environment such as college lead to low performance and even resistance to participating in education all together (Yosso, Smith, Ceja, & Solórzano, 2009). For Latinx students pursuing mathematics this often presents itself as leaving math-based majors or dropping out of school altogether. Deficit based practices maintain the societal status quo that keep Latinx students labeled as low-ability and the social injustices that limit their opportunities. And this cyclical pattern goes on.

Latinx students are enrolling in higher education at a growing rate and they enter with high aspirations of completing a degree (Acevedo, Santos, Alonso, & Solórzano, 2015; Yosso, 2006). Developmental education tracking has the effect of invalidating the aspiration of Latinx students by imposing low expectations. AB 705 addresses

inequitable placement processes, overrepresentation of Latinx students in developmental math, low rates of successful completion of remedial tracks, and inequitable successful outcomes in the form of course completion, degree attainment and transfer. It does so by mandating community colleges do away with inequitable placement test practices and maximize the probability students will enter and complete college level math, and English, courses within a one-year timeframe.

Overcoming and succeeding in the face of institutional barriers requires an investment in education and the motivation to persist. In a study by Cavazos et al. (2010) intrinsic motivation was found to be a strong indicator of Latinx college students to persist as well as support from their families. Motivation to persist is also attributed to student's perception of the institution's commitment to the student (Zea et al., 1997). If a student perceives that the college is invested in them and their learning, their commitment to their own educational goal is reinforced. Students who do not perceive the college as being invested in them or feel alienated, either by campus climate or institutional policies, are more likely to have low persistence (Karp & Bork, 2012). Policies that are focused on the success of all students, including Latinx and all minoritized students, could have the added effect of increasing motivation, persistence, and success. Short of creating a truly equitable campus and leveling the playing field for all students in every respect, one way for a college to express commitment to its Latinx

students is by desiring their input and validating their experiences as they work towards equity.

Ganas

Studying Latinx student educational achievement often includes conversation of motivation. At times framed as *Ganas*, it is something developed in Latinx students that leads to resilience and a motivation to achieve (Cabrera, Lopez, & Saenz, 2012). Latinx student *Ganas* can be a result of valuing education by the student and the parents, and as Butty (2001) and Stevens et al. (2004) discussed, a feeling of self-efficacy, that success can be achieved with the right amount of effort. Defined as a deeply held desire to succeed (Easley, Bianco, & Leech, 2012) *Ganas* requires exerting the effort required to succeed.

In the Latinx community, students are often told, “*Échale Ganas!*” as encouragement to do well in school. Parents and others who say this to students do so without fully acknowledging the extent of the barriers faced by the student. The potential problem with *Ganas* is that if a student is not performing well in school, and mathematics in particular, it can be attributed to a lack of motivation by educators, family, and the student themselves, without taking into consideration other institutional factors (Zavala & Hand, 2017). A common refrain for failure is “*No le hecho Ganas*”, but, for example, according to Cabrera et al. (2012), experiences with discrimination

can inhibit *Ganas* development in Latinx youth. Add to that all of the known factors that affect Latinx success in school and “*Echarle Ganas*” does not cut it.

In a study by Easley, Bianco and Leech (2012), high achieving students attributed their success to *Ganas*. Their *Ganas* was reportedly fueled by theirs or their parent’s traumatic immigration stories, family struggle, feelings of obligation to repay their parents sacrifices, or to honor their parents. *Ganas* may be used lightly, but it can bear a heavy weight on students who are faced with a multitude of systemic barriers on their path to succeed in higher education. Especially when there is little or no accountability from the educational institutions, and little to no recognition of the socially constructed barriers, that need to change in order to support and validate student *Ganas*.

Conclusion

In summary, on the low mathematics achievement rates of Latinx students in comparison to normalized White male standards is extensive. Different threads of the discussion have focused on the socio-political barriers that impact Latinx students, including poverty, poor K-12 education, tracking, negative attitudes towards education, and other factors that focus on the individual student. Others discuss low achievement in terms of racism and educational stratification where institutionally Latinx students are not intended to succeed at a structural level. Latinx students are entering higher education in growing numbers, particularly in community college. Successful college

completion of Latinx students requires colleges be invested in student aspirations.

Latinx students enter higher education with a great deal of aspirational capital, they need their college to be invested in their academic goals. Research indicates that with student *Ganas*, institutional validation, anti-deficit frameworks, and equitable practices, Latinx student opportunity for success can only improve.

Chapter Three: Methodology

Introduction

In order to explore how Latinx students at Hill View college navigate community college mathematics and made meaning of AB 705 and its ability to impact their success as entering college students, Latinx students who enrolled in mathematics at Hill View were surveyed to gain a broad picture of their goals and aspirations, perceptions of their own abilities, experiences as mathematics students and as Hill View students. In a second phase, focus groups were facilitated for more in depth understanding of how their aspirations, perceptions and experiences were impacted by Hill View practices and policies. Different data sources including institutional artifacts, field notes, enrollment data, and professional reflective journaling were used to round out how institutional discourse, communication, practices and campus culture and climate supported or impeded the success of Latinx students in mathematics.

Researcher Positionality

Aside from being the researcher, I identify as an educator and youth advocate. My professional experience has provided me the opportunities to work with foster youth and youth in the justice system as an advocate in their education and healthcare, an advocate for youth and students with special needs, and an educator and services coordinator for low-income first-generation college bound students. In my current role at Hill View College, I serve both as a liaison for prospective, entering, and current

students to different services on and off campus that provide support, and as the coordinator for student basic needs.

As the previous Student Success and Supports Programs coordinator, then the Outreach Office program coordinator, and now the Basic Needs and New Student Orientation coordinator, due to changes and shifting focus at the state and funding levels, I have the ability to reach out to prospective and current students to ensure they are aware of multiple academic and student services and resources on campus, and community and county basic needs services, understand service components, eligibility, and connect to those services and resources, again both on and off campus. I also track and report on service inputs and outcomes and work with those service providing departments and agencies to support their efforts. In my multiple roles I gather input and learn about student experiences around a number of academic and non-academic issues on a daily basis. What I have had the privilege to learn in my work at Hill View is that a student's academic problem is many times not only academic, and a non-academic problem is also academic. As a person on campus that provides services to students, my approach to my work is to follow the students lead. No one person knows what is best for students if they have not asked them what they need.

Beyond my professional experiences, my positionality comes also from my own experiences as a first-generation student starting off in a STEM major and finishing as a philosophy major. As a first-generation student, the proper self-advocacy skills

necessary to address barriers in higher education were not taught to me in K-12 or at home. I lacked the proper agency skills to call out the racial and gendered biases I experienced in college and as a result I was pushed out of a field that remains to this day White and male dominated. My short-lived experience in STEM in higher education is one that is experienced by Latinx students still today, more prevalently in STEM but also in higher education in general. As institutions create policies that create practices that create spaces Latinx students are experiencing, I am engaging in this study with the acute awareness that I now share in the responsibility as a part of the institution.

Research Site

Hill View is a community college is located in Valley City (a pseudonym), California. Valley city has a population of about 60,000 residents, a median home price of \$1.8 million, and an average household income of approximately \$173,000 per year with an average household size of three. Approximately 11% of Valley City residents are college age fifteen to twenty-four. The ethnic breakdown is approximately ninety percent Asian and White (www.census.org, 2018). Valley City is the home to several major tech companies with over 90% of residents employed in white-collar jobs.

Hill View College ranks in the top as a community college with the best transfer rates statewide every year (The Chronicle of Higher Education, 2018). It is a large community college with over 20,000 students, much larger than the college aged population of its service area, and it also has one of the largest international student

programs with over two thousand international students comprising 10% of the student population. A majority of Hill View students come from neighboring community college districts with most coming from the East View and Valley View high school districts (pseudonyms), which are more diverse and less-resourced schools serving students of lower socioeconomic status. This is due in part to Hill View's heavy recruitment efforts in those districts. The demographic breakdown of students at Hill View is 27% Latinx, 19% White, 4% Black, 39% Asian, 1% Pacific Islander, and 7% percent Filipino. At Hill View, while Latinx students make up twenty-six percent of new incoming students, they made up 42% of remedial mathematics students, prior to AB 705. In the fall term of the year preceding AB 705, there were 34 sections of a mathematics course three levels below college level, 17 sections of two levels below, and 31 sections of one level below college level math.

Latinx students at Hillview College are often times first-generation college students who come from under resourced high schools and may be of lower socioeconomic status. Over the last ten to twenty years the Latinx population has been increasing gradually, with a major spike in the last ten years that have seen it nearly double from 15.5% in 2008 to 27.2% in 2018. Navigating the community college system can be a daunting process for which this new population of students receive inadequate preparation. Implementation of a new policy which aims to impact their success and the success of other students with traditionally lower success rates creates

an opportunity for the college to gather input from students as to what impacts their success as they develop new practices.

Data Collection

Data was collected using several methods including survey, focus groups, enrollment data, and field notes, analyzing institutional artifacts which included emails, syllabi, webpages, and professional journaling.

Surveys were used to learn student perceptions of navigating community college and in particular experiences in mathematics and their understanding of AB 705. The survey questions addressed four key areas: student educational and career aspirations, student perceptions of their abilities in math, how they define success and the factors that support their success, and campus climate. Survey data informed the focus groups. Focus groups were used to learn more about Latinx student experience at Hill View and during their transition into Hill View, as well as to gain insight on their motivating factors. Enrollment data on mathematics course taking patterns for Latinx students at Hill View was collected to see if it was in alignment with course taking pathways towards their declared majors. This data was requested from the Institutional Research department at Hill View.

Enrollment data was used to select participants as only Latinx students that had enrolled in a mathematics course during the first year of AB 705 implementation were

selected. Enrollment data was also used to examine mathematics course taking patterns of Latinx students.

Field notes were collected during various staff meetings where AB 705, mathematics curriculum, or student services were discussed. I used these field notes to help make meaning of the discourses and action plans that informed practices and influenced the culture of the institution and the campus climate that is experienced by students.

Institutional artifacts including published meeting minutes, website information, emails from the college to the students, and course syllabi were collected and scoured for AB 705 information and messaging.

I maintained a professional journal where I reflected on professional conversations, participation in different meetings, interactions with students, staff and faculty, and other interactions regarding AB 705 and/or Latinx students. It served as a tool that revealed staff and faculty perceptions, professional barriers, systemic issues faced by staff or the institution, and shifts over time in behaviors and practices throughout the implementation of AB 705.

Participants

The participants of this study were from first-time to college Latinx students who enrolled in their first mathematics class during the first year of AB 705 implementation, the 2018-19 academic year. This included fall, winter and spring terms

because a student may begin their matriculation at any of the four quarter terms in the year and did not have to exclusively be fall quarter. Students who only enrolled in a mathematics course during the summer quarter of the 2018-19 academic year were excluded from this study as there were no changes made to the mathematics courses, offerings, or curriculum until fall 2018. Students who enrolled and dropped a mathematics course before census and students who enrolled in a mathematics course that was cancelled and did not re-enroll in another course during the year were not included and did not receive the emailed survey. This was due to wanting to gather information about student experience in their mathematics class beyond just enrollment data.

First-time enrollment status, ethnicity, and mathematics enrollment data was gathered using data sets provided through Argos, a tool that extracts student data from the student information system banner. Student ethnicity was captured through the application where they self-identified as Hispanic. The term Hispanic was selected because Latinx, Latino or Latina were not options on the application. This resulted in a total of 397 identified first-time, Latinx students who enrolled in at least one mathematics course in the 2018-19 academic year at Hill View. All 397 students were emailed a survey to the email address the school had on file. Of the 397 students emailed, five emails bounced back as invalid email addresses. No further attempts were made to locate a new or valid email address for those students.

Quantitative Data Collection

The 392 students with a valid email address received an email where I, the researcher, introduced myself, introduced my research, and provided a copy of the informed consent form (Appendix A) detailing their participation, in the survey or in a future focus group, as optional and that their participation, or lack thereof, would have no effect on their grades or academic standing and Hill View. The email contained a link to the survey administered through Qualtrics. It also provided an incentive of entering a drawing for the chance to win one of 10 Amazon gift cards with a value of \$25 upon completing the survey and after the close of the survey. The survey was open for two weeks in the fall quarter of 2019. Of the 392 students, 87 students either fully or partially completed the survey. Of those students 87 students, 51 students fully completed the survey. A few days after the survey closing, I conducted the raffle and ten winners were selected randomly by listing the respondent emails on an excel worksheet and using the RAND function.

In an attempt to receive more completed surveys, I re-opened the survey only to the 37 students who started the survey but had not completed it and sent them an email. The email instructed that if they completed the survey by the end of the day, they would receive a guaranteed gift card. The survey was then closed at midnight the day of the email. After the two rounds of survey collection a total of 58 students completed the survey for a response rate of 14.8%. While seemingly small, the average response rate

at Hill View for an emailed survey is approximately 5-7% making the response rate for this survey higher than average. Only fully completed survey data was used in the analysis.

The survey contained five questions about student goals and aspirations, five questions with 24 sub-questions about student experience of campus climate, three questions with 18 sub questions on student perceptions of their mathematic abilities and experiences with mathematics, and four questions about student knowledge of AB 705 and mathematics course enrollment. The survey was created using questions from the National Survey of Student Engagement (NSSE), the Student Experience in the Research University (SERU), and the College Survey of Student Engagement First-Year Student (FYS) student experience survey. Additional questions were created to gauge knowledge of AB 705 as none were found to exist. To ensure the survey questions directly related to the research question, Table 1 below outlines how each data item corresponded to each survey question.

Research Question: How do Latinx students at Hill View College navigate community college mathematics and make meaning of AB 705 and its ability to impact their success?

Research Question and Method		
Question	Method	Data
AB 705	Survey	Question 3, 4 and comparison of question 3-4 and 1 and 2
	Focus Group	Questions 4b and 6

Math Abilities and Experience	Survey	Questions 5-7
	Focus Group	Question 5
Campus Climate	Survey	Questions 8-12
	Focus Group	Questions 7e-7h
Goals and Aspirations	Survey	Questions 15-19
	Focus Group	Questions 8 and 10
	Student information data	Declared academic goals and majors

Table 1. Data Sources and Analytic Questions

Qualitative Data Collection

Two focus groups were conducted several weeks after the survey closed.

Students were given the opportunity to be reached out to in the form of an email by the researcher if they wished to participate in the focus group by providing a response in the affirmative in the survey and providing an email address where they could be reached. Twenty students responded that they were interested in participating in the focus group. Of those twenty students who were invited to participate in one of two scheduled focus groups, seven students responded they would like to attend the focus groups, and six students showed up to the focus groups.

The focus groups took place in an office on campus in an accessible location on two separate days. A focus group protocol was used and included a share out of select survey responses, frequency results in the form of a printed Power Point presentation, and a list of questions (Appendix B) guided by the results of the survey. Keeping in line with the survey, the prepared focus group questions were around goals and aspirations,

campus climate, perceived mathematic abilities and experiences with mathematics, and AB 705. The question section of the focus groups was loosely structured allowing for students to deviate as their responses to the questions on their experience brought out the desire to share tangential information or experiences.

Data Analysis

Quantitative Analysis

To analyze the survey data, it was exported from Qualtrics to Excel where the only identifying information, email addresses, were converted to numbers 1-58. The data was then uploaded to SPSS for analysis. Descriptive statistical analysis provided information on frequency of responses to each question. Frequency results guided further analysis including by level of understanding of AB 705, first mathematics course enrolled, and factors that influenced their first mathematics course selection. Additionally, response rates to questions around how students experienced their mathematics courses and campus climate were used to inform the focus group question protocol.

In order to confirm whether the survey questions measured the factors intended, and which questions represented which factor, I conducted a factor analysis on the survey questions I believed addressed four key areas: student educational and career aspirations, student perceptions of their abilities in math, how they define success and the factors that support their success, and campus climate.

Questions about educational and career aspirations were collected with short answer responses resulting in a list of educational and career goals and so were excluded from the analysis. Questions about student's own perceptions of their mathematic abilities and how they experience campus climate were collected using a 5-point Likert scale. Questions about what impacted their success were presented in a 3-point Likert scale. Likert scale questions were analyzed using the number value of the responses, 1 to 5 versus Never to Always.

The first analysis resulted in six underlying factors being identified, with several survey questions identified as resulting in multiple factors. After reviewing the results, I removed the questions that corresponded to multiple factors and ran the analysis a second time. By removing those identified survey questions, the analysis then resulted in four factors with an Eigenvalue >1 , indicating that these four factors are likely to represent a real underlying factor, which I identified as 1) experience of campus climate, 2) experience in the mathematics classroom, 3) perception of mathematic abilities, and 4) belonging. Confident that the survey measured what it intended to measure, I turned back to the frequency of responses and to the groups of questions for each factor in order to make meaning of Latinx student experience.

I examined mathematics course selection between students who had knowledge of AB 705 and those that did not for any differences in the selection of either a developmental or transfer-level mathematics course as the first course. Next, I looked at

the number of surveyed students who took a placement test. Because all students received a placement via high school transcripts as a result of AB 705, students who also took a placement test received two placements with some students being placed in developmental mathematics via the test result and transfer-level mathematics via the high school information, or vice versus. Especially for students who received a placement in developmental mathematics through the placement test, which could bear more weight with them due to it being perceived as the result of their own test taking skills and content knowledge, I wanted to know if the placement test result, regardless of placement in transfer-level via other measures, resulted in developmental course enrollment. Both forms of placement are a vehicle by which the college messages to students its assessment of student abilities. This messaging can influence student self-perceptions of their abilities, their motivation, sense of belonging, and their academic goals and aspirations.

Next, I examined the reasons students stated in the survey they chose their first mathematics course. Students can be influenced by the college's messaging, peers, counselors, family, or by a policy such as AB 705. Mathematics course selection is important for most students as regardless to their major most will be required to complete mathematics courses. Starting at a developmental level or transfer-level impacts length of mathematics sequence and also has financial implications.

Additionally, starting at a developmental level can impact Latinx student mathematics sequence and goal completion (Bailey, 2009).

I also examined survey data about how students who had knowledge of AB 705 learned about the policy and its resulting practices. Messaging and communication are important during the matriculation process. As the first messaging to incoming students, it is useful to learn if communication is being received as intended.

Qualitative Analysis

In order to gather more information on student experience, two focus groups were facilitated with students who completed the survey. The focus groups were audio recorded with the permission of the participants. I listened to the audio recordings twice and then transcribed them on the third listen. The transcriptions were read over once, and notes on emerging thoughts were written on the second read. The transcripts were read several more times in search of student responses that helped answer or understand the research questions around their understanding of AB 705 and the resulting practices, navigation of community college math, and their lived experience as Hill View students both inside and outside of their mathematics classrooms. I then shared the transcripts with a critical colleague to get their general impressions about what students were saying about their experiences to see if their interpretation was in line with my own. It was my desire to take steps to ensure I was not misrepresenting what students were saying or what they shared they needed from the college to be successful. I was looking

to share as true a narrative as possible. My critical colleague and I were able to coincide with our interpretations of what students stated was their experience and what they stated they needed.

Enrollment data revealed mathematics course taking patterns for Latinx students at Hill View. This data provided information as to whether Latinx students who became eligible for college level courses due to AB 705 actually enrolled in those courses. Math enrollment data for first-time Latinx students that were surveyed showed that in the 2018-19 academic year 160 students enrolled in developmental mathematics and 237 enrolled in transfer level math. This is still high considering transfer-level mathematics were open to all entering students. In the 2018-19 academic year Hill View continued to offer a significant number of developmental courses in the fall and winter quarters. Through survey questions and focus group discussions, Latinx student's enrollment in developmental courses was due to messaging, or lack of messaging, from the college, either through campus and staff and faculty communication about their eligibility for college level mathematics courses, counseling and advising, and their own perceptions about their abilities. Enrollment data supported survey and focus group data.

Institutional artifacts provide a picture of the lack of emphasis, clarity, and efforts on behalf of the college and its staff to communicate AB 705 and how it impacted student understanding of and use of AB 705 in their course taking behavior. It

provided input on how to improve communication of important policies to students in order to support their agency and success.

Field notes gathered from meetings notes from the Hill View College AB 705 committee task force, of which I was a participant, provided data on the implementation process, timeline, points of difficulty, and faculty and administrator shared grievances, attitudes, and perceptions of students

Data from a professional journal included my reflections of conversation and interactions with different staff and faculty, as well as my own emerging thoughts and experiences with the implementation of AB 705.

Chapter Four: Report of Findings

Introduction

This study examined the experiences of Latinx students navigating their mathematics course taking choices during the initial implementation year of AB 705, a policy that opened access to transferable level mathematics courses to all students without the use of assessment testing for the purpose of placement, at Hill View College. The policy prohibited the use of assessment testing for placement with the aim of increasing the number of students, mainly students underrepresented in higher education, who could enter and successfully complete transfer level mathematics without requiring enrollment in developmental courses which research has shown were disproportionately required of minoritized students (Attewell et al. 2006; Crisp and Delgado 2014; Fong et al. 2015; Hagedorn, Chi, Cepeda & McLain, 1999) and had low success and completion rates.

Policies, such as AB 705, can have the potential to further advantage populations of students while further disadvantaging other populations of students, including first generation, low socioeconomic status, and minoritized students (Felix & Castro, 2018). One particularly damaging way this can happen is failing to include students from disproportionately impacted groups in the implementation process. By examining the experience of Latinx students during the implementation year of a policy that aimed to directly support them as a group of students underrepresented in higher

education, their shared input shed light on how implementation at one particular college impacted their meaning making and utilization of the changing policies. By using both survey and focus group data, the research affirmed missed opportunities in the experiences of the students to fully take advantage of an impactful new policy.

This study used survey data and focus group data, as well as enrollment data and institutional artifacts to answer the two-part research question: how do Latinx students at Hill View community college navigate community college mathematics and make meaning of AB 705, and how can Latinx student input improve successful policy implementation and outcomes? Students were surveyed using purposive sampling and included all Latinx identified students who were first time to college in the Fall 2018 and who enrolled in at least one mathematics course in the 2018-19 academic year, which was the first year of AB 705 implementation at Hill View College. In total 58 students completed the survey of the 392 students who were emailed the survey to a valid email provided to the college, for a response rate of approximately 15%. Students who completed the survey were invited to participate in a focus group. In total, six students participated in a focus group. Anonymized enrollment data was collected through data available to the researcher via their position at the college with permission to use in this study. Institutional artifacts were collected from college emails, web site information, and available syllabi.

Findings

This chapter is organized into three sections. Section one will share findings related to research question part one, examining how first-time to college Latinx students navigated their mathematics course selection during the first-year implementation of AB 705. Drawing primarily on survey data, section one shows how students drew on a variety of resources to make decisions regarding mathematics enrollment. However, their decision making was not primarily due to the new placement practices that resulted from the implementation of AB 705. Section two will focus on research question part two, examining how Latinx student input could help during a new policy implementation. Student focus group data shows the barriers students faced in enrolling in transfer-level mathematics courses in the first year of the implementation of AB 705 at Hill View College. Students shared their personal experiences navigating information gathering, interactions with staff and faculty, and interactions with a number of forms of campus communication of important messaging. The third section will summarize the findings.

Research Question 1

Research question number one asked: *How do Latinx students at Hill View College navigate community college mathematics and make meaning of AB 705?* Survey data provided information about the level of understanding Latinx student had of AB 705 and its implementation at Hill View College at the point of entering college

and when making decisions around which mathematics class to enroll in as their first mathematics course.

Surveys

Student responses showed that 66% of students surveyed were not aware of AB 705 and how it opened access to transfer level courses for all students. Additionally, another 10% of students reported being aware of AB 705 but did not use the information when selecting their first mathematics course. Only 24% of students surveyed, 14 of 58, had awareness of AB 705 and reported they used the new placement policy to select their first mathematics course and begin their college mathematics sequence.

Figure 2. Awareness of the changes provided by AB 705, prior to today. N=58.

A closer look reveals that even of the 35% of students who had knowledge of AB 705, some still selected a remedial mathematics course. Only 65% enrolled in

Statistics which is the first level of transferable math. The remaining 35% enrolled in intermediate algebra which is the last level of remedial math.

Figure 3: Selection of mathematics course with knowledge of AB 705. n=20

With varying levels of awareness about changing placement policies and different methods for decision making, the result was a range of mathematics courses chosen as a first mathematics course. At Hill View College, the mathematics course offering in the 2018-19 academic year included three levels of developmental mathematics courses which were pre-algebra, elementary algebra which was not selected as a mathematics course by any of the surveyed students, and intermediate algebra. Developmental courses, at times referred to as non-transferable courses, do not transfer for credit at a four-year university towards a bachelor's degree. They are courses meant to prepare students for transfer-level, or college-level, courses by teaching content needed for those level courses. The transfer-level courses available to

new incoming students included statistics, pre-calculus 1, 2 or 3, and calculus 1A, as well as finite mathematics, contemporary mathematics, and mathematics for liberal arts education, which were not selected by surveyed students.

First Math Course Enrolled	Number of Students	Percent of Students that Responded
Pre-Algebra	3	5%
Intermediate Algebra	18	31%
Statistics (first transfer level course)	31	53%
Precalculus 1	5	9%
Calculus 1A	1	2%
Total	58	100%

Table 2. First Math course enrolled.

In addition to information about AB 705, students used different reasoning when selecting their first mathematics course. During the implementation of AB 705, student assessment included both testing and placement via high school transcript information. Additionally, students reported using counseling, confidence levels, peer input and other influences to select mathematics courses. Interestingly, 47% of students reported using the result of their placement test to select their first mathematics course. Below is the breakdown of how students responded they selected their first mathematics course. Students were able to select all responses that applied to their decision making.

Reason for Enrolling in First Math Course	Number of Students (n=58)	Percent of Students that Responded
I took a placement test and it told me which class to take.	27	47%
A Hill View counselor told me what to take.	19	33%
My high school transcript information determined my placement and that is the class I took.	17	21%
I felt confident in my ability to pass a higher-level mathematics course than the one I placed into and chose a higher-level course.	3	5%
I didn't feel confident in my ability to pass the mathematics course I placed into, so I chose a lower level course to build my skills.	3	5%
Other.	3	5%
I chose the same class as my partner or friend.	2	3%
A family member told me what to take.	1	2%
I chose a class at random.	0	0%

Table 3. Reasons for enrolling in first mathematics course.

Looking at the spectrum of reasons that influenced student course selection, it is important to understand the timeline of implementation events for incoming 2018-19 students because it adds to our understanding of the top three ways students made decisions. The following graphic provides a visual representation of the timeline of events and paints a picture of perhaps why students relied more heavily on placement test results and counselor suggestions for which mathematics course to enroll in. The implementation timeline worked against students understanding of the new policy and the opportunity for it to be utilized in the best interest of all students. It was constructed

using the calendar of recruitment events at the high schools which included application workshops, assessment workshops facilitated by staff and counselors and orientation and educational planning sessions provided by counselors. Educational planning sessions are important to note as during this activity, Hill View counselor developed the student's course enrollment plan for their first fall term. The timeline construction also used Hill View's academic calendar of events and implementation information from the AB 705 task force committee meetings. Each event on the timeline is represented by a separate color with the corresponding line representing the length of time that the activity took place. Circles without lines depict a date on which the corresponding even took place. Event information is found below the timeline in a corresponding color.

Figure 4. Implementation of AB 705, months February to September 2018.

My analysis of this timeline indicates that the college was underprepared to implement AB 705 for fall 2018. Through my participation in the AB 705 task force committee meetings, I am aware that the delay was partially due to a fierce resistance from the mathematics department to engage in the conversations around the changes that were going to be mandatory until approximately 6-8 months prior to the implementation from which point in time decision making continued to be delayed until June 2018, roughly three weeks prior to the start of registration and four months since the student education plans began to be created for incoming students with the pre-AB 705 placements.

At no point in the timeline is there an indication that leadership outside of the mathematics department successfully intervened in the interest of students. Administrators were present at every meeting, but there was never a directive to advance the conversation or support for the mathematics department to come to a decision around mathematics placements in adherence of AB 705. Had there been some intervention by administration, the timeline may have allowed for more communication to staff and students and perhaps a more impactful implementation of the new policy.

Institutional artifacts also played a part in Latinx student experience navigating AB 705 at the earliest point of matriculation. Institution emails were sent months after many students had already received their educational plan provided by a Hill View counselor, and only just in time to re-arrange their schedules during the enrollment

period if the student was knowledgeable enough to know that was a possibility (Appendix C). The emails also directed students to visit their counselors for information and guidance when counselors themselves were under informed and not prepared to advise students. Analyzed mathematics course syllabi from fall 2018 were inconsistent, with instances of instructors more concerned about detailing the many ways a student, through typical student behavior, would be penalized in their mathematics class versus using it as a tool for information and encouragement. As one might notice in the timeline of events, students were not notified of their rights under AB 705 until 10 days after fall registration opened. By then, it is possible students had already made their decisions and did not want to risk dropping out of a course if they could not be guaranteed enrollment in another before the enrollment window closed. Therefore, institutional artifacts also impacted student agency as students who were able to receive the information and could visited campus for clarification and confirmation were met with unclear and inconsistent messaging at a time in the enrollment period where there was little time to pause and seek clarity from other sources because of the pressure to have a full schedule. Institutional messaging did not meet the intentions of AB 705 as it did not successfully convey that the policy was in effect or that the policy acknowledges that students have the ability to successfully complete transfer level mathematics and English with time for students to use this information to make an enrollment decision.

The roll-out of AB 705 impacted how services were or were not delivered and impacted student enrollment behaviors. With students reporting different levels of understanding, different approaches to their usage of the information, and a complex timeline of implementation events, I examined how students received information. Below is a breakdown of how students learned about AB 705. Students were able to select all of the ways they had learned about it from the list of responses provided. Perhaps not surprisingly then, given that for many of the entering students who were provided an education plan from a Hill View counselor at their high school and that the email communication happened after enrollment opened, the majority of survey respondents had not heard of AB 705 prior to the start of classes in fall 2018, which was before being contacted to take my survey (see Figure 2).

How Students Learned About AB 705	Number of Students (n=58)	Percent of Students that Responded
I learned about AB 705 from a Hill View counselor or staff.	13	22%
I learned about AB 705 from an email I received from Hill View.	7	12%
I learned about AB 705 from a Hill View mathematics instructor.	3	5%
I learned about AB 705 from a friend, family, or classmate.	2	3%
I learned about AB 705 from the Hill View website.	0	0%
I did not know about AB 705 prior to today.	36	62%

Table 4. How students learned about AB 705.

From the survey results, it is clear that students used different methods for gathering information, with direct communication from a Hill View staff or counselor being the most influential, emails the second most effective, and posting information on the website the least effective method. Still, with 62% of students unaware of AB 705, the combination of efforts was unsuccessful for a majority of students.

Focus Groups

Qualitative data collected from the focus groups provided greater insight as to how students experienced AB 705. While survey data findings helped to explain student decision making around how they navigated mathematics course enrollment, student focus groups provided a depth when explained in Latinx student voice. It revealed that students entering Hill View as new to college students in the first year of AB 705 implementation were met with an uneasy, under-informed and under-developed transition period.

Examination of the placement data shows that of the 397 Latinx students surveyed, 303 took a placement test in addition to receiving a separate placement via high school transcript information and the remaining 94 were placed only by high school transcripts. For many of those 303 students this created multiple and contradictory placements in mathematics and English that they were left to interpret either alone or with limited guidance, as counselors and staff were also under-informed in the process of learning how to advise under the new assessment practices. Of the 303

students who took a placement test, 127 enrolled in a developmental mathematics as their first mathematics course, with 115 of those students placing in developmental mathematics via the test. Meanwhile, of the 94 students who did not take a placement test, not a single student enrolled in a developmental mathematics course or would have been shown a developmental course option on their placement results. Angel, a first-year Latinx college student in fall 2018 who was aware of AB 705 and had taken the placement test, but still enrolled in remedial math, shared their experience in attempting to understand the policy and utilize it.

Angel: It was funny cuz I remember when I was applying, I took the English and then the math (placement test). I remember I had to go to the front of the school (and) some instructor told me to, like, put my information, or whatever, and then take it. After, I got an email about that policy that happened. I was actually very curious, and I went to a counselor at Hill View and then I told her about it, but she told me that, um, I forgot what she had told me, but I think, like, she didn't, like, she wasn't, like, sure what was happening. So, I kinda, like, told her this happened (AB 705) so is it true or not? Like, I was just asking her a question but she seemed, like, really unclear, but I did get placed on a math course by my placement test, it was mathematics 114 (intermediate algebra) and then I got a B in that class but I felt, like, even for me some of the things were kind of easy.

(Focus Group, November 18, 2019)

Although he also took the placement test, Angel had some knowledge of AB 705 and visited a counselor at Hill View in an attempt to utilize the new policy to create his education plan. He showed agency and a desire to understand how he could have his best start at Hill View but was met with inadequate counseling due to staff not being aware themselves of a new and state-wide policy that the campus had been working to implement for several months prior. This is in line with the lack of steps taken by the counseling department to educate and train counselors on the new policy. The counselor also took no further steps to find information about AB 705 when it was presented by the student in order to better serve them and the student showed a reliance on the institution, through its staff and communication, to keep him accurately informed.

Similar to Angel, Karina received some information about AB 705 from both a Hill View staff and an email and was one of the few students surveyed who used the information when choosing her first mathematics course, while still underestimating her ability to pass a higher-level mathematics course partially due to her placement information. Still, she was fortunate enough to connect with someone at Hill View with more knowledge about AB 705 and its implementation.

Karina: I had taken the placement test and I had scored lower than I had taken in high school and, um, the grades I had gotten there. So, I went here (Hill View) and I asked what math I should go into because the placement test is putting me

in remedial courses, and I knew I had already done statistics in high school and passed with an A. They (the staff) had told me then that there was a rule (AB 705) in place where I could take statistics or higher and then I chose to go with statistics. This was during the summer, it was some staff that were here at the tutoring center. I think I had come to see a counselor and they told me to go there. (Focus Group, November 14, 2019)

Both Angel and Karina had received the email (Appendix C) from Hill View about AB 705 and the new placement policies, and both wanted confirmation and help understanding how it applied to them and so took the initiative to visit a counselor. The agency that Angel and Karina both practiced was, in Angel's case, undone by the counselor's lack of information around the new placement practices, and for Karina, she was fortunate enough to receive better information and guidance by someone outside of the counseling department. While the email referred students to counseling for information, Karina happened to be directed to the tutorial center for guidance and was fortunate to have met with a staff who participated in the AB 705 task force committee and so was better informed themselves and was able to relay to Karina that although her placement test score placed her in developmental math, she could, based on her high school information, enroll in a transfer-level course. Still, in Karina's case, had she been able to meet with a knowledgeable counselor to receive personalized academic

advisement, she may have selected a higher-level mathematics course. Instead, Karina chose to re-take statistics and enrolled in a course with additional support in the form of extended class hours, embedded tutoring and embedded counseling at a higher unit count. Karina passed her statistics course but reported being bored in the extended time class and using class time to complete work for other courses. While she was still unclear on her career course at the time of the focus group, she had no desire to complete any more mathematics courses.

Angel ultimately enrolled in the developmental course indicated by his placement exam. When asked why he did not take other actions to get his questions answered about AB 705, Angel replied:

Angel: She just told me that, I guess like, she wasn't sure and then, I don't know, I, like, didn't care about it. My focus was just, you know, get my classes, like, schedule. So, I wasn't too worried or focused about it. (Focus Group, November 18, 2019)

Even though Angel had more knowledge about AB 705 than the counselor, in the end he did not push the issue because he was more concerned about not having any classes on his schedule. This aligns with my personal knowledge, through my years of working as part of the outreach team, of how students, especially those who have friends or family in college, have heard at one point or another that getting classes at Hill View can be difficult as class enrollments quickly fill-up. Additionally, Hill View

College incentivizes students completing an educational plan by rewarding students who do so with a priority enrollment date which opens registration to those students before it becomes open to others. A fear of what Angel deemed more important or more pressing took priority for him when trying to figure out which mathematics course to take. Had Angel understood that taking a lower level mathematics course also impacted the speed and cost of his mathematics sequence, he may have pursued the matter differently, but again, that required clearer communication and adequate academic advising and counseling. As an undocumented student, it is additionally important Angel be better advised as he is ineligible for federal financial aid and will need to fund his own education for which the most expeditious route will be to his financial advantage.

Students who did not have knowledge about AB 705 shared different experiences with the assessment and placement process, but similar in their lack of clear and accurate information and adequate support.

Samuel: I didn't know about it (AB 705) until the survey. I just took, like, what the test told me then a counselor came to my school (high school), after the test. They came and we took the test there and they came later, and they looked on Myportal (Hill View College's student portal) and that's how we planned it (the first math course). (Focus Group, November 18, 2019)

Samuel's experience reveals a complete level of unawareness as well as student's reliance on the college through its staff to inform them properly. New to college, first year students often rely on college staff and faculty for guidance. In Samuel's case, he referenced taking the placement test on his high school campus. At Hill View College, although placement tests were no longer required for placement for the incoming fall 2018 students, Samuel, like the rest of the students that participated in the focus groups, took a placement test either proctored at their high school by Hill View staff or at Hill View in the assessment office. This was due to Hill View's inability to quickly adopt practices in line with AB 705, as detailed in the timeline.

By the Spring term of 2018, outreach and assessment practices that were in contradiction to the aims of AB 705, including proctoring placement tests, and by the time the first email that went out to students informing them about AB 705, many students, like Samuel, had already taken the placement test and received an educational plan from a counselor that listed their placement level mathematics course. Samuel was not informed of the fact that although the students were being asked to take the placement test, the college was also collecting high school transcript information for the purpose of placement. When Samuel said that 'they came later', he is referring to Hill View counselors going to his high school after the placement test to provide orientation and create student education plans.

In my analysis of Samuel's situation, there were a number of opportunities for Hill View to inform him about AB 705 and his options. These could have included more transparency about upcoming placement changes during the matriculation workshops at the high schools, giving AB 705 a presence on social media, sending multiple follow-up emails, making an automatic banner announcement when students accessed their student portals, making it part of orientation, sending incentivized surveys that garner more participation, or including it as a topic of discussion on class syllabi. These are just some examples.

Samuel, like other students, began his mathematics course taking pattern enrolling in a remedial mathematics course at the indication of the college placement practices and its staff. Unlike Angel and Karina, Samuel did not visit the college after the email, which he did not recall receiving, and prior to enrolling. The comprehensive outreach efforts on Hill View's part to provide enrollment and advising to high school students, in this case, were a detriment to students as they were left with the belief that they had received and completed all pre-enrollment services before the institution had implemented and announced important changes to the matriculation process and so they did not fully benefit from those changes.

Focus group data was instrumental in better understanding the impact Hill View's conduct across staff, faculty, and campus communication has on students. Survey data revealed that 66% of students surveyed did not have knowledge of the new

policy, 47% of students chose their first mathematics course as determined by their placement test, and not surprisingly 36% of students still enrolled in a developmental math. While AB 705 language states that students should only be placed in developmental courses if they are “highly unlikely to succeed” when placed directly in transfer-level courses, it is unlikely that 36% of students received appropriate assessment and were determined highly unlikely to successfully complete a transfer-level course but were instead placed with little to no adequate assessment and directly as a result of placement tests that were in process of being retired for use in assessment. These actions negated the purpose of AB 705.

Research Question 2

The second part of the research questions asked: *How can Latinx student input improve successful policy implementation and outcomes?* Students shared their experiences in making meaning of AB 705 and choosing their mathematics courses. But how did awareness and understanding influence the way that students navigated community college math? How did placement methods and institutional practices either set, reinforce, or challenge student perception of their ability and potential to succeed? To better understand if the relationships among student’s understanding and their perceptions of their own abilities in math, their experiences in their mathematics classes, and their confidence level that they will succeed in completing their academic goals, the figures below show the courses Latinx students enrolled in by their level of

awareness of AB 705, the factors that influenced their enrollment choices, and their confidence that they will successfully complete their chosen major mathematics requirements.

For students that had no knowledge of AB 705, 23% were influenced by their counselors, 39% by their placement test, 25% by their high school information placement, and 5% by either their confidence levels or other reason. For students that had knowledge of AB 705, 36% were influenced by their counselors, 38% by their placement test, 23% by their high school information placement, 4% by their confidence levels. Additionally, for students that did not have knowledge of AB 705, 45% enrolled in a developmental course and 55% in a transfer-level course while students with knowledge of AB 705, 30% enrolled in a developmental course and 70% enrolled in a transfer-level course. There was no discernable difference in how students who were or were not aware of AB 705 chose their first mathematics course, regardless also of what factors influenced their decision.

Figure 5. Course selection with AB 705 awareness. n=20

Figure 6: Course selection without AB 705 awareness. n=38

As for the first mathematics course selected, there was no discernable difference between students who did or did not have awareness of AB 705. Of students with awareness of AB 705 prior at the time of enrollment, 35% chose a developmental mathematics compared to 37% of students with no awareness. Similarly, 65% of

students with awareness selected a transfer-level course compared to 63% of students with no awareness of AB 705.

Figure 7: Confidence in ability to complete mathematics requirements for major and academic goal. n=58

Survey results also showed that student confidence levels that they could successfully complete the mathematics requirements for their chosen major and academic goals were not consistently strong with 43% of students doubtful in their abilities. Survey questions also collected information about if and how this new policy implementation impacted student awareness of their requirements or confidence in their ability to be successful given the new expectation that all students were able to complete college-level courses.

Student input is important in order to know whether new practices are having a desired effect. According to the participating students of this study, being either under

informed themselves, or dealing with under informed staff and faculty, interfered with the academic success of every student in the focus groups. This is important as Latinx students reported having high aspirational capital with 91% enrolling at Hill View with the goal of transferring and pursuing a bachelor's degree and 47% of those students aspiring to complete an advanced degree. In mathematics particularly not only is success impacted by where a student begins their mathematics sequence (Bailey et al, 2010; Karen & Dougherty, 2015), but confidence they can be successful is also instrumental in their persistence (Stevens, 2004)

The question remains, regardless of level of awareness of new policies, the algebras are courses that most students will have seen in middle school and high school. When enrolling in college courses, there was no influx of students, placed in developmental courses either through a test or via the indication of a counselor, challenging their mathematics placement. From my experience working an office that is a point of entry for students and their inquiries, mathematics placement challenges typically occur when students place in pre-calculus and desire to enroll in calculus. The difference between the questioning of placement for a student in the developmental math's or more advanced mathematics levels may be an issue of perceptions of their own abilities, to which a low score on the placement test or a counselor advising a lower level to begin at could be validating their own perceptions of low abilities

discouraging Latinx students from advocating to be in a higher mathematics course, as we saw with Karina and Angel.

Looking at student's own perceptions of their abilities in math, frequency analysis of survey data showed that 33% students reported they never to rarely felt weak mathematics skills were a barrier to their mathematics performance while 40% found weak mathematics skills to be a barrier. Similarly, 34.5% felt their own poor study skills, such as time management and organization, were never or rarely a barrier while 45% felt it was only occasionally a barrier. These survey results lead to the belief that students felt confident in their abilities to perform well in their mathematics courses. Alternately, 60% of students reported stress was often to very often a barrier to their performance in math.

As for student perception of their own abilities in mathematics, while survey data showed a neutral to positive self-perception of student's own abilities, focus group data revealed that students were less positive about their abilities and were experiencing greater doubt than they may have reported on the survey. Amelia shared her anxiety around her ability to complete her mathematics sequence as a STEM major.

Amelia: I am a biology major, so my math sequence is really long. So now I'm in math 42 (precalc II) and just knowing that I still have a lot to go and I'm struggling in like the basics creates a lot more stress than I would like to have, um, and also that I sometimes feel like I'm not prepared enough or I wasn't

prepared or I didn't prepare myself well enough to be in this course because I feel like I'm barely understanding let's say the first two chapters while we are already so ahead and so there's always this stress that I have to catch up and also time management like the quarter system does go really fast and so there is a lot of catching up and a lot of rushing and there's not really time to breathe. (Focus Group, November 14, 2019)

Amelia's experience is one of stress and feeling an overwhelming sense of never being prepared enough in her mathematics courses. She shared that in high school she enjoyed mathematics and felt comfortable in her abilities. She reported being mostly a B student in math, but she felt able to keep up and understand the content. This fear of being prepared enough, which she attributes to previous mathematics preparation, current experiences in mathematics, and what she feels is her own lack in effort, create a sense of not belonging in mathematics as she advances to higher levels. Still, she continues to pursue her mathematics education carrying those feeling and beliefs about herself.

Unlike Amelia, another student, Adan, shared his perceptions of his abilities have kept him from pursuing math, even while he understands he needs to take more mathematics to complete his educational goal. Like Amelia, Adan began his mathematics sequence in remedial mathematics taking intermediate algebra. When asked about his perceptions about his ability in mathematics he shared the following.

Adan: I'm not in math anymore after the first class (intermediate algebra). I know I have to take statistics at least but, like, I'm putting that off. I like taking classes I can pass easier, cuz then it feels good. Since I didn't take math for, like, a year I am afraid (to take math). (Focus Group, November 18, 2019)

As for their experience in their mathematics courses, students revealed mostly positive feelings, but their expectations for participation and good instruction were low. They also seemed to operate under a belief that they, as the students, carry a responsibility to create their own positive experiences in their mathematics classes.

Adan: I think if you go to class every day, um, like never miss and then you pay attention, you participate, some people they will, like, when they are stuck or something, they ask questions, but that was not me in math cuz like I never thought that, like, everyone knows already and I don't want to take up time. (Focus Group, November 18, 2019)

Adan shares that he feels he could have a more positive experience in his mathematics class if he were to participate more, but in order to do that he needs to feel as if his participation would not be a bother to the instructor or the rest of the class. He felt that it was his responsibility to make himself more comfortable to participate versus

considering that the instructor could play some part in that or had some responsibility in creating a welcoming space for students like him to participate.

When asked about their experience in their mathematics classes, students responded equally positively. Seventy-four percent felt they were treated fairly and equitably by their mathematics instructors, either often or very often. Sixty-two percent felt the instructor provided opportunities for participation, and 52% responded their instructor's feedback was prompt and helpful. Unfortunately, even with the positive responses around their experiences in their mathematics courses, 43% reported their instructor never to rarely raised their enthusiasm for math.

For students who felt opportunities for participation in mathematics classes was at least partly produced by instruction, their expectations for what active participation looked like in a classroom were interestingly positive. Below, two students share what they experienced that they considered high levels of participation opportunity.

Amelia: To me (active participation in the classroom) that's asking questions during the lecture, having time to work in groups and then going over practice problems together. To me that is very active because you're learning in different ways. (Focus Group, November 14, 2019)

Karina: A lot of people asking questions just because the environment the professor created allowed for questions and she (the instructor) didn't shame anyone for asking a "dumb question". (Focus Group, November 14, 2019)

Karina shared that students being able to ask questions without being shamed equated to opportunities for active participation. Her interpretation of the instructor not shaming students for asking questions is that the instructor is creating a safe space for participation, but this seemingly simple opportunity for participation that does not do more to engage students with the classroom or the content could be recounted by Karina as positive instruction due to having experienced other mathematics classrooms where shaming was experienced. Had Karina experienced mathematics classrooms where participation had been more engaging, she may have shared a different perception of her most recent class. Mathematics is a subject that for many students carries with it a sense of fear, intimidation and trauma (Maloney & Beilock, 2012). Mathematics instruction should strive to encourage students and engage differently with math. Angel was able to articulate what they hoped instructors would consider when teaching and in thinking of how to get students to participate.

Angel: Active participation, for me, is when the professor knows that everyone has unique skills or talents or different levels of knowledge in math and just kinda making sure that, for example, a lot of student's don't know about

fractions and just, kinda like, “hey, this is how you do it”, on the side. Then also, the professor (should) keep asking question like, you know, “hey is this clear, like, does everybody know fractions?” The thing about a lot of class settings is that students are just afraid, they feel insecure, they feel afraid. Some of them are tired, some are very like, that’s really the setting, a very vulnerable space for them. I think professors just need to, like, recognize that they start initiating that (student fear). (Focus Group, November 18, 2019)

Angel shared he, and an understanding that other students, carry fear in their mathematics classes that can be brought on by the instructor and the teaching style or environment in the class. Further, he shared a desire that mathematics instructors can validate that students come into their classrooms with a varying degree of comfort, knowledge, and experience, but that shouldn’t lead to negative or less favorable perceptions of one student over another. Rather, he believes instructors should, in a kind way, help students who may be less advanced in the content catch up and keep up. Further, when asked if he believed his mathematics instructors at Hill View believed in his ability to do math, he shared a perspective that he had personally adopted about his success being his responsibility.

Angel: I kinda felt like they (instructors) were just doing their job. If you didn’t understand, it was your responsibility. (Focus Group, November 18, 2019)

Sarah shared how she feels instructors show their belief in student abilities to do math. When asked if she thought her mathematics instructors believed she could pass their class, she said the following.

Sarah: I think so. Sometimes, before, teachers would give us busy work, that's how I could tell if they were being lazy, like, they didn't want to teach. I don't know if it's the same thing but, like, if they don't want to teach maybe it's cuz they don't think we can learn, but maybe that was just a high school thing, I don't think my math teacher (at Hill View) was like that, not my intermediate algebra teacher, but now I'm in pre-calculus 1 and maybe that teacher doesn't teach as good as my intermediate algebra teacher cuz he goes fast and he doesn't let us ask questions. He lets us, but I don't think he, like, answers them. Not just me but, like, other people too. (Focus Group, November 18, 2019)

Sarah equated negative mathematics experience in the past, teachers that didn't teach or only provided 'busy work' in the form of worksheets to complete individually, as teachers not believing their students could learn math. While she had one positive experience in mathematics at Hill View with her intermediate algebra instructor, her experience in a higher-level mathematics was different. What she is experiencing in that class is an instructor who relies on lectures, allows minimal engagement with his

students, and is not providing other activities or opportunities for participation. Because of her previous experience, Sarah is equating this to her instructor not believing in the ability of the classroom to learn the content. As Karp and Bork (2012) discussed in their study, students do better in their courses when they feel the instructors believe in their abilities to do well. While Sarah's pre-calculus instructor may not be expressing a disbelief in student abilities through his chosen pedagogical practices, they are not creating positive learning environments for students like Sarah.

Institutional Artifacts

Looking at a number of syllabi from both developmental and transfer-level mathematics courses at Hill View courses (Appendix D) the messaging about what students should expect to experience in their mathematics courses is less about engaged learning and more about strictly policed environments through controlling the classroom via punishing student behaviors. As an example, one instructor, who in fall 2018 was teaching both statistics and several levels of calculus, used the same syllabus for all courses, changing only the textbook and assignment information. The syllabus itself presents a strict and unforgiving classroom experience including a strict attendance policy wherein the student will lose points for coming in after lecture has started, requiring two forms of picture identification to be allowed in class, and details a list of student conduct rules to adhere to or result in a loss in grade points. These student conduct rules included having an odor in class and lists as examples sweat or cigarette

smells, having any food or drink that is not a bottle of water with a cap on, not sitting upright in the seat, and using a beanie or hat in class among other rules. These expectations clearly do not take into account students who rely on public transportation to make the up to 2-hour ride to school that is common for students who cross town from less resourced communities to attend Hill View. The requirement for two forms of identification, which is more than is required to apply to a community college, also leaves students that do not have, for a number of reasons, an ID beyond their student ID at a loss. The ridiculous student conduct expectations are wildly inappropriate as they have the potential to disproportionately impact students on a number of bases including religion, physical abilities, homeless, or other typically protected groups. The instructor, via the syllabus, also makes it clear that “If there are any personal issues that might interfere with your performance in this class, please contact psychological services to help you. I treat all students equal.”

Samuel, who was no longer a student at Hill View or any other institution at the time of the focus group, shared his experience feeling disconnected to schooling including in his mathematics class, which he shared was a positive experience simply for the fact that it was one of the courses he passed successfully before stopping out.

Samuel: I think they (mathematics instructors) want us to pass, but he, like, didn't know me so I can't say if he thought I could pass. I never talked to him. I had class right after math class so I didn't stay around I would just go to class

and leave. I thought it would be weird to go and just be, like, ‘Hi, what’s up?’ to the teacher. (Focus Group, November 18, 2019)

Samuel’s short-lived experience in higher education is typical of Latinx students who research has shown exit community college within their first year (Tinto, 2006). With little guidance and no one in his life going through a similar experience, he had difficulty finding a connection in college. Through conversation, Samuel shared it was not one specific event or experience that made him feel uncomfortable or like he didn’t “fit in”. He just never found an instructor, group, or association on campus that reaffirmed to him that he belonged, and so he exited and went into the labor force. His experience in his mathematics class was just one more place and space where he didn’t feel anyone reached out to him.

When speaking of equitable treatment in mathematics courses, the students experienced difficulty in discussing their ideas or experiences in terms of instructors being equitable. Meanwhile, through the survey, students responded overwhelmingly they felt their treatment in their mathematics courses was equitable. Through the focus group, conversations around equity in the mathematics course became students discussing how they felt their lack of mastery of mathematics concepts in the course would negatively impact the other students if they were to hold the class back by taking

up space. In this way taking up the responsibility of maintaining equity in the classroom on themselves.

Sarah: I try not to ask, like, if I think it's my fault, like, if he went over something and I can see other people are taking notes and I missed what he said, then I don't want to ask. Maybe he can get mad, or like the students, too, if they got it and they have to repeat it, maybe that's not good for them. (Focus Group, November 18, 2019)

Angel: That's a good question. I feel in my classes everyone was treated fairly. Maybe there's a student that feels more passionately about math and they (other students) feel very inferior to that. I had those experiences too where there's a student, they would ask questions, they would tell the answer, and you kinda get the sense, like, you feel very inferior. I feel like my participation has been very low because I'm, like, taking notes and I'm trying really hard to understand it (the lecture) and break it down in my own mind and so feel like if I raise a question and sometimes if I participate, I'm doing a disservice. Sometimes I'm insecure or I'm afraid to ask a question or participate and that's usually, like, always the case for so many students. (Focus Group, November 18, 2019)

Samuel: I, like, didn't participate either cuz, like, you don't want to hold the class back if other people already got it. If I don't get it then I have to get it, so I don't ask what other people know. (Focus Group, November 18, 2019)

A theme across Sarah, Angel, and Samuel's shared experience is a fear of impacting the learning of other students, but they do it at the expense of their own learning. Not a single student discussed sharing their fears with their instructors, but that is not surprising given their experiences of feeling fear and insecurity to reveal themselves as students who are not keeping up or understanding the instructor's lectures. It would be interesting to know if they also felt they were protecting not just the other students but also the instructor's and their experience of effectively teaching the course.

When starting to look at student survey input, it was important to gather information about student aspirations to better understand how their responses and experiences played into their goals. Student academic goals, which are a piece of information collected at the very start of the matriculation process, indicate to the college student intentions, and should also signal to the college a commitment to support each student in that goal at the time of admission. Of the students surveyed, 91% have transfer to a four-year university as their goal. Similarly, 91% of students

surveyed have as their goal to earn a bachelor's degree or higher. Latinx students at Hill View College clearly have aspirations and goals that include higher education.

Figure 8. Intended academic goals of surveyed Latinx students, n=58

Figure 9. Highest level academic degree or credential aspired to. n=58

AB 705 aims to support the successful outcomes of these students on their educational journey. As a policy essentially taking on the larger task of impacting marginalized student success, AB 705 can only do so much, and it becomes the role of the institution to put in place practices that are in alignment with the overall goal of student success.

Focus group participants clearly had high aspirations and expectations of themselves, but they were not always perfectly in line with the practices of Hill View. Focus group data revealed that in addition to access to college-level courses, students require more than just opening enrollment. Student input provided a richer picture of what students aspire to accomplish at Hill View and in higher education, and the practices that, although under the surface yet deeply ingrained in higher education, work against their efforts. Through professional journaling, a picture in contrast to student aspirations was revealed, including faculty incredulous that students who without AB 705 would not be eligible to enroll in transfer-level courses could be successful, and departments unbothered to work efficiently to implement changes- lacking a sense of urgency to match student's desire to complete their goals. Even a denial of data that Latinx students or students from low-socioeconomic backgrounds are on the Hill View campus, begging the question of why should the campus focus efforts to support them versus concentrating on high achieving students who are perceived as teachable?

As a college lauding their own high transfer rates, Hill View remains a community college that serves the community. Unable to be selective in hand picking its student population, but still required to be academically rigorous, leading this institution requires multiple approaches in order to ensure all students reach their goal. Several focus group participants shared that the culture of transfer and the messaging that the school only sees them as one identity, that of a student, was not supportive of their success. When asked if there was messaging they wished the campus was giving them that would help them feel successful Karina and Amelia shared the following:

Karina: Definitely the idea that success is not just in the classroom. That it shouldn't just be the grade, you know? (Focus Group, November 14, 2019)

Amelia: I think a lot of what happens is that we are so into school it becomes a part of our personality and we become lost in it. I don't know who I am outside of school, maybe just like emphasizing on other identities, like, you're not just a student, and you're these other things. (Focus Group, November 14, 2019)

Angel was especially articulate when discussing the way it makes him feel when educational institutions only see him for his transcript. He feels his identity as a student is only one part of him that if he does well or does poorly, negates all of his other identities or accomplishments.

Angel: I would reflect on my grades and I would get really discouraged because I had like a C or like even a B in a class. The thing is, like, sometimes I feel there's been times in my life when I couldn't do well because of my mental state or my family situation and so sometimes I kinda wish the college maybe could put a little note, something that can indicate hey this student faced a challenge but this person is still capable of doing great things in the future. Maybe just having more systems of recognition or, like, this student has been going through a lot, or something, like, that he's still this person who still has potential to do a lot of things. More systems of encouragement, more systems of recognizing those things because it's always discouraging when you see a transcript and it's just kinda like a B or C or something like that, but it's always nice to see a paragraph or, like, your story, like challenges that you overcame. I think it's just so uplifting. I think that's what needs to happen more, just making sure that we have like a community or we have more people or more staff that understand, that recognize that more and show it more. Not just verbally and physically, but institutionally in the school system because it can be challenging and discouraging. Just recognizing this is more than just another student, this is more than just another statistic or person that's in the school database. (Focus Group, November 18, 2019)

Angel had clearly been impacted by the dominant culture of Hill View that can be discouraging for students that don't fit the two-year transfer student identity all of the time. Below, Samuel, who stopped out of college after one full year at Hill View College shared his feelings.

Samuel: It's good when a teacher says you are doing good or, like, you can do better. Cuz it's hard sometimes. You can feel bad, but you know if you had studied a little more you could do better but studying is hard. Sometimes I (would) open my book or look at my old homework late at night and it's hard to concentrate or stay on task and focused. If the teacher tells you, oh you can do better, but not like rude, like, mad, like, oh you should've done better, but encouraging, that is better. But I don't tell my teachers what's wrong, why I didn't study cuz, like, no matter what it was it was my fault, even if it wasn't sometimes. It's just something at home or, like, you had to do something else, it's still my fault because I could have gotten up earlier, like, before the test to study or do homework. I don't tell the teacher cuz we all could have stuff. I'm no different than him or another student. (Focus Group, November 18, 2019)

Samuel, like Angel, had deeply adopted the message that he himself was responsible for his education. The idea that the campus or his instructors should have reached out to him in some way had not occurred to him, though he wished they had.

The fear that being a bad student or not doing well academically made them feel even more marginalized on a campus where they felt only grades and transfer mattered took an emotional toll on several of the students. Still, through the focus groups students shared that being a student was not their only identity, and being in college, they hoped, would encourage and bring opportunities to develop their multiple identities as they saw them to be interconnected. Below, Karina, who identifies as a white-passing Latina from a highly rigorous high school, describes how she is still defining herself and her goals, which while they include academics, extend beyond them.

Karina: I don't wanna limit success to academics. I would say success is feeling comfortable enough with completing my goals and my goal would be to figure out what I want to do here at Hill View. I do want to transfer, which is kind of the path that is being pushed on me. I'm just trying to figure out does success at Hill View mean completing that goal? And in general, success is doing something meaningful and just giving back. (Focus Group, November 14, 2019)

Similar to Karina, Amelia shared in a belief that giving back to her community was a major life and career goal. Amelia identifies as a student, an undocumented student, a queer student, an organizer, and a STEM major.

Amelia: For me, success is, like in academics, is when I feel comfortable with whatever concept I'm learning and also feeling comfortable teaching it to

someone else. Like, once I feel comfortable, like, I can teach the next person then I'm, like, okay I got it. And in general, for me success is being genuinely happy with where I'm at and what I'm going and, like, having the resources. I see the resources I have and the privilege to help the next generation or to help my community, that is success to me. (Focus Group, November 14, 2019)

Adan and Angel also shared aspirations to help their community. Adan identified as Mexican, a student, a boyfriend, and a son. Angel identified as an undocumented student and activist, among other identities.

Adan: I want to finish school and I hope we (his girlfriend) can graduate at the same time and do our goals together. I want to do business and start my own business. Maybe have a construction (company) or something like that but be the boss. I would make sure I treat all my workers good, like so that everyone can, like, have health insurance for their kids and days off. I know I have to learn how to do that, make a successful business, so we can all live good lives. (Focus Group, November 18, 2019)

Angel: I think the culture, they (society) promote, a lot, an expectation that you go to college. I think it's just the culture, like we have a price tag or like a logo on college that is what success is. I actually don't agree with it because there's

people that didn't go to college and they are actually pretty successful whether it be in like business or they're just very comfortable with their jobs. For me, one of the reasons I go to college is because I like studying about immigration law and how our community is affected. That is one of the reasons I made the decision to go to college. (Focus Group, November 18, 2019)

Summary

This study presents two pictures of student experiences, one through survey data and another through focus group data. Survey responses depict students of which 66% were unaware of AB 705, 36% that enrolled in a developmental mathematics course, 47% who chose their first mathematics course as a result of their placement test result, and only 12% of students who learned of AB 705 through campus communication of an email or the school websites- which were the two main forms of communication used. Survey results also showed Latinx students that shared neutral to positive experiences in their mathematics courses and opportunities for active participation in class, a feeling of being welcomed and respected by instructors and experience the college.

Comparing the surveyed responses to the focus group data, a conflicting picture of experiences and perceptions of abilities are described. A different narrative is presented, magnifying the importance of using student experiences to better understand the issues Latinx students face in educational spaces. Utilizing narrative data can

improve the success of efforts on a campus who chooses to implement practices that support students with the understanding of their needs and experiences.

Chapter 5: Discussion

Overview

The goal of this study was to take a look at the experience of Latinx students through the implementation of a new statewide policy, AB 705, at one particular college, and also to examine how student input could have improved successful policy implementation and outcomes. AB 705 aimed to address the overenrolling of community college students, in particular the overrepresentation of minoritized students, in developmental mathematics and English courses. Overly used assessment processes that determined placement via a single assessment test had been found to be inadequate and to have low predictive abilities for placing students. Implementing the new policy required colleges to change their assessment processes mainly by requiring student high school information be used for placement, opening access to transfer-level courses to all students, prohibiting the requirement of developmental education, and maximizing the chances that all students are able to complete their first transfer-level mathematics and English course within their first academic year.

The study aimed to explore how first-time to college Latinx students experienced the implementation of this new policy. Was their experience in line with the goals of the policy? How did they navigate their mathematics course enrollment while utilizing the new practices that were meant to support their success by opening access to transfer-level courses? Would their input have been helpful to consider during

implementation and the creation of new practices? Were there missed opportunities and are there opportunities to apply new practices in future?

Several months after the focus group, I reached out to Samuel, the student who stopped out of college at the time of the focus group. I asked him if, after some time had passed and allowing him to read the transcript of his previous responses, he felt any differently about his belief he alone was responsible for his stopping out. He shared that since the focus group he had been thinking about returning to school. He recalled the statistics I had shared with the focus group (Appendix B) around how many Latinx students enter community college and how many are able to accomplish their higher education goals. He appreciated the opportunity to hear what other students, through the focus group, shared. Samuel shared the following.

Samuel: I think about going back to college, sometimes. I don't want to be, like, part of the group that you showed us. I feel bad, like, people like me don't make it (in higher education). I don't want other students to think it is their fault, cuz maybe if I can finish, they can think they can too. I didn't know other people can talk about it, like, that they wish Hill View was better, like, better for them. I didn't know other people were not happy like me. (Phone Interview, February 17, 2020)

Samuel appreciated the connection he made with me personally, and with the ideas that he was able to hear from and shared with other students. My reaching out to him for the purpose of conducting this research was an opportunity he was excited to participate in even months after he had last been an active student because this study was school related and because I presented myself as not only a researcher but a Hill View employee. His desire to re-establish a connection to school, and to finally create a connection to Hill View, was apparent in his participation in this study. Validating his narrative through his participation in the focus group helped him believe he could once again participate in higher education.

Samuel shared his reasons for stopping out in the first place were mainly due to his inability to feel a sense of belonging at Hill View. While he was motivated to complete his education, each day became less motivating to participate in school due to his diminishing sense of belonging. Still, he recalled responding positively to the survey question around Hill View being a welcoming campus. He shared his reasoning was that he felt others seemed to be welcomed and that they belonged, so he did not respond to the question as it applied to him, but how he felt the campus was welcoming of others. Knowing his experience was not unique to him, through his participation in the focus group, allowed him to consider that what he believed were his own failings, may actually be a failing on the part of the school because others were experiencing it as

well. Sharing narratives empowered him to create a new educational goal of becoming a positive example to other Latinx students with whom he identifies.

For Samuel, and for the students in the focus groups, their participation in this study and their ability to share their stories, in a way that may not have been available to them otherwise, raised their level of consciousness through shared experiences. In Samuel's case, the sharing of stories resulted in a renewed desire to complete his education. Looking at his responses through a lens of Latcrit, what he understood to be the master narrative that Hill View was accepting of all and that his personal experience of feeling a lack of connection was his doing, was not in fact the only true narrative for other students. He came to realize that there is not only one possible narrative, there were multiple and his own *testimonio* was valid.

The *testimonio* of students in this study, and especially students like Samuel who stop-out, are exactly why student voice must be included when a policy or an institution says that they are creating practices to support student success and impact gaps in achievement, they must include student voice. By voice I not only mean a survey that, as was the case in the findings, can paint one picture of student experience, but student voice that is gathered in such a way to allow for students to construct and share their true narratives.

Discussion of Findings

When looking at how the implementation of AB 705 at Hill View impacted the navigation of mathematics course selection by Latinx students, the survey revealed two important findings. The first, that a majority of students were not made aware of the new policy or the new practices when they enrolled in their courses, with 66% of students responding they had no knowledge of AB 705 or the new assessment practices. Secondly, there was no discernable difference in the way students, those that were aware and those that were not, selected their mathematics courses. Regardless of their level of knowledge around the new placement policies and that transfer-level mathematics courses were open to all students, nearly the same number of students enrolled in developmental mathematics courses as their first course, with 35% of students with knowledge and 36% of students without knowledge enrolling in developmental math. Forty-seven percent of students reported using their placement test result when enrolling in their first mathematics course while 65.5% reported not having a clear understanding of how placement tests and scores were used to determine mathematics sequence.

Additional survey findings also revealed important lessons for the campus in terms of communication. Through the survey, students indicated how they best receive information at the critical time of matriculation. This is important as the campus can evaluate how to better communicate important information to students. When it came to the changes to enrollment due to AB 705, it was revealed that none of the surveyed

students learned about AB 705 through the college website. Instead, half of the students who learned about AB 705 prior to enrolling learned about it from a Hill View counselor or staff. Knowing this provides the campus the opportunity to reconsider the way decision making and communication happens campus wide. Transparency and inclusion at different points in the decision-making process may lead to better campus wide understanding of new practices, improve buy-in with the goals of the new policy, and result in more informed staff that can better support students. If more staff and faculty across different points of contact were better informed, perhaps more students would receive important information.

This study also revealed the importance of using different or multiple forms of student input gathering beyond just a survey. When it came to questions around campus culture, self-perception of mathematics abilities, and overall satisfaction with the campus and instruction, the survey data painted a neutral to positive picture of student experiences with over fifty percent of students consistently reporting feeling they belonged at Hill View (51.3%), were valued (50%), were satisfied with their interactions with instructors (51.8%), with the quality of instruction (62.1%), and with their academic experience (60.4%) either all of the time or most of the time on a five-point Likert scale. If this study had only used the survey, a neutral and impersonal tool, to collect information on student experience, this study would have been very different and unable to gather a wider and more accurate picture of how Latinx students

experience a highly competitive junior college. For example, at an institution such as Hill View, where Latinx students are mainly from outside of the community, a sense of belonging and feeling valued are important factors that impact the college experience for these Latinx students. Survey data reported whether they did or did not feel they belonged and valued. A greater awareness of how their experience of belonging and feeling valued are complicated by their own understanding of what it means to be good at math, do well in classes, and process information from counselors was presented by their narratives. These narratives of student experiences provided what was lacking from survey data alone, a perspective that is necessary for creating better practices at an institution where Latinx students are actively recruited.

In terms of navigation of community college math, the qualitative data revealed the number of barriers Latinx students encountered at Hill View, which may or may not be generalizable at other institutions. Students were able to describe their mathematics anxieties, their poor perceptions of their academic abilities in math, negative experiences in the mathematics classroom, and disenfranchising experiences with placement practices and counseling as it related to their mathematics course selection and for some their STEM focused academic goals. For this, the student focus groups were much more informative and created a richer picture of student experience and student needs.

Implications

At the same time as the California Community College's implementation of AB 705, the California State University's Chancellors office implemented a state-wide executive order eliminating placement testing and eliminating the requirement of developmental education, EO 1110. Unlike the community college's they also eliminated developmental courses from their course offerings. Similar in reasoning to AB 705, the CSU system recognized a high number of students were being placed into developmental education, minoritized students were placed at a higher rate, student's placement in developmental education were less likely to complete their degree, and there was a need to shift policy in a direction that supported its goal of narrowing the achievement gap. It also recognized that placement in developmental education was sending the message to newly admit students that they were not prepared for college and did not belong in college. Similar to implementation at Hill View the CSU's reported facing challenges during their process. WestEd was commissioned to study the implementation process of EO 1110. In a report in which representatives from 19 of the 32 CSU campuses were interviewed, they found themes similar to my study: chaos, confusion, and lack of coordination between services department. Representatives reported challenges of working under a hastened timeline, the need for improved communication, and the need for greater transparency (West Ed, 2019).

Unlike the community colleges, the CSU system included in their implementation plan strategies for communicating policy changes to K-12 and students,

as well as a plan to study the implementation of this new policy using focus groups and interviews with faculty and administrative staff as well as students (California State University Office of the Chancellor, November 2018). Communication is an important piece to get right when changing practices that impact students. The goal of AB 705, as with any policy attempting to correct poor practices, should be to take steps to ensure as many students benefit from the new ways of doing things. The first step as it relates to students is to communicate those changes in a manner that supports their access of new, beneficial practices. As was described previously, the timeline of communication at Hill View was not only significantly delayed, but it also did not clarify for students the new practices along with the reasons behind them. Through the focus group, where I was able to share a brief description of AB 705 and a concise historical context of what led to this policy, I was able to change the consciousness of those students and am certain this small effort impacted their perspective of the same practices and how they impacted their education. Allowing the focus group students to see themselves represented in the data, their understanding of the experience of other Latinx students becomes closer to their own, forming a sense of validation and perhaps solidarity with other students. Communication by the institution made no mention of the goals of AB 705 to correct for years of inadequate under-placement via assessment tests and a belief, based on research, that students were capable of successfully completing transfer-level courses.

Like the students in the focus groups, particularly Samuel, an acknowledgement by the institution that it may not have been using best practices in terms of placement and their perceptions of student abilities may have made a difference for others as it did for him. As was evident in the focus group, students take on the burden of responsibility for their performance in mathematics, through an adopted deficit narrative, but studies have found students do better when they feel the institution believes in their abilities (Karp & Bork, 2012; Zea et al., 1997). Taking responsibility for misguided practices on the part of the institution can go a long way to build a connection with students. Unfortunately, it can often be the case that leadership cannot own up to a mistake for fear of feeling undermined and practices, including the previous assessment test practices, are enabled to continue with little consideration as to the impact they are having on students.

After the first-term of the policy's implementation, the department of institutional research at Hill View reported on outcomes of AB 705 during an AB 705 taskforce committee meeting, including success rates aggregated by ethnicity. For Latinx students, the data showed that their success rates had not dropped as was expected by some faculty in the meeting. This was evident through those faculty demanding to know what successful completion meant. While the grading scale remained unchanged, grades were the traditional A, B, C, D and F grades, faculty shared their belief that success rates were due to *these* students 'passing' with a C grade

and questioning if that truly meant success. All of a sudden, the validity of a C grade equaling success was up for debate, but once the grade scale was shared showing there was no such spike in C grades, those same faculty quickly attributed this success to faculty having done a 'great job' with instruction. These are the invalidation and microaggressions Latinx students put up with. Student stories of being dismissed, doubted, re-directed, and invalidated were present in a different form at this meeting, and surely in discussions between staff and faculty across the campus sustaining a deficit narrative that negatively impacts students.

It is my belief that it was a culture of accepted deficit narratives that allowed the implementation of AB 705 to be poorly executed, underprepared, and to occur as it did under a timeline that did not allow for the greatest possible benefit to students. At times I have witnessed the way racist and negative speech was used in conversations, meetings, and via emails about Hill View students. One possible way to look at this is that it was a belief by those tasked with creating new practices in compliance of the new policy that resisted because they refused to change their practices to teach the perceived unteachable. It became clear to me that as a participant in this taskforce I did not have equal weight to the faculty, deans, and supervisors to be able to dissent. From my observations, leadership at Hill View rarely if ever called out, confronted, or engaged in some way with those staff and faculty who were using damaging speech or practices towards marginalized students. These conversations between leadership and staff and

faculty may happen behind closed doors, but when racist beliefs are shared in public spaces, they must be dealt with in those same spaces in order to build an equitable and anti-racist campus culture from the top down. By not doing so, leadership, at every level, allows it to continue. When leadership exists in this type of environment, the space for student voice cannot exist.

Recommendations

Leadership can have the disadvantage of being far removed from students. Working directly with students affords myself and other student allies the opportunity to hear directly from students what their needs are on an individual basis. Still, putting forth a campus wide effort to gather student input does not have to feel too big. I do not believe it is only the case that leadership does not reach out to students because they do not value student input, I feel they may also be afraid that seeking input may elicit issues too large and complex to address. That may also be why when attempting to gather student input, tools such as a survey are preferred. They are easy to administer and process the data, and they can elicit a neutral response, as was the case in this study. A neutral response can give the impression there is little that needs to be addressed or changed, perpetuating poor practices.

While it is true that student experiences through this study's focus group revealed heavier, systemic oppressions that impact students, these same students have realistic expectations of how they want the school to respond to their large and complex

barriers. Returning to Bronfenbrenner's ecological systems framework (1979), there are opportunities to shift the current structure at different levels of the institution. It begins with the understanding that an expectation of Latinx students to reach higher levels of achievement, in college mathematics, before deficit frameworks change is the wrong way to go about it. Deficit frameworks work to keep Latinx student achievement low and those frameworks need to change in order for Latinx student to do well. If they do not, then recruitment and retention efforts are in conflict of each other. Student's won't or can't stay at a college when they experience symbolic violence. Promoting high expectations of students and addressing racist practices fueled by low expectations of groups of students can impact equitable policies and practices including assessment, placement, counseling and instruction. Culturally responsive leadership (Khalifa, Gooden, & Davis, 2016) and antiracist practices are instrumental to shifting campus culture as well. A positive and welcoming campus culture is better positioned to support student aspirations and self-perceptions which can lead to improved outcomes (Zea et al., 1997; Karp & Bork, 2012).

In the case of this study, shared student experiences indicated what they want from the campus. They want clearer and more intentional communication about the practices that affect them. They want informed staff that can answer basic questions about campus practices. They don't want to be treated as less than by staff and instructors because of their race, immigration status, presentation, or language. They

need educational professionals that after years of advanced education and/or years in the field can have a basic understanding of student equity issues and see them for their aspirations and not as unmotivated because of the ways larger systemic barriers at times prevent them from performing at the white, middle class assumed normative level. They want the campus that admitted them as a student to believe they are capable, and they hope for a connection with someone who is encouraging.

The community college system is ever evolving with new policies to address the systemic barriers that students, often minoritized students, face and that impact successful completion. Community colleges also have the added and constant conflict of serving communities with varying goals, needs and backgrounds. As institutions that accept 100% of applicants, community colleges are places students access to build skills, participate in recreational learning, train in the vocational workforce via certificate programs, achieve associate degrees, and prepare for transfer to the wide range of public, private, and elite universities. While all of these varying demands are important, community colleges are also the main entrance, frequently the only entrance, for minoritized students of color to access higher education with the hopes of attaining the lifelong benefits that a college education provides in terms of job opportunities, financial stability, and improved health.

Latinx students entering community college do so with aspirations to succeed, to receive a degree, and the majority desire to transfer and continue their education beyond

the community college. Of the students in this study alone, 91% enrolled at Hill View with the goal of transferring and pursuing a bachelor's degree with 47% of those students aspiring to complete an advanced degree. As a community college, Hill View is tasked with providing these motivated and aspiring students with the necessary instruction and support to reach their goals, at the very least not create barriers. This is of particular importance at Hill View, a high-ranking college with a heavy presence and recruitment effort across a large county, including minoritized communities. Latinx students are drawn to Hill View because of its reputation and ranking as the best transfer college, but once at Hill View the level of recruitment efforts and retention efforts may not be in complete alignment. The ethnic demographic at Hill View College has seen an influx of minoritized students. This requires the college to reconcile its practices, and check its own deficit lenses, with the changing demographics. One potential way to begin to do this is by seeking student input and learn from its own student population what changes are needed.

The recommendations of this study focus on recognizing the impact deficit, racialized, unfounded prescribed narratives have on students and on effective policy implementation, and they are simple. Challenge the status quo. Challenge, both individually and systemically, what doing the right thing looks like. Is it right because there has been a process of understanding not just the requirements of the policy but also their intended goal and how the institution can support those goals by including the

input of those affected? Not in this case as conversations around changing practices routinely fell short of seeing the impacts beyond first course enrollment to academic goal completion. Was there an effort to ensure that those tasked with decision making were aware of the barriers of the previous practices and the long-term impact of those barriers for minoritized students? Not necessarily as aside from a small group of equity motivated faculty and staff the majority of the conversations were concerned with how to create the least amount of change to the previous practices. Was there a true attempt to create an institutional culture that believed it exists to serve students versus students existing to conform to the institution? Perhaps not as it was atypical for a discussion of how to better serve students to supersede conversations about faculty and staff needs during the transition.

There needs to be a validation of student aspirations and capabilities. As has been presented in research and was shared through the focus groups. Latinx students engage in higher education, and mathematics education, with a belief that they are not capable enough to ‘keep-up’ and succeed. They doubt their abilities, even when they can recognize the amount of *Ganas* they put forward. Deficit perceptions of students on the part of the institution whether that be staff, instructors, counselor, or administrations contribute to negative perceptions of self (Acevedo-Gil, Santos, Alonso, & Solórzano, 2015).

Latinx students need to be empowered with a different message, but who is responsible and from whom would it be most impactful? Under the traditional school structure, counselors may be best positioned to deliver this message. After all, most students will visit a counselor during their schooling and their role is to support students, but as Amelia shared about her experience with a counselor questioning her ability to be successful in a STEM major, she replied that “with the right supports and the right attitudes” she believed she could be successful. It was because Amelia had done such a great job gathering mentors and supportive people on campus that she was able to challenge deficit perceptions and assert her determination. As in Amelia’s case, and to some extent in Samuel’s case, positive messaging must come in different forms and from different formats.

In terms of Latinx student participation and performance in mathematics, messaging validating mathematic abilities would be most impactful coming from mathematics instructors. Student mathematics anxiety, fear of participation, lack of engagement or avoidance with mathematics as a subject would be best addressed in the classroom where it manifests. Latinx student navigate discourses on mathematics performance in part shaped by widely-held perceptions of the cognitive abilities of minoritized populations and an elitist mathematics discourse (Nasir & Shah, 2012; Zavala & Hand, 2017). If mathematics continues to be thought of and taught as an inaccessible language, students will continue to struggle with a subject that should be

accessible to everyone. It is important for mathematics instructors to teach with the understanding that a student's mathematics performance is different from student mathematics ability, particularly for minoritized student who have had less positive mathematics experiences. A shared belief by the instructor that a student is able to learn and do math, and a shared responsibility by the instructor to teach and the student to learn can support student positive self-perceptions which impact performance (Mathematical Association of America, 2018).

Especially important at a community college is an instructor understanding of who is in their classroom. As institutions serving the community with open admissions policies, there will be a wide spectrum of student experiences with mathematics in terms of both skills and mathematics trauma. Due to fears and anxiety, as were shared in this study stemming from negative experiences in the mathematics classroom, Latinx students internalize responsibility and avoid sharing their struggles with mathematics perhaps for fear of confirming low ability. This study provides a small glimpse of Latinx student experience that could be helpful to mathematics faculty that aim to build classroom environments and utilize teaching methods that support all students. The shared student narratives in this study signal an opportunity to improve student experiences with mathematics by adopting a culture within the mathematics classroom, and the department, that aligns teaching approaches and instructor expectations, to meet the needs of students.

While mathematics faculty may be able to make such shifts individually utilizing resources such as the MAA Instructional Practices Guide (2018), the validation of Latinx student goals and aspirations requires a shift in the larger campus culture to one that values its students and focuses on student centered practices that are rooted in culturally validating leadership. Leadership supporting a vision of Latinx student success can permeate across campus and divisions to transform culture, including in mathematics and STEM divisions where systems of exclusion are commonplace.

Conclusion

My positionality and identity as both a part of the community college institution and as Latina woman with negative experiences in higher education and college mathematics, the experiences of the students who participated in this study are near to my own. Dismissive attitudes and re-direction by college staff and faculty ultimately led to my desertion of a goal I had established for myself. Like many of the students in the focus groups, I also had low levels of awareness around the historical context of Latinx students in higher education. These conversations rarely happen. Conducting a study focusing heavily on Latinx student voice was important for me. By doing so I learned that not much has changed from the time of my own college experience. Latinx student mathematics achievement remains low, the perceptions of Latinx student mathematical abilities remain low, and systemic inequalities continue to allow the burden and blame for Latinx student mathematics performance to be carried by the students. I also learned that

Latinx student achievement, including in math, can be impacted by community building and mentorship. Through their own forms of educational resistance Latinx students can show us what supports them through their education and with this knowledge, colleges can begin to shift how they engage and retain Latinx students, if they so choose as ultimately it is up to the college to change oppressive practices.

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Appendix A: Informed Consent Form

San Francisco State University
Informed Consent to Participate in Research
Program Evaluation: Student Experience in Community College Math

A. PURPOSE AND BACKGROUND

My name is Erika Flores. I am a graduate student at San Francisco State University in the Educational Leadership doctoral program, and I am conducting research about how students experience math courses at Hill View. You are being asked to participate in this study because at some point in the 2018-19 academic year you enrolled in a math course at Hill View College.

B. PROCEDURES

If you agree to participate in this research, the following will occur:

- you will complete the following online survey
- at the end of the survey you will be asked if you are willing to be contacted to participate in a 60-minute focus group
- if you indicate that you are willing to participate in a focus group, Erika Flores (the researcher) may send you an email at the address you provide to confirm participation
- the focus group will take place on the Hill View campus, most likely in a conference room or in an open classroom
- the researcher will conduct the focus group

C. RISKS

Risks from participation in this survey are minor. There is a risk of loss of privacy. To minimize this, no names or other identifiers will be used in the written report. The researcher will also keep all data in a locked file cabinet in a secure location. Only the researcher will have access to the data. At the end of the study, data will be shredded.

Risks from the focus groups are also minor. There is a risk of a potential loss of privacy due to the use of audio recording, however it will not be included in any published report of the research. however, participants will be reminded that they only need to respond to questions they feel comfortable answering and can end the interview or exit the focus group at any time.

1. Also, because the focus groups include discussion of personal opinions, extra measures will be taken to protect each participant's privacy. The researcher will begin the focus group by asking the participants to agree to the importance of keeping information discussed in the focus group confidential. The researcher will then ask each participant to verbally agree to keep everything discussed in the room confidential and will remind them at the end of the research period not to discuss the material outside.
2. Only the researcher will have access to the data collected. The researcher and faculty advisor will not be keeping any of the information indefinitely.

D. CONFIDENTIALITY

The research data will be kept in the secure location of the researcher's office where only the researcher will have access to the data. At the conclusion of the study, all identifying information will be removed and the data will be kept in a locked cabinet or office. Audio recordings will be destroyed at the end of the study.

E. DIRECT BENEFITS

There will be no direct benefits to the participant.

F. COSTS

There will be no cost to you for participating in this research.

G. COMPENSATION

At the end of the survey, you may provide your email address if you would like to be entered in a drawing for one of 10 Amazon gift cards with a value of \$25.

If you participate in the focus group, you will receive an Amazon gift card with a value of \$25 at the end of the focus group.

H. ALTERNATIVES

The alternative is not to participate in the research.

I. QUESTIONS

If you have any questions about the study, you may contact the researcher by email at eflores7@mail.sfsu.edu or you may contact the researcher's advisor, Professor Maria Zavala at mza@sfsu.edu.

Questions about your rights as a study participant, or comments or complaints about the study, may also be addressed to the Human and Animal Protections at (415) 338-1093 or protocol@sfsu.edu.

J. CONSENT

You may request a hard copy of this consent form to keep by emailing eflores7@mail.sfsu.edu.

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY. You are free to decline to participate in this research, or to withdraw your participation at any point, without penalty. Your decision whether or not to participate in this research will have no influence on your present or future status at San Francisco State University.

Appendix B: Focus Group Presentation

Focus Group Presentation

Latinx Student Success in Math, Student Survey Results, and
AB705

Background

- In fall 2018, students were placed based on their high school transcript information, but many were also required to take a placement test.
- In fall 2018 the Math departments began to change the way they place students into courses in compliance with AB 705.
- All students were eligible to enroll in MATH10 (Statistics).
- Students with a 3.4 GPA or a 2.6 and had enrolled in Calculus in high school were eligible to enroll in Math41 (Pre-calculus).
- Students still had to take the Calculus Placement test to enroll in Calc 1A, unless they had an AP Cal AB test score of 3 or better.
- Nationwide, only 13% of Latinx students who enter community college will complete a bachelor's degree (Fong, Krause, Acee, & Weinstein, 2016; Lorch, 2014).

AB 705

- Community colleges were placing **too many** students into remediation (nearly 80% in California).
- Latinx students were overrepresented in remedial courses.
- A significantly higher number of students would be able to pass transfer-level courses than were being placed.
- Assessment tests tend to under-place students.
- High school performance is a much stronger predictor of success than standardized placement tests.
- Prohibits the use of placement tests.

Latinx Student Math Placement at De Anza

before fall 2018

Latinx Student Math Placement at De Anza

Fall 2018

MATH10: Increase in Enrollment Post AB 705 Changes

Survey Results AB 705 and Placement

- 53% reported Math 10 (statistics) as their first course
- 46.6% reported choosing their math course based on the placement test
- 34.5% reported feeling De Anza clearly explain their math placement scores and how they are used
- 66% reported not knowing about AB 705
- 71% reported participating in their math class
- 34% reported using our math tutoring resources
- 35% reported attending class unprepared

Survey Results

Math Experience

- 67.3% reported weak math skills were a barrier to their math performance occasionally, often or very often
- 70.7% reported reluctance to ask for help when needed was a barrier to their math performance
- 60.4% reported feeling stressed often to very often as a barrier to their math performance (why?)
- 74.2% reported students were treated equitably and fairly by the instructor often to very often (what does this look like in class?)
- 62.1% reported instructors provided opportunities for active participation in class often to very often (what does this look like?)
- 62.1% reported being satisfied with the quality of math instructors and instruction most of the time to always
- 48.2% of students reported feeling satisfied with their overall GPA most of the time to always

Survey Results

Confidence

- 56.9% reported they felt confident they will successfully complete their math requirement for their major.
- 41.4% reported they have a clear understanding of the math requirements for their major
- 37.9% reported understanding the requirements for their major

Survey Results

Campus Climate

- 48.3% of students reported feeling Latinx students are always respected on this campus
- 24.1% reported feeling they belong at De Anza always, 36.2% reported most of the time
- 37.9% reported feeling De Anza is a safe campus for them always, 31% reported most of the time
- 55.2% reported feeling welcomed at De Anza always

Survey Results

Goals and Aspirations

- 75.9% enrolled at De Anza because of its transfer rates
- 69% reported their academic goal at De Anza is to transfer with an AA degree
- 94.8% reported their goal is to earn higher a bachelor's degree or higher

Appendix C: AB 705 Email to Students

Hi [REDACTED],

[REDACTED] College is changing its placement process for English and Math, starting with the 2018-19 academic year.

In many cases, if you attended high school in the United States, the college will assess your knowledge of English and Math by reviewing your high school GPA and transcript – **without requiring a placement test** – to place you in the course that's right for you.

You will soon receive a separate email that explains how to find your new placement by checking [MyPortal](#). You can learn more about the new assessment process by visiting the Assessment Center website at [\[REDACTED\]assessment](#).

If you would like additional preparation before enrolling in a transfer-level class, **you are still welcome to take developmental courses** in Math or English. If you have questions about any of these classes or about obtaining additional help, please see a counselor.

Best wishes,

[REDACTED] College

Appendix D: Sample Syllabus

[REDACTED] Community College

Instructor: [REDACTED]

Office Hours: 1:00Pm-1:30Pm and 3:30Pm to 4:00Pm M, T, W, Th

Requirements:

- Text: Any Statistic text OR Class notes (Make sure that the text of your choice covers all the material for the class.)
- Binder to keep Exams, Tests, Quizzes, H.W, Labs and class notes.
- Calculator TI 83 or TI 84. (I am not familiar with other Calculators)
- **NOTE:** All work is to be done in **PENCIL** (Otherwise no points given)

Attendance: Attendance is mandatory. Student will lose **ONE** point for each tardy (being in class after the class is started. I go by school computer time and I don't care about time on your watch) and **TWO** points per hour for each absent (being in class after 15 min of start of the class or leaving early).

Failure to Bring Syllabus, record sheet counts as an absent.

Any student who does not show up to the class any of the days of the first two weeks of classes will be dropped from the class roster.

How to success in this course:

- 1- Read the sections assigned and do the class assignments, 5 Labs (10%)
- 2- Attend the class and participate in class
- 3- Finish all the class work in class and do your homework.
- 4- Take all the comprehensive tests (20%for 4 tests) there is no make-up.
- 5- Take all the comprehensive exams (40% for 2 exams) there is no make-up.
- 6- Do work with partners in a group for questions and solutions problems. (10%)
- 7- Do well on the comprehensive Final (10% Final)
- 8- Make sure to follow the class rules and directions correctly (10%)

Including: Print and Bring the Syllabus and sign the Student Conduct and Class etiquette:
/providing two forms of ID / Taking Diagnostic test / turning the Board quiz questions on time / Turn in the record sheet on time

Student Conduct and Class etiquette:

1- Any student who is disruptive will be asked to leave the class quietly.

Some class distractions are including:

- a) Talking during lecture
- b) Having strong odor such as cigarette or sweat odor.
- c) Making unnecessary noise with pen or paper.

2- Cellular phones, iPods, iPhones, Game boys, head set, and any other gadgets similar to these, are banned. Make sure they are off and out of my sight.

Communication devices off during class time. (discuss emergency accommodations with instructor)

3- Absolutely no food or drinks in class. (Water bottle with cap is okay)

Leave the food or drinks outside of the class or put them in your backpack.

4- Proper seating and etiquette

- a) Seating up right
- b) Face toward the board
- c) Do not use the other desk as leg or arm rest
- d) No hat, beanie, or sunglasses in classroom
- e) After making the seating chart for the class, you are responsible for your proper arrangement and cleanness of the seat and its surrounding.
- f) Your desk must be clear of backpack, phone, hat & all unnecessary items.

The student will lose two points for any of the above incidents.

5- Any communication during exams/quizzes or any indication of cheating results in failing the course. So, you are responsible for your exam paper.

6- Read the section and list your questions before the section is presented in class. Make sure to ask all your questions before the class is moved on to a new topic.

7- If there are any personal issues that might interfere with your performance in this class, please contact [REDACTED] to help you. I treat all students equal.

Name _____ Signiture _____ Date _____

Appendix E: Focus Group Protocol

1. Do you identify as Latinx?
2. Did you take the placement test?
3. Tell me about your experience with mathematics education prior to college?
4. Tell me about your experience at Hill View.
 - a. Do you feel your mathematics instructors believe in your ability to succeed in their class?
5. What were your expectations of college? Are they being met?
 - a. When/how did you know you were going to go to college after high school?
 - b. Is there any support or are there any resources you would like to have that are not being provided by the college?
 - c. Have you ever considered stopping out or dropping out of college?
 - d. What has been the most challenging part about college?
6. How do you define your own success?
7. Whom or what supports your success?
8. Tell me about your academic and career aspirations/goals?
9. What motivates you to stay in college?
10. Is there anything you would like to add?

Appendix F: Survey Questions

1. What was the first mathematics course you enrolled in the 2018-19 academic year?
2. Please select the statements below that apply to your awareness of the changes provided by AB 705, prior to today.
 - a. I did not know about these changes
 - b. I knew about these changes and used the information to select my mathematics courses in 2018-19
 - c. I knew about these changes but DID NOT use the information to select my mathematics courses in 2018-19
3. Please select the statements below about how you learned of AB 705, prior to today. Select all that apply.
 - a. I did not know about AB 705 prior to today
 - b. I learned about AB 705 from a Hill View counselor or staff
 - c. I learned about AB 705 from a Hill View mathematics instructor
 - d. I learned about AB 705 from a counselor or staff at my high school
 - e. I learned about AB 705 from friend, family, or classmate
 - f. I learned about AB 705 from an email I received from Hill View
 - g. I learned about AB 705 from the Hill View website
4. During the 2018-19 academic year, did you experience any of the following in your mathematics classes? Please select all that apply to you.
 - a. Asked or answered a question in class
 - b. Discussed your academic performance with a mathematics instructor
 - c. Increased your academic effort due to the high standards of your mathematics instructor
 - d. Turned in a late assignment
 - e. Skipped class
 - f. Attended class unprepared
 - g. Visited the tutoring center for mathematics support
5. During the 2018-19 academic year, how often have each of the following been an obstacle to your mathematics performance?
 - a. Weak mathematics skills
 - b. Poor study behavior
 - c. Inadequate study skills
 - d. Poor study environment
 - e. Feeling stressed
 - f. Reluctant to ask for help when I need it
6. How often did you experience the following in your mathematics courses?
 - a. Students were treated equitably and fairly by the instructor
 - b. Instructors provided prompt and useful feedback on student work

- c. Instructors provided opportunities for active participation in class
 - d. Instructors who increased my enthusiasm for mathematics
 - e. Found it so interesting I did more work than required
7. Please respond to the following questions about your educational experiences at Hill View.
- a. Do you feel confident you will successfully complete the mathematics requirements for your major?
 - b. Do you have a clear understanding of the mathematics requirements for your major and academic goal?
 - c. Do you feel you need more clarification from a counselor or instructor about the mathematics requirements for your major and academic goal?
 - d. Do you completely understand the requirements for your major?
 - e. Are major, transfer, and associate degree rules and requirements clearly communicated by the college?
 - f. Did the college clearly explain your mathematics placement scores and how they are used?
8. How satisfied are you with the following areas relating to your educational experience at Hill View?
- a. Counseling and advising
 - b. Quality of instruction and instructors
 - c. Availability of the courses you need
 - d. Access to instructors outside class
 - e. Your GPA
 - f. Overall social experience
 - g. Overall academic experience
9. Please select your level of agreement with the following statements:
- a. I feel valued as an individual at Hill View
 - b. I feel I belong at Hill View
 - c. Students of my race/ethnicity are respected on this campus
 - d. Students of my socio-economic status are respected on this campus
 - e. Students of varying immigration status are respected on this campus
 - f. Hill View is a safe and secure campus
 - g. Hill View is a welcoming campus
10. Why did you choose to enroll at Hill View? Select all that apply.
- a. Because of its transfer rates
 - b. My Partner or friend attends Hill View
 - c. A teacher or counselor suggested it
 - d. Because a Hill View counselor or staff came to my high school
 - e. I got into the 4-year university I wanted but I couldn't afford the tuition or decided to save money

- f. I didn't get into the 4 Year university I wanted
 - g. My sibling or family member attends or attended Hill View
 - h. I was late to enroll at another college
11. Are you part of a learning community?
 12. What is your intended major?
 13. Which career do you hope to have after you have completed your education?
 14. What is your Academic goal at Hill View?
 15. What is your intended academic goal at Hill View?
 16. What is the highest academic degree or credential that you plan to eventually earn?