

Building on Community:  
A Community-Built Pipeline of Community College-Educated  
Secondary Mathematics Teachers of Color

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### Abstract

The race/ethnic gap between secondary mathematics teachers and their students is widening as more students of color enroll in public schools. Community colleges serve local and diverse populations. Historical focus was on elementary education, but, nationally, community college students prepare for careers in secondary mathematics education. Despite Washington State's strong community college network, few defined secondary mathematics teacher pathways exist. Washington State community colleges' role in preparing secondary mathematics teachers of color is emerging but is not sufficient to overcome the secondary mathematics teacher shortage and race/ethnic gap.

The purpose of this case study was to understand the role community colleges played in preparing current Washington State secondary mathematics teachers of color. Cases involved participants who earned community college credits prior to teaching certificate. Themes developed through teachers of color voice were evaluated through a Critical Race Theory lens to develop potential solutions to systems of oppression and build upon strengths.

The role community colleges could play involves internal community college programming and external community engagement and outreach. Recommendations include 1) strengthening faculty advisors role, 2) incorporating cultural sensitivity training, 3) implementing a secondary mathematics teaching pathway, and 3) developing a future teacher group/club.

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## Building on Community:

### A Community-Built Pipeline of Community College-Educated

#### Secondary Mathematics Teachers of Color

The United States (US) and State of Washington are facing a shortage of secondary mathematics teachers (Goldhaber, Krieg, Theobald & Brown, 2014). This shortage is amplified when considering the race/ethnic gap between teachers and their students (Achinstein, Ogawa, Sexton & Freitas, 2010; Bireda & Chait, 2011; Boser, 2011; Washington State Professional Educator Standards Board (PESB), 2014a; Plecki, Elfers, Knapp, Loeb, Perkins & Boatright, 2003; Villegas & Irvine, 2010; Villegas & Lucas, 2004). University teacher preparation programs prepared the current consortium of predominately white secondary mathematics teachers (Bireda & Chait, 2011; PESB, 2014c), whereas community colleges historically have served local and diverse populations focusing on elementary education, rather than secondary (Fossey, 2013; NCPPHE, 2011; William, Davis, & Tandberg, 2014). Given this higher education discrepancy, a pipeline of “community-built” (i.e., students partially educated in their community via community colleges and remaining to teach in their community) secondary mathematics teachers of color could help alleviate Washington State’s mathematics teacher shortage and close the teacher-student racial/ethnic gap. However, the role of Washington State community colleges in preparing a pool of secondary mathematics teachers of color is limited.

The purpose of this study was to understand the role community colleges played in preparing current Washington State secondary mathematics teachers of color. This study explored individual case studies of secondary mathematics teachers of color who earned community college credits prior to their teaching certificate. Themes developed through teachers of color voice and storytelling were evaluated through the lens of Critical Race Theory (CRT) to

develop potential solutions to expressed systems of oppression and build upon indicated strengths of community college systems (Dixson & Rousseau, 2005; McGee & Martin, 2011; Parker & Lynn, 2002). I was interested in understanding the perspectives secondary mathematics teachers of color about navigating the community college and teacher preparation systems and their recommendations to increase Washington State community college's role in educating future community-built secondary mathematics teachers of color.

### **Why Community Colleges and Why Now?**

Expansion of community colleges began in 1947 when the Truman Commission “advocated for increased education for African Americans” (Bailey, Jaggars & Jenkins, 2015, location 192 Kindle). Approximately 40% of US students enrolled in post-secondary education are in community colleges. In Washington State, 50% of undergraduates are enrolled in its 34 two-year institutions (NCPPE, 2011, Table 1; William et al, 2014). Nationally, community college students were predominately “members of underrepresented racial or ethnic groups” (NCPPE, 2011, p. 2). In Washington State, approximately one-third of community and technical college students are students of color, and increasing each year. The number of Washington State community college students transferring to a four-year institution has increased steadily since 2005; 16,768 transferred in 2005 and 18,946 in 2010 (Burke, 2012). Washington State community colleges are increasingly preparing a diverse population, which is transferring in larger numbers to four-year institutions.

Nationally, many transfer students are preparing to become secondary mathematics teachers. The 2012 National Survey identified approximately one-third of US secondary mathematics teachers completed at least one mathematics course at a two-year institution (Banilower, Smith, Weiss, Malzahn, Campbell & Weis, 2013). Of these secondary teachers,

between 30% and 41% of their mathematics coursework was completed at a two-year institution. California community colleges have been actively creating a secondary teacher pipeline for the past decade as a means to increase teacher diversity (Cooper, Karandjeff, Pellegrin, Purnell, Rodriquez-Kiino, Schiorring & Willett, 2012). Arizona is currently preparing secondary mathematics teachers through alternative programs (Evelyn, 2002). Both Arizona and California have a strong network of community colleges, similar to Washington State (William et al, 2014) and have expanded to prepare secondary mathematics teachers (Cooper et al, 2012; Evelyn, 2002).

### **Theoretical Framework: Critical Race Theory Connection**

Disproportionality between teacher and student race/ethnicity in Washington State middle and high school classrooms exists (PESB, 2014a). Critical Race Theory helps explain reasons for this misalignment by providing a theoretical framework connecting race, racism and power (Delgado & Stefancic, 2012). The basic tenets of CRT are expressed as 1) Oppression is Everywhere and All the Time, 2) Education Justifies and Perpetuates Systems of Oppression, 3) Voice and Storytelling are the Possible Solutions, and 4) Interest Convergence/Continued Colonization Influence Solutions (Knaus & Ard, 2013). Scholars advocate the use of CRT for not only exploration but also strategy development and action to address identified oppression (Dixson & Rousseau, 2005; Terry & McGee, 2012). In the words of Ladson-Billings (1998, p. 22), “Adopting and adapting CRT as a framework for educational equity means that we will have to expose racism in education and propose radical solutions for addressing it.” The theoretical lens for this study considered three CRT tenets (Knaus & Ard, 2013) in light of oppression identification (i.e., expose) and transformative action (i.e., propose radical solutions):

- 1) Voice and Storytelling are Foundational to Identifying Solutions to Oppression

- 2) Education Justifies and Perpetuates Pervasive Systems of Oppression
- 3) Interest Convergence Influences Actions/Solutions to Oppression.

Each of these tenants will be discussed in the context of teacher preparation, mathematics teaching preparation and higher education experiences of people of color.

### **Voice and Storytelling are Foundational to Identifying Solutions to Oppression**

A primary goal of CRT is to use voice and storytelling to identify and analyze race and racism, oppression, and micro-aggression prevalent in education (Dixson & Rousseau, 2005; McGee & Martin, 2011; Parker & Lynn, 2002) and, specifically, in mathematics teacher preparation programs (Dixson & Rousseau, 2005). Ladson-Billings (2009) used voice to identify student feelings of insecurity about mathematics because of a teacher's pedagogical approach. One story demonstrated the difference between knowledge extracted from the teacher and knowledge connected to culture. "I came alive" (Ladson-Billings, 2009, p. 86) a male African American student expressed when discussing how his teacher had him incorporate home discussions with classroom social studies lessons. Whereas because of his mathematics teacher's lack of cultural connections, the same student stated "I dutifully repeated (indeed, regurgitated) exactly what was in my notes and the textbook" (Ladson-Billings, 2009, p. 85). Ladson-Billings (2009, p. 153) expressed the need for an education system that enables critical thinking and problem solving for students to "be equipped to struggle against racism" and overcome oppression, requiring going beyond just dutifully regurgitating information. Once oppression is identified through voice and storytelling, action may be taken to address the oppressive structure.

Storytelling was the primary means in which Martin (2007) was able to explain and address deficit perspectives about black students embedded in the mathematics teacher preparation system. He used his own voice to revise his teacher preparation program's mission

statement. Martin (2007) viewed the existing teacher preparation system through two lenses: Achievement and Experience. Perceived deficiencies of black students were exposed through the Achievement Lens. Focusing only on traditionally defined achievement indicators (e.g., standardized test results), mathematics teachers viewed black students as lagging behind non-black students. Narratives from teachers and students of color enabled Martin (2007) to develop the importance of the Experience Lens. The Experience Lens was used to better explain black student participation in mathematics. The personal, cultural and community experiences of students of color were found to reveal how students' identified themselves as mathematics learners. Teachers who only focused on achievement and mathematics content were found to be less effective in the classroom. Martin (2007) used these voices to advocate modification to mathematics teacher preparation programs to purposefully incorporate student experiences.

Teacher of color voice is used to identify marginalization and oppression within mathematics teacher preparation programs and to propose solutions. As espoused in CRT, voice and storytelling are possible keys to breaking through the pervasive oppression present within the mathematics education system. As Martin (2007) used his voice to expose oppression and transform his teacher preparation program, the current Washington State structure was explored through this study. Case studies provided Washington State secondary mathematics teachers of color an opportunity to explore their community college experiences. These case study narratives provided insight into bridging the current secondary mathematics teachers with the local community college and future secondary mathematics teachers of color, thus providing possible solutions to the Washington State secondary mathematics teacher shortage and teacher-student gap.

**Education Justifies and Perpetuates Pervasive Systems of Oppression and Colonization**

People of color are being oppressed by the mathematics education system (Martin, 2006; Martin, 2007; McGee, 2013; Rousseau & Powell, 2005; Tate, 2005). “(O)ppression is any act or process that either limits or extracts one from a position of power or acceptance” (Emdin, 2011, p. 68). Limitation or extraction may be in the form of inhibiting a student from full engagement or alienating a student from succeeding. Student reaction to the oppression may then cause further alienation. (Emdin, 2011). Martin (2006) explored elementary/secondary mathematics education oppression through the voice of black parents reflecting upon their experiences as black mathematics students. Schools and teachers devalued their African American status; they felt excluded from mathematics because of their race and ill prepared to support their own children as black mathematics students. .

Teacher preparation programs are not immune from perpetuating structural oppression, Dixson & Rousseau (2005) argued that teacher preparation programs exacerbate oppression. They discussed two teacher preparation programs. One with small classes and well educated professors preparing majority white teacher workforce to teach in suburban white schools. A second program had large classes with poorly prepared professors developing teachers of color to teach in “largely minority schools in the city” (Dixson & Rousseau, 2005, p. 24). Dixson & Rousseau (2005, p. 24) concludes that the “inherited” effect on students of color being educated by the less prepared teachers of color perpetuates inequity in the educational system due to racial oppression. Dixson & Rousseau (2005) used these stories to demonstrate the need to examine the inequities in education through CRT and expose persistent oppression in teacher preparation programs.

Martin (2007), drawing from his community college teaching experience, further discussed how systems of oppression were perpetuating the white empowerment of the current

mathematics teacher preparation system through continued colonization. Two perspectives of teachers were explored. The *missionary* perspective viewed the teachers' role as one to save the students of color from themselves and their culture. The *cannibal* perspective focused on mathematical content knowledge over understanding student of color relationships and social reality. Both types of teachers were noted as outsiders; entering the students' communities in order to change, rather than deeply understanding students of color and helping develop students' own mathematical identities as a means of empowerment. Power and privilege in the current mathematical system remained with white teachers thus perpetuating the system of oppression.

A steady pool of teachers of color is not being produced because students of color are oppressed and do not feel empowered in their mathematics education or encouraged to enter into a teaching career. Oppression begins in the elementary and secondary classrooms being taught by predominately white teachers and continues through teacher preparation programs. The current oppressive system has led to Washington State school classrooms being taught primarily by white teachers with a student demographic disproportionate to that of the teachers. In 2012-13, nearly 91% of teachers identified as Caucasian while only 59% of students did (PESB, 2014a). This study explored the stories of teachers of color and developed recommended strategies to address these oppressive systems.

### **Interest Convergence Influences Actions/Solutions to Oppression and Colonization**

Solutions arise for oppression when the interests of the majority converge with the interests of the minority. Each group is motivated by their own self-interests (Dixson & Rousseau, 2005). A solution to the cycle of students/teachers of color oppression in mathematics may be found in converging multiple interests within the secondary mathematics teacher pipeline. Possible actions and solutions to this oppression would require interests to converge

amongst institutions, communities, and individuals including school districts, secondary students of color, community college systems, university teacher preparation programs, community college mathematics students, historically marginalized communities, and future teachers of color. As the number of students of color in our schools continues to increase, school districts are looking to hire mathematics teachers more representative of their students. Students of color have higher academic success when taught by teachers of similar race and culture (Achinstein, Ogawa, Sexton & Freitas, 2010; Bireda & Chait, 2011; Chazan, Brantlinger, Clark & Edwards, 2013; Evans, 1992; Kirby, Berends & Naftel, 1999). Washington State university secondary mathematics teacher preparation programs are operating at less than capacity with primarily white students. Secondary mathematics teacher preparation programs desire a greater influx of teacher candidates of color, whereas community colleges have a larger student of color population. Washington State community college students have been preparing for elementary teaching careers, not secondary. However nationally, community college students have been preparing for careers in elementary education and secondary mathematics education. Community college students majoring in mathematics desire a transfer pathway to a university and a career. School districts, secondary students of color, and teacher preparation programs all desire an increase in secondary mathematics teachers of color. Community college students can meet this demand while satisfying their desire for a career. Yet, Martin's work is a cautionary tale given many members of historically marginalized communities had negative experiences with the K-12 mathematics education system fueling skepticism about predominantly white institutional intent to change.

Convergence of these entities could lead to eradicating oppression and the continued colonization present in secondary mathematics classrooms. A Washington State community

college system prepares future secondary mathematics teachers of color who represent the increasing number of students of color entering our school districts. Secondary students of color are learning mathematics from community college-educated teachers of color. Role models (e.g., secondary mathematics teachers of color) are educating and developing our next generation. Colonization is no longer as teachers are from the community. As the community empowers the secondary mathematics education system, the power differential between races, and resulting oppression, is minimized. A new community-built cycle begins where teachers represent the students they are teaching.

### **Critical Race Theory and Community-Built Teachers**

Under the context of the CRT, interests must converge to provide a solution to the disparity in the education system (Bell, 1979). Washington State schools, districts, university teacher preparation programs, and students of color require a more diverse secondary mathematics teacher workforce. Community college students of color desire a career. Nationally, community college secondary mathematics teacher preparation programs are converging these desires. Several states have implemented community college-focused programs focused aimed at increasing the number of secondary mathematics teachers of color (Evelyn, 2002). Washington community-built teachers educated in their local community college also could fill this need in Washington State.

The discrepancy of race/ethnic backgrounds of teachers and students is continued colonization (Bell, 1979). Community-built teachers match the students' community, not colonize the students' community. The teacher's role is not of a missionary, to save students of color, but as an educator, to provide the increasing number of students of color with strong mathematical identities as a means of empowerment (Martin, 2007).

The voices of teacher preparation candidates are a means to unsettle the current teacher preparation system by providing opportunities for expression and identification of oppression. Teachers are able to express their feelings of oppression during their teacher preparation experiences and to voice their opinions to influence future teacher preparation program structures. Current community college-educated mathematics teachers provided through storytelling insight into empowering future mathematics teacher of color candidates. Through the CRT lens and the use of storytelling, current deficiencies and oppressive systems in preparing future mathematics teachers of color were identified and solutions developed. This study utilized storytelling to explore current secondary mathematics teachers' community college experiences and define the role community colleges could play in preparing future secondary mathematics teachers of color.

### **Literature Review**

Literature was reviewed to reveal implications of racial, ethnic, and cultural gaps between teachers and students, attempts to remedy the teacher-student gap, effects of teacher preparation programs on increasing teacher diversity, and community colleges' current role in preparing future mathematics teachers of color. The term "of color" is more contemporary than "minority" (Achinstein et al, 2010) so will be used instead of "minority" unless original literature utilizes another term. Black, Hispanic, Asian, Multiple Races, American Indian or Alaska Native, Native Hawaiian and Pacific Islander are designations indicating underrepresented minority status in the US (Achinstein et al, 2010). The purpose of the literature review is to define areas in which Washington State community colleges may be positioned to prepare future mathematics teachers of color, but currently are not serving this role.

### **Teacher-Student Gap: Race/ethnicity and Community**

During the post Civil War and *Plessy v Ferguson* era (late 1800s/early 1900s), there was a rapid increase in education of black students in black schools. In the early 1900s to 1950s, historically black colleges and universities provided the primary training for black teachers (Chazan et al, 2013; Clark, Frank & Davis, 2013; Sheets, 2001). Black teachers were educating black students. In the 1950s to 1970s (post *Brown v Board of Education*), many black teachers lost their jobs as black schools closed (Bell, 1979). White teachers now were educating black students. With the advent of affirmative action in 1970s to 2000, many black teachers left teaching to begin careers in traditionally white jobs; thus further reducing the number of black teachers. In the late 1980s, it was noted that fewer black teachers entered the teaching field than white teachers (Sheets, 2001). The teacher-student racial gap widened.

Clark et al (2013) described current African American mathematics teachers as content strong and intellectually powerful yet historically disempowered in mathematics. As Clark et al (2013) stated:

Appreciation of this point suggests that the underrepresentation of African American teachers as compared with African American students is not simply a mildly unfortunate trend, but an issue that has important implications for future African American students' access to and participation in mathematics and its connected disciplines—science, technology, and engineering (p. 21).

The teacher-student gap impacts current students secondary education and also their future career selection.

The teacher-student gap has implications in the classroom and the work force. Studies have shown that teachers who share a common racial and cultural background are more effective and increase student success (Achinstein et al, 2010; Bireda & Chait, 2011; Chazan et al, 2013;

Evans, 1992; Kirby et al, 1999). Achinstein et al (2010) stated the lack of equity between teachers and students, based upon race and ethnicity, contributed to “professional opportunities for people of color to remedy the ethnic/racial gap within a labor market” (p. 71-72). Teachers of color may be more suited to serving students of color. Research indicates that “standardized test scores, attendance, retention, advanced-level course enrollment, and college-going rates for students of color” are higher with teachers of color (p. 72). Kirby et al (1999) contended that minority teachers act as mentors and role models for minority students. Evans (1992, p. 215) reported evidence of the societal benefit of role modeling to “attracting minorities into teaching careers”. Research also indicates that students who make connections between home and school experiences learn better; “Teachers who are familiar with the lives of children and youth of color are better able to build these bridges to learning for those students.” (Villegas, Strom & Lucas, 2012, p. 287).

The US and Washington State teacher-student gap is increasing as the student population becomes more diverse and the teacher pool demographics remain fairly stagnant (Bireda & Chait, 2011; Boser, 2011; and Plecki et al, 2003). Boser (2011) identified large gaps between students of color and teachers of color. In the US, 40% of the student population is of color whereas 17% of the teacher force is of color. (Achinstein et al, 2010). According to PESB’s report (2014a), Washington State school districts also have a teaching staff that did not represent the students they serve. In 2012-13, Washington State schools were found to have 9% teachers of color with 41% students of color. Plecki, et al (2003) and Boser (2011) predicted that the student population would continue to diversify in the next decades, thus expanding the gap between teachers and students. This disparity between student and teacher demographics indicates students of color are not returning to teach in their own communities.

The teacher-student gap has been measured using a teacher diversity index and every state was found to have a teacher-student demographic gap (Boser, 2011). The teacher diversity index is the percentage point difference in diversity between teachers and students of color, calculated in 2008. Washington State has a teacher diversity index of 25. California had the widest at 43 and Vermont, Maine and West Virginia the narrowest at 4. “More than 20 states have differences of 25 percentage points or more between the diversity of their teacher and student populations” (Boser, 2011, p. 2). The teacher-student gap persists.

Racial and ethnic backgrounds are not the only gap; teachers from outside the community may cause another divide. Ladson-Billings (2009) told of students’ success in urban schools where most of the students and teachers were black. She noted more important than race or ethnicity was that the teachers were part of the community and seen by the students outside of school. The teachers knew the families and “had a sense of their dreams and aspirations” (p. 7).

### **Complexities to Closing the Gap**

Washington State recruitment programs focused on increasing teachers of color (primarily black and Hispanic/Latina/o) in public schools increased the number of minority teachers in public schools (Villegas et al, 2012; ). However, the number of minority students in these schools also increased. The Teacher-Student Parity Index indicated that the teacher-student gap increased, despite these focused recruitment programs. Villegas et al (2012) noted the increased importance in recruiting even more candidates of color to mitigate this disparity. Recruitment of minority high school students and paraprofessionals was documented as a means to increase the number of Washington State teachers of color (PESB, 2008). Washington State’s policy supporting minority teacher recruitment included financial incentives (PESB, 2000; PESB 2005). District financial support for paraprofessionals desiring to become teachers was

recommended by PESB (2000 & 2005). PESB (2005) supported financial incentives for new teachers who would increase teacher diversity. The goal of these programs was to prepare teachers of color who may serve as role models for all students. Since initiating these incentives and diversity goals the number of Hispanic teachers increased by 49% between 2004 and 2013. However, the overall increase in teachers of color was 2%, as the number of American Indian, Alaska Native, Asian, and African American teachers decreased (PESB, 2014a).

To support the teacher-student gap reduction recruitment efforts, teacher preparation efforts were found also to be important for student experiences. Sheets (2001) explored the shared cultural experiences between teachers and students. Teachers of color with the same racial or ethnic heritage as their students were more likely to serve as mentors, activists, and supporters of academic and social growth. However, some scholars warned that novice teachers of color should not be used as cultural carriers or experts in educating diverse students without preparation. Sheets (2001) emphasized that teachers of color may not be better prepared than white teachers to teach in schools with a majority of students of color because both are equally ill prepared. Teachers of color enter the profession with cultural resources. However, Sheets (2001) indicates teacher preparation programs do not include instruction on how to transfer this cultural prior knowledge to pedagogical content knowledge. Cultural skills must be developed to enable teachers of color to serve all students. Concerns were raised about design and implementation of teacher preparation programs to extend past novice teachers of color being just role models and become powerful teachers for all students.

Other scholars further explored the professional expectations of novice teachers of color. For example, Achinstein & Aguirre (2009) research the sociocultural “practice shock” new teachers of color experience when entering their classrooms. Teachers of color began their

careers expecting a smoother transition because of the cultural match between teacher and students. Instead, teachers with varied cultural backgrounds (e.g. Mexican American/White, Chicano, Chinese/Vietnamese American, lower/middle-class, low-income) faced mixed challenges. A connection is noted between teachers of color and students of color. However, teachers questioned their own sociocultural identities and connectedness with their students. It is recommended that novice teachers of color receive induction support to develop multicultural capital, and not just rely upon a cultural match between teacher and students. Students were found to hold teachers with similar cultural backgrounds to a higher standard than those with differing backgrounds, thus increasing the importance of preparation. This “recognition of differences amid convergence” is meant to go beyond acknowledging shared community and cultural backgrounds to questioning how the similarities (or differences) may enhance the educational experience for novice teachers of color, as well as their students.

Recognizing these similarities and understanding how to utilize them is a challenge. Local community college students may provide a source of future teachers of color with a culture match with local students of color. However, Achistenstein & Aguirre (2009) stresses the importance of teacher preparation and development to enhance this shared community and cultural background. Research indicates that students with teachers who make connections between home and school experiences learn better. “Teachers who are familiar with the lives of children and youth of color are better able to build these bridges to learning for those students.” (Villegas et al, 2012, p. 287). Closing the gap between teachers and their students by expanding community colleges’ role and increasing the pool of community-built teachers of color also benefits the local community. However, the teacher-student gap is expected to remain wide

under the current teacher preparation model, which does not traditionally include community colleges.

### **Secondary Mathematics Teacher Preparation Programs**

Two primary teacher preparation programs exist in Washington State: traditional university and alternative routes. The vast majority of secondary teachers currently are trained in traditional university teacher preparation programs (Bireda & Chait, 2011; PESB, 2014b). Traditional programs prepare a predominately white new teacher workforce (Guarino, Santibanez & Daley, 2006). Traditional secondary mathematics teacher preparation programs in Washington State are administered by universities, which were operating less than capacity with enrollment trending down (PESB, 2008; PESB, 2014; PESB, 2014c). Twenty-six institutions in Washington State offer endorsements in Middle Level Mathematics and Mathematics, including universities with multiple locations. The traditional pathway to the classroom involves earning a Bachelor of Art/Science degree with a major or minor in mathematics, then a teaching certification program including clinical practice, which may result in a Master of Arts degree in Education.

While university teacher preparation programs have not traditionally served a diverse future teacher workforce, other national programs (e.g. community college and alternative certification programs) are emerging to narrow the gap between teachers and students of color (Boser, 2011; Cooper et al, 2012; Coulter & Vandal, 2007). Washington State also is seeking alternative pathways to satisfy this secondary mathematics teacher shortage and increase the diversity of the teacher workforce (PESB, 2008; PESB, 2014; PESB, 2015). PESB (2014) defines alternative pathways as programs in which teacher candidates do not first enter a four-year university program, including community college transfers. In Washington State, alternative

route programs were successful tools in nationally recruiting teachers of color according to Boser (2011). In 2008, 11% of white teachers were alternatively certified; 27% of African-American teachers and 25% of Hispanic teachers were alternatively certified. Alternative routes provided an easier and expedited means for college graduates and mid-career professionals to enter the teacher workforce. Alternative national programs such as Teach For America recently began actively recruiting candidates of color after previously serving mostly white candidates according to Bireda & Choate (2011). In 2007, Washington State promoted a Paraeducator Pipeline Program where qualified applicants could enter a non-traditional alternative pathway to secondary mathematics teacher preparation. The program was cumbersome and few completed the program (PESB, 2008). Washington State currently is studying methods to revise its alternative pathway to mathematics teaching program (PESB, 2015).

Traditional and alternative mathematics teacher preparation programs were noted to be diverse with varied specific coursework requirements (NRC, 2010). Successful mathematics teachers had completed extensive mathematics content coursework, mathematical pedagogy preparation, and formally observed clinical practice (i.e., student teaching) including a portfolio (e.g., edTPA) performance evaluation (Greenberg, Walsh & McKee, 2014; NRC, 2010; Ronfeldt, Schwartz & Jacob, 2014; Wilson, 2014). Mathematical content was obtained through college-level mathematics courses. Middle level mathematics teachers were recommended to at least minor in mathematics; high school mathematics teachers were recommended to major in mathematics (Greenberg et al, 2014; NRC, 2010). Mathematical pedagogy was delivered through university mathematical methods courses (NRC, 2010; Ronfeldt et al, 2014). Recommendations for clinical practice varied from one-year programs (Wilson, 2014) to five or more observations (Greenberg et al, 2014). Recent recommendations involved standardizing clinical observations:

Measures of Effective Teaching protocols (Bill and Melinda Gates Foundation, 2013) and edTPA (Wilson, 2014). Community colleges alone are not able to deliver all of these recommendations. However, teamed with a four-year university, community college students are able to begin their requirements, transfer and complete a major or minor in mathematics with recommended pedagogical and clinical preparation.

### **Community College Role in Teacher Preparation**

**Teacher preparation diversity.** Community colleges serve diverse populations and are increasing their number of graduates. Between 1970 and 2010, enrollment at two-year institutions has more than tripled (Bailey et al, 2015). Between 1969 and 2010, the number of Associate degrees conferred in two-year community colleges more than quadrupled (Snyder & Dillow, 2012, Table 197). Of these Associate degrees, the number conferred to students of color vs. white students increased by 20% (Snyder & Dillow, 2012, Table 297). “(A) majority of low-income, Hispanic, and Native American students who are undergraduates are enrolled in community colleges” (Bailey et al, 2015, location 133 Kindle). The community college student population is diversified and growing.

Utah and California looked toward community colleges to increase diversity in their teacher workforce. Burbank & Diaz (2012) compared the changing demographics in the national population with the relatively low number of teachers from “racially, ethnically, and linguistically diverse groups” (p. 1024). Their research found a need for focused discussions between community partners aimed at developing a more diverse teacher pool. The University of Utah-Salt Lake Community College Partnership Pipeline was evaluated. The necessity of a “multilayered approach to diversifying the teaching profession” was noted (p. 1028). In addition to partnering, academic support, transitional support via a peer mentoring program, and formal

transition counseling were identified as being important aspects of student completion. Two-day summer transition workshops modeled after UCLA Chicano Studies Research Report program provided guidance on accessing university resources. Family support also was incorporated into the Pipeline program. “Understanding the assets of families and communities, including language, is essential to building systemic support for future teachers” (p. 1029). Utah and California community colleges forged partnerships in their communities to prepare high school and community college students of color to pursue a teaching career.

Fossey (2013) investigated efforts, including community colleges’ role, to entice more minorities into teaching. Initiatives included loan forgiveness, mentoring, and test-taking training. Community colleges’ historic role in teacher education focused at the elementary level. This role was noted as becoming more important because of the need for a more diverse teacher pool and community colleges’ diverse student population. A partnership between Dallas Independent School District and Mountain View College (MVC) developed the Teacher Training Academy to educate minorities, predominately Hispanics, to teach in the minority area of south Dallas. Texas Woman’s University and University of North Texas joined with MVC to prepare elementary and secondary teachers. Para-education was noted as a means in which community college students began their teaching career. Initiatives involving Texas community colleges in Texas were found to increase the number of minorities to pursue a career in education.

The role of community colleges in teacher preparation is being defined. Nationally, community colleges are beginning to enter the secondary teacher preparation field through various programs such as 2 + 2 partnerships with traditional university teacher preparation programs, alternative certification programs for post-baccalaureate students, community college

baccalaureate programs, and professional development programs with local school districts (Bailey et al, 2015; Coulter & Vandal, 2007). Evelyn (2002) noted that at least 20 states were looking at community colleges to educate future elementary and secondary teachers.

**National teacher preparation programs.** Community colleges also were noted as providing mathematics education to teachers. Nationally, 40% of teachers completed at least a portion of their mathematics courses at a community college (Evelyn, 2002). States are approaching the role of community colleges in various ways: bachelor's degree programs, associate degree programs, professional development, and alternative certification programs. American Association of Colleges for Teacher Education stated community colleges' role in teacher education still is being defined (Evelyn, 2002). Florida's St. Petersburg College offered bachelor's degree in teacher education, focusing on mathematics and science. Maryland began offering associate degrees in teaching, with both elementary and secondary field experiences. Maryland students were able to transfer community college degrees to Maryland universities. University of Illinois at Chicago (UIC) and six local community colleges created UIC-Community College Collaborative for Excellence in Teacher Preparation and offered professional development for prospective teachers. Cuyahoga Community College in Cleveland, OH enabled current teachers to earn specific credentials through professional development. Alternative certification programs were developed in New Mexico and Arizona for students who already have bachelor degrees. Rio Salada College in Phoenix included online teacher certification program in their alternative certification program. Several states are addressing the teacher shortage by implementing new programs in their community colleges; Washington State community college programs were not mentioned (Evelyn, 2002).

**Secondary mathematics teacher education programs.** Coulter & Vandal (2007) further investigated how community colleges nationwide could meet the diversity needs of the general and mathematics teacher pool. Community colleges' role in general teacher education reform also was discussed. Schools were being required to find teachers to educate a more culturally diverse group of students. The majority of traditionally trained Florida teachers were community college transfers. Florida community colleges were beginning to develop baccalaureate degrees in teacher education and alternative certification programs at community colleges to focus on mathematics and science. Increasing the number of STEM teachers was the focus of an American Association of Community College (AACC) and National Science Foundation grant. Community colleges were found to increase STEM teacher preparation by developing new curriculum, improving STEM class instruction at community college and partnering with K-12 and university teacher preparation programs. Community colleges also were found to be a primary access point for low-income students and students of color. This positioned community colleges in a role to understand students from diverse backgrounds and be a source of mathematics teachers equipped to meet the needs of low-income students and students of color.

Examples of community college involvement in teacher preparation were 2 + 2 partnerships with traditional university teacher preparation programs (most common), alternative certification programs for post-baccalaureate students, community college baccalaureate programs (controversial), and professional development programs with local school districts (linked to specific community needs). 2 + 2 partnerships are the traditional role of community college in transferring to four-year universities. Students complete their first two years of college courses at the community college and transfer to a university to finish their last two years of studies. Alignment was emphasized over articulation with a four-year institution for 2 + 2

partnerships. Results of the various states' initiatives showed a more numerous and diverse teacher workforce. Nevada, Florida and Maryland community colleges role in general and mathematics teacher preparation was the focus of the report; Washington State community college teacher preparation initiatives were not noted.

Walker, Downey & Kuehl (2008) discussed Illinois community colleges' role in mathematics teacher preparation to address the secondary mathematics teacher shortage and teacher-student gap in Illinois. Models included a partnership between Northern Illinois University, Rock Valley Community College, and Rockford Illinois Public School District 205 (i.e., Project REAL (Rockford Education Alliance)). This partnership included extended pre-service clinical practice and professional development. The goal of the partnership was to increase the percentage of mathematics teachers from diverse and underrepresented backgrounds and return at least 50% of teachers from the program to the local community. After two years of project data, results showed an increased percentage (from 0% to 56%) of underrepresented students into the teaching profession. To accomplish this goal, additional community college courses were added to Illinois' teacher preparation requirements and fieldwork hours were increased by fifteen hours. Illinois has a successful model for preparing community-built mathematics teachers of color.

### **Summary**

The teacher-student racial/ethnic gap began over a century ago and has continued to increase despite the convergence of interests between institutions, students and teachers. Efforts in recruiting teachers of color to serve the growing students of color population have shown mixed results but overall have not reduced the gap. Traditional teacher programs serve predominately white candidates. Alternative teacher preparation programs have focused recently

on recruiting candidates of color into their programs; however, the gap continues to grow.

Current research focuses on general programs not specifically on secondary mathematics teacher programs.

Several states are addressing the teacher shortage by implementing new teacher preparation programs in community colleges because of their diverse student population. Community colleges in Florida, Maryland, Illinois, California, and other states have led the way for a diverse population to enter the teacher workforce. Teacher preparation programs in community colleges take many forms, including transfer to a university program, stand-alone Baccalaureate degree, alternative certifications, and professional development. Community colleges are developing new programs with little research provided for secondary mathematics programs. Washington State community colleges also have a diverse student population, a history of preparing elementary education teachers, and a strong network. However, Washington State is not one of the states noted as utilizing community colleges to purposefully train future secondary mathematics teachers.

This study explored how Washington State community colleges could increase the diversity of the teacher pool by focusing on the voices and experiences of secondary mathematics teachers of color, educated in community colleges, and now teaching mathematics in Washington State. Nationally, states are looking at community colleges to expand programming to secondary education; some states are focusing on secondary mathematics. Washington State's strong network of community colleges could play an integral role in the national trend toward community colleges educating community-built secondary mathematics teachers of color.

## **Methods**

This is a qualitative study design using case studies to examine the educational and professional stories of locally based secondary mathematics teachers of color. The purpose is to better understand how community colleges played a role in their professional preparation and examine the supports and challenges experienced in their professional pursuits. Implications of this study are to highlight participant-identified oppressive systems that could prevent future students of color from becoming secondary mathematics teachers of color and to highlight practices supporting students of color as they pursue their teaching goal. Current secondary mathematics teachers of color voices were analyzed to form recommendations for increasing Washington State community college's role in educating future community-built secondary mathematics teachers of color.

### **Research Questions**

- 1) How have community colleges prepared and assisted current secondary mathematics teachers of color?
- 2) How were community college-educated secondary mathematics teachers of color supported or challenged by their community college system.

### **Research Purpose**

The purpose of this research is to understand the teacher preparation experiences of secondary mathematics teachers of color and the specific role community college played in that preparation. This purpose was met by conducting individual exploratory case studies of secondary mathematics teachers of color who earned community college credits prior to their teaching certificate. Data methods included participant survey, semi-structured participant interviews and a participant focus group.

The research met its aims by 1) detailing preparation program experiences of community college-educated teachers 2) detailing the supports and obstacles community college-educated teachers encountered when transferring and completing their teaching certificate, 3) detailing the supports and obstacles community college-educated teachers encountered when interviewing and beginning their first teaching position, 4) examining potential preparation program enhancements, and 5) describing possible preparation initiatives for community colleges to build upon supports and address obstacles. The goal of the research was to document and describe structures, practices and dispositions, which support and challenge community college students of color seeking a career in secondary mathematics teaching in Washington State.

### **Case Study: Research Tradition/Philosophy**

The research tradition for this qualitative study was case study research. The case study was an exploration of multiple cases involving the contemporary phenomenon of community college-educated secondary mathematics teachers of color (Yin, 1994). A case study is a comprehensive research strategy (Yin, 1994). It is both the inquiry process and the product, report, of that inquiry (Denzin, 2005; Stake, 2000). Case researchers may anticipate important events and issues, but each case (e.g., a participant, a community college-educated secondary teacher of color) presents its own story and representation of the events and issues (Stake, 2000). Sets of stories were used to explain various points of view (Ragin & Becker, 1992). Interviews embraced the dominant theme of community college-educated secondary mathematics teacher experiences as explored through participant storytelling and exploration of the CRT tenants of oppression and interest convergence (Stake, 2000).

CRT storytelling is a recognized approach of data gathering that compliments the traditional case approach to qualitative research (DeCuir & Dixson, 2004; Dixson & Rousseau,

2005; Parker & Lynn, 2002). Case study narratives developed from interviews are used to identify, document, and act upon institutional racism through the CRT lens (Parker & Lynn, 2002). Dixson & Rousseau (2005) promoted the idea of using multiple voices to relate a common experience story. This research relied upon the voices of six secondary mathematics teachers of color to create a unified declaration. Each voice was important (Dixson & Rousseau, 2005). The Focus Group provided a format for multiple voices to be heard and participants to interact and critically reflect upon their experiences (DeCuir & Dixson, 2004). Each participant's voice was heard, documented, reflected upon, and analyzed in order to develop themes as the role of community colleges in secondary mathematics teacher preparation was explored.

### **Participant Backgrounds and Contexts**

Six participants were selected to be representative of the secondary mathematics teacher of color population (Ragin & Becker, 1992). Specific selection process and participant backgrounds are detailed below.

**Participant selection.** In this study, the term teacher of color was defined as individuals identifying as Black, Hispanic, Asian, Multiple Races, American Indian or Alaska Native, Native Hawaiian and Pacific Islander (Achinstein et al, 2010) or similar terms. A community college-educated teacher was defined as one who earned at least three-semester or five-quarter credits at a community college (Evelyn, 2002), then earned a mathematics teaching credential at a university. Selecting community college-educated teachers of color proved challenging. Specific mathematics classroom teachers of color were identified through personal connections with local school districts and school networks. I reached out for recommendations from students, teachers and administrators I personally knew, teachers and administrators I was connected with on LinkedIn, professors at University of Washington Tacoma, fellow Board Members from an

educational non-profit, and other personal contacts (e.g. family, friends, business owners). General LinkedIn and Facebook messaging, specific emails, and verbal requests were made. Few people knew any secondary mathematics teachers of color, regardless of community college experience, to recommend. From the limited set of recommendations, six were available/willing to participate in the survey. Convenience sampling (i.e., selection of the most accessible participants) within the restraints of the required demographics was used (Marshall, 1996) to identify these six potential participants.

Each identified potential participant was surveyed after identification and prior to interviews. The survey established their willingness to participate and their racial/ethnic and community college educational background. All participants who completed the survey were selected. Initially, four participants joined the project. After conducting Initial Interviews for these four, two more individuals indicated interest. The additional two teachers were not connected to the original four but were delayed in responding to the requests.

**Participant background.** Participant data are presented in Table 1 (Appendix A) and summarized below. All participants were community college-educated teachers of color from five different Washington State school districts and six different schools. There were four male teachers and two female teachers. Two males identified as Hispanic and one male identified as Latino/Mexican American. One male teacher identified as African American. One female teacher identified as Multi-ethnic: Caucasian/Chinese and the other female teacher identified as Japanese/German. Half of the participants taught mathematics in middle school and the other half taught in high school. Two taught mathematics in addition to or coordinated with special education classes: one in middle school and one in high school. Each participant was certified to

teach secondary mathematics with a current secondary mathematics endorsement (i.e., Middle Level Mathematics or Mathematics). All participants met the requirements for this study.

While all participants currently teach in Washington State secondary schools, their pathways from high school to professional secondary mathematics teacher differed. Two participants completed their high school and post-secondary education entirely within Washington State. Two relocated to Washington State after high school and entered the local community college to then transfer and earn their Bachelors degree within the same city as the community college. Two participants completed secondary and post-secondary education within the same state as the community college then moved to Washington State to teach. All participants entered the community college in their current hometown to then transition to a local university program to complete their post-secondary education. Only two participants are considered entirely community-built (i.e., students educated in their community and remaining to teach in their community). Military and family relocations dictated the other four participants move to Washington State prior to beginning community college or beginning to teach. Each participant included community college in their education-career cycle in order to remain in their local community.

Community college education backgrounds ranged from Running Start (i.e., high school student taking community college courses to earn high school diploma and college credits) to an adult earning an Associates degree after serving in the military. The Running Start student received a high school diploma and earned some college credits prior to enrolling in a university. Three participants earned an Associates of Arts (AA) or Associates of Arts and Sciences (AAS) degree prior to transferring to a university. Two of these participants earned the AA/AAS degree in order to work as paraeducators. The other two participants took mathematics courses at the

community college and transferred to a university after all community college math courses had been taken. Community colleges provided each participant a unique educational experience as detailed in Table 1 (Appendix A).

### **Data Collection**

Data collection was conducted in three stages: an informational on-line survey, two semi-structured participant interviews, and one focus group discussion. Potential participants indicated interest and provided the background screening information in an online survey. Each selected participants provided detailed information on his/her teacher preparation pathway through two individual interviews. The Initial Interview explored each participant's journey to becoming a teacher. The Follow-up Interview delved into specific community college experiences and recommendations for improving and diversifying the teacher preparation pathway. Interested and available participants met as the Focus Group at a neutral site to share their individual community college experiences and examine individual and group recommendations for improving and diversifying the teacher preparation pathway. Through this series of individual and joint data collection opportunities, diverse and parallel perspectives were revealed and explored.

**Survey.** A survey capturing demographic information was provided to potential participants (Appendix B). Survey information was captured through University of Washington's Catalyst system. Link to the survey was individualized for each participant based upon his/her provided email address. The purpose of the survey was to determine demographic background variables, educational experiences with specific questions focused on the community college experiences of the participant, and the number of years teaching mathematics in a middle and/or high school. Questions included community college experience, number of credits earned in

community college, specific courses taken at community college, type of teacher education program, years of teaching experience, race/ethnicity and other demographic information. I included a brief biography so potential participants would be aware that we share a similar non-traditional teacher preparation experience but different race and ethnic background. Only interested individuals and those meeting the sampling criteria and self-identified as a member of an underrepresented racial/ethnic group, were selected. Data collected from selected participants in the survey was used to identify the cases (i.e., participants).

**Interview.** Berg (2011, p. 115) states an interview is an effective instrument when interested in “understanding the perceptions of participants or learning how participants come to attach certain meanings to phenomena or events”. My goal was to understand each teacher’s professional history and the role community college played in his/her education and professional preparation. Specifically, I was interested in the motivation for including community college in his/her preparation, perception of his/her community college experience related to oppression, teacher preparation and teaching, and learn how the community college program might be modified for future community-built secondary mathematics teachers of color.

**Pre-interview.** Prior to each meeting with the selected interviewees, I emailed individual participants to thank them for participating and inform them about the purpose of the interview (i.e., Initial or Follow-up). Each participant was provided the interview questions in order to review questions and consider responses. Written responses were not requested or collected. Also, included in the email was the consent form. The purpose of each pre-interview email was to prepare the participant for the individual semi-structured face-to-face interviews.

**Semi-structured interviews.** Two semi-structured interviews were conducted for each participant. The first, Initial Interview, explored the participant’s pathway to becoming a teacher,

including his/her community college experience and transfer to a university program, and teacher preparation program. The second, Follow-up Interview, clarified initial data analysis and explored participant's recommendations for community college supports for future community college-educated teachers of color as well as perspectives on improving and diversifying the secondary mathematics-teaching workforce.

Berg (2011, p. 119) suggests a progression from demographic questions to a cycling of more sensitive then validating questions for each topic being investigated. Galletta (2013) recommends a three tier format: 1) statement of purpose, expression of gratitude, signing of consent form and open-ended questions for narrating experiences; 2) more specific questions based upon the open narration, exploration to develop meaning to the narrate experiences, more in-depth and detail responses; and 3) lighter, less intense wrap up, thanks for participating, and follow up exploration to link theory with lived experience which may take place in another session.

I incorporated these two concepts: demographic questions in survey, introduction via email, separate topic openings with an open-ended and narrative-focused question, and wrap up, then a follow-up interview with more focused questions on supports and challenges from lived experiences and based upon research. I recorded the interviews and they were transcribed. I also took field notes during and after the interviews. Each of the two face-to-face interviews began with my appreciation for participation and explanation of the study's purpose. I attempted to develop and build rapport in each of the interviews. I understood that my race and ethnicity provided me different experiences than my participants. While my teacher preparation process did not include community college courses, I have taught mathematics in a community college and I support and encourage college students of color in my teaching and non-profit occupations.

I believe I built trust and rapport through the interviews and our mutual secondary mathematics teaching experiences.

The Initial Interview questions focused on why s/he decided to become a mathematics teacher and how that goal was attained (Appendix C). There were questions related to the role of the community college in the participant's professional pathway, specifically why the participant decided to attend community college; how the community college supported or challenged the participant's education pathway; and how the transition from community college to the university ensued. Oppressive structures were identified and explored through the series of preplanned Initial Interview questions.

Follow-up Interview questions (Appendix D) were developed to clarify data and to further explore participant's views on improving their professional preparation experience, specifically the role of the community college. Follow-up Interview probing questions were further defined based upon data collected by each participant during the Initial Interview. Each participant was asked individually for recommendations to overcoming oppressive structures for future community college-educated mathematics teachers of color. Data from both individual interviews was used to prepare for the Focus Group discussion.

**Focus Group.** Fontana & Frey (2000) describe a group interview (i.e. focus group) as a "data collecting technique that relies upon the systematic questioning of several individuals simultaneously in a formal or informal setting" (p. 651). Focus group discussions commonly are held after data have been collected so specific questions may be asked and participants are able to critically reflect upon their individual interviews. The purpose of the Focus Group was to enable participants to share and build upon their thoughts by directly interacting with others with similar backgrounds and to provide triangulation of data. I was an outsider during these

discussions, as the only white person present. I grew our group's rapport by thanking each participant and emphasizing our shared vision to understand the oppressive structures identified and explore community colleges' role in preparing future secondary mathematics teachers of color.

The interaction between participants was semi-structured and informal. Each participant was asked to individually share experiences so all voices may be heard prior to having a group discussion. Since not all participants joined the Focus Group discussion, I presented the other participants' ideas after those in attendance shared. My role was balanced between interviewer and moderator in order to keep one person from dominating the group (Fontana & Frey, 2000). Specific open-ended questions (Appendix E) about community college's impact on participants' teacher preparation and recommendations to increase the number of secondary mathematics teachers of color were asked to the group. The group was encouraged to openly share their thoughts while I recorded their responses. Questions were identical to the previously conducted individual Follow-up Interviews with probing questions focused on recommendations for future community college-educated mathematics teachers of color.

### **Confidentiality and Data Access**

To ensure confidentiality all contact information (names, phone, email and addresses) was collected and filed. The files were accessed only by the researcher and kept in a password-protected computer files on the researcher's computer. In addition, all files were encrypted using VeraCrypt. The participant names were given a pseudonym for confidentiality purposes. All transcribed data and field notes used these pseudonyms for data analysis purposes. These pseudonyms replaced names on all study materials.

My research strategy was an open one (Wolcott, 1973) so I provided an explanation to my interviewing purpose and would have, upon request, provided participants access to data with limitations. Individual case notes were accessible to the individual participant only; none were requested. Focus group notes were available to each participant upon request; none were requested. Participants were not be required to review the data as this would have increased the time demands upon the participant and could have exposed the participant to additional stress if sensitive experiences were expressed during the interview or focus group (Goldblatt, Karnieli-Miller & Neumann, 2011). Access to the draft report was provided for comments to each participant prior to finalizing the report. The purpose of providing member-check opportunities was to increase participant engagement throughout the research process, but was dependent upon participant interest (Goldblatt et al, 2011).

### **Ethical Considerations**

The “fundamental tenet(s) of ethical social scientific research is the notation of *do no harm*” (Berg, 2011, p. 61). Potential areas where harm could occur involved invasion of privacy and job security. My purpose was to explore not judge during each phase of the research.

As a former secondary teacher, I understand the teacher preparation process. My entrance into a teaching career was non-traditional but did not directly include community college coursework. As a community college mathematics content professor I have worked with students, particularly students of color, with strong potential and desire to become secondary mathematics teachers but who have struggled because of the lack of a defined pathway. I currently educate future secondary mathematics teachers in a fifth-year university teacher certification program. I have a sense of the teacher preparation pathway my participants took. In addition, I am a white female who earned my teaching certificate through less oppressive

structures than my participants. I realized I needed to be open to my interviewees' experiences and not pre-suppose based upon my experiences. I shared some similarities with my participants but also had many differences, including my racial privilege.

### **Qualitative Data Analysis**

Data analysis followed an iterative thematic analysis process (Braun & Clarke, 2006; Eisenhardt, 1989; Spradley, 1979). The process involved the well-established methodology of "ethnographic analysis" (Spradley, 1979), also called "building theory" (Eisenhardt, 1989) and "thematic analysis" (Braun & Clarke, 2006). During the analysis, relevant themes were developed, examined and expanded. A tentative set of categories were developed using the CRT framework and from participants' survey, interviews, and focus group discussion. Analyses were focused upon the two research questions. The intent of Research Question 1 was personal preparation and individualized assistance provided to the distinct participant. Research Question 2 emphasized systems and purposeful programming at the community college.

- 1) How have community colleges prepared and assisted current secondary mathematics teachers of color?
- 2) How were community college-educated secondary mathematics teachers of color supported or challenged by their community college system?

CRT and literature review provided a systematic method of developing the initial codes for Research Question 1. Personal feelings of oppression and assistance were identified by the initial codes of Racialized Experience, Instructor Perception, Math Identity – Ability, Enjoyment and Application, Culture Match, Role Model, and Racial Identity (Achinstein & Aguirre 2009; Achinstein et al, 2010; Bireda & Chait, 2011; Chazan et al, 2013; Dixson & Rousseau, 2005; Evans, 1992; Kirby et al, 1999; Martin, 2007; McGee & Martin, 2011; Parker & Lynn, 2002;

Yosso, Smith, Ceja, & Solórzano, 2009). The systems- and programs-based Research Question 2 (How were community college-educated secondary mathematics teachers of color supported or challenged by their community college system?) initially was addressed by three codes (Career Identification, Community College Status, and Instructor Preparation), which were derived from CRT and literature review (Bireda & Choate, 2011; Boser, 2011; Clark et al, 2013; Coulter & Vandal, 2007; Evans, 1992; Evelyn, 2002; Ladson-Billings, 2009; Martin, 2007; Sheets, 2001; Walker et al, 2008). These initial codes were the seeds for the various codes described in Table 2 (Appendix F).

The thematic analysis was conducted for the data using this initial set of codes (Braun & Clarke, 2006). Transcribed interview notes for each participant (i.e. case) were screened using and expanding upon the developed codes (Braun & Clarke, 2006). The data were further analyzed using the TAMS Analyzer (Weinstein, 2006). TAMS (Text Analysis Mark-up System) is an open source software used to code text and analyze data. Each participant and focus group discussion was considered separately. The digital review was performed with the codes found during the initial transcript review; codes were assigned to phrases in the text. Additionally revealed codes were added to the code list. This process was conducted for each document, using one set of codes. An example of the coded transcript is provided in Appendix G. Following coding, the Results function was used to list all coded passages in each document (example in Appendix H). The Report function was used to display the data. “Comparison of All by Codes” was initially used to organize each coded passage by code for each document. Specific passages were organized by codes into columns. The data were ready to define and name categories then themes (Braun & Clarke, 2006).

To synthesize the data and construct the cases, a within-case analysis was combined with a cross-case pattern search (Eisenhardt, 1989). The within-case analysis used the TAMS Results to develop ten categories for each case and the Focus Group: Accessibility, Support Awareness and Navigation, Pathway Clarity, Career Exploration, Teaching Career Promotion, Confidence Development, Residency/Citizenship, Cultural Awareness, Racialized Experience, and Counterspaces. Descriptions of each category are included in Appendix I. Data displaying the categories and examples from each case and Focus Group were used to conduct the cross-case analysis (Eisenhardt, 1989). Cases were grouped (i.e., Hispanic/Latinos, males, females, all) and similarities and differences in categories were listed and analyzed through cross-case analyses. When additional categories were noted, each case and Focus Group was re-evaluated for the new category and an entry was added to the display. Themes were constructed from categories identified through this cross-analysis of the data. The purpose of this multi-faceted analysis was to converge the multiple data sources into a few well-defined constructs and themes to answer the research questions (Braun & Clarke, 2006; Eisenhardt, 1989).

### **Findings**

Secondary teachers of color experiences with professional preparation through community college were mixed with structural systems and power relationships that assisted and oppressed their path toward becoming a teacher. Participants felt personally prepared and assisted by their community college in areas of accessibility and confidence growth. While all expressed appreciation of their community college education and recommended community college to future secondary mathematics teachers of color, systemic oppression challenged each participant's community college experience. These findings are used to answer the two Research Questions:

- Research Question 1: How Have Community Colleges Prepared And Assisted Current Secondary Mathematics Teachers Of Color?
  - a) Community colleges prepared and assisted current secondary mathematics teachers of color by providing access to an affordable and local education. It was found that accessibility to a community college education opened the door to higher education for these secondary mathematics teachers of color.
  - b) Community colleges prepared and assisted current secondary mathematics teachers of color through confidence development via mathematics and personal confidence growth. It was found that formal and informal structures (e.g., ability to retake courses and clubs/organizations) enabled confidence growth despite oppression (e.g., micro-aggressions).
- Research Question 2: How Were Community College-Educated Secondary Mathematics Teachers Of Color Supported Or Challenged By Their Community College System?
  - a) Community college-educated secondary mathematics teachers of color were supported through availability of the community college programs but were challenged through cumbersome navigation of these existing support systems. Despite the community colleges offering many support programs and resources, support awareness and navigation proved challenging. In addition, program and transfer pathway clarity proved cumbersome.
  - b) Community college-educated secondary mathematics teachers of color were supported through available and supportive professors and staff but were challenged by deficiencies in cultural awareness training, which added to racial micro-aggressions and feelings of racial isolation. Oppression was noted through

varied racialized experiences, specifically the insufficient cultural awareness training for community college professors. Feelings of racial isolation led to the need for counterspaces.

- c) Community college-educated secondary mathematics teachers of color were challenged in career identification by their community college system due to inadequate local community outreach and on-campus community college secondary mathematics teacher preparation promotion. Potential for improving and building upon teaching career promotion was identified.

The tensions and complexities identified through the research questions are explored through themes of Accessibility: Education and Resources, Confidence Development, Support Systems and Development of Counterspaces, and Community Outreach and On-campus Promotion.

### **Accessibility: Education and Resources**

Accessibility to a low-cost education in the participant's community was important, as was the ability to balance work and school. Educational accessibility was countered by the concern over resource awareness and navigation. Resources included financial aid and advising (e.g., defined program and transfer pathways).

**Educational accessibility.** Five of the six participants expressed the low cost of community college and ability to balance work and school as being very important; the one remaining participant was a Running Start student still enrolled in high school, which paid her tuition. "(C)ommunity colleges are definitely more affordable" according to Manuel. Manuel noted he and his classmates were able to balance work with studies to develop a strong work ethic.

Another part was balancing money and time. I was completely financing my own schooling at that point... I never let (work) interfere with going to class... So, if you are really interested in having people that do want to work and if you want to get good study habits with people who want to be successful you are going to have a better chance with finding those people at a community college than a four-year college. I would recommend if you are in the mentality of you want to work and you want to learn the good habits, community college is actually a good place to do that at... This person who is a night security guard who is up all night and they are coming after eight, ten sometimes twelve hours shift and they are there to learn.

In addition, Javier went to community college because “it was the only thing I could afford...it was cheaper than university”. He “graduated with no debt” even though he “had to pay my money out of my own pocket”. Wade also stated the primary reason for considering community college was the cost since it is “less expensive than a university”.

Five participants discussed the proximity of the campus to home to be an important accessibility factor. Wade embraced the fact that his community college “was close to where I lived” and “the main reason I decided to do the community college was one, it was close”. Javier’s reason for choosing community college over the university was because “it was closer to my house”. Mayleen chose her local community college “because I didn't have a car at the time” so required a college close to home. Manuel attended two different community colleges, both close to where he was living at the time. Yuna continued to take classes at her high school in addition to those at community college, so appreciated having the community college close to her high school.

**Resource accessibility and navigation.** Although resources were available on the community college campus, accessibility to them was hindered by lack of awareness of the programs as well as underdeveloped skills needed to navigate the community college system. Three participants discussed accessibility to resources as an area of growth for community colleges. For example, work-study and financial aid opportunities were difficult for Mayleen to locate. She “didn’t know about work study” and “didn’t know how to navigate the system and ...how to apply for financial aid”.

Pablo identified resource accessibility as his principal challenge, which increased his feeling of isolation.

I think the primary challenges I faced while I was there would definitely be the navigation of the school system. I had all these resources available to me but then in terms of navigating everything and learning how to be a successful student... I didn't know anybody there... I think the loneliness of trying to navigate things by yourself and try to figure out, "Where do I go to the Learning Center? Who do I talk to? How do I sign up? Do I just sign up and sit down anywhere? Do I raise my hand?" It was just learning the entire system and what it meant to be a student. In his attempts to navigate this new system, Javier initially relied upon his classmates who became his unofficial cohort support system:

Even though there was no cohort you would still take the same classes... I still felt I was part of cohort because we we're such a small, like small classes, and we all wanted the same thing, to be teachers... I thought it was great because of smaller classes, and then everybody around me was pretty much doing the same thing. There was a support there when I was there... I didn't get the best (teacher)

preparation from (community college). However, it was a nice environment to be in because there was support.

Participants became aware of the numerous resources available on campus through informal means such as Javier's unofficial cohort of classmates, his and other participants' clubs/organizations, and individual persistence. Javier explained the importance of his Latino/Hispanic organization, "I really needed that support. I really needed to connect". Wade was made aware of scholarship opportunities through his leadership organization. Pablo relied upon himself to find resources on campus, "I just did it, just wanted to learn and so I went about whatever means I needed to." Navigation of these systems was not evident when first beginning community college but participants found their own ways.

**Pathway clarity.** Clearly defined pathways for community college programs/courses and university transfer also were not readily provided to participants. Five of the six participants had no defined community college or transfer pathway to become a secondary mathematics teacher. Yuna's pathway was defined by her high school graduation requirements as she followed her high school plan through Running Start. Mayleen utilized prepared forms to take available mathematics courses without the direct support of an advisor. "Their forms were just really clear and easy-to-use and so I would just check them off as I went and registered for classes". Her transfer "was pretty smooth" to university. Javier followed special education and early childhood education pathways. He said, "I wanted to go secondary but it was tailored more towards early childhood." So he and his cohort made their own way: "everyone around me was pretty much doing the same thing". Manuel was challenged without a clear pathway. He believed he had taken all the mathematics courses available at the community college. Upon transferring, the university told him "you're actually a year behind from where you're supposed to be"...because

I was missing two math classes”. His community college and “university didn’t communicate well with each other”. Wade worked toward the paraeducator certificate with a focus on special education offered at the community college he attended. He “mapped out” his community college pathway on his own. When graduating from community college, he “didn’t have a teaching certificate so I ended up working as a paraeducator in a special ed program”. Then, he “decided to go back and get my teaching certificate”. Pablo did not feel the Associates degree was important so he “just started applying for math classes that I could get into”, “taking the highest level math class they offered”, and focusing on building his writing skills. In lieu of a clear pathway for these secondary mathematics teachers, each person created his/her own unique pathway.

CRT literature supports these findings on the challenges of accessibility. As expressed through CRT, the education system perpetuates systems of oppression (Martin, 2006; Martin, 2007; McGee, 2013; Rousseau & Powell, 2005; Tate, 2005). Participants experienced systemic oppression when trying to identify and navigate resources on the community college campus. Financial aid and academic and advising support were negatively affected, thus limiting participants’ full engagement at the community college (Emdin, 2011). Yosso et al (2009, p. 664) expressed the necessity of programs to support retention and graduation of students of color to overcome oppression:

(H)istorically White (institutions) do not necessarily commit to providing equal access and opportunities for Students of Color, let alone promise an inviting, positive campus racial climate.

CRT literature is reinforced by conventional research on access issues in community colleges. The Survey of Entering Student Engagement further supports the idea of lack of access, showing

“that a large number of (community college) students are unaware of their college’s core services in the opening weeks of their first semester” (Sander, 2008, p. 2) and

41% (of community college students) said they had never used academic-planning services in the first few weeks...40% said ‘friends, family, or other students’ were their primary source for academic advising during their first three weeks of college.

This case study found a higher percentage of under-use of services and reliance upon alternative sources of advising support. Five of the six participants stated they did not access advisory services when beginning community college but depended upon informal networks of peers and student organizations. Lack of awareness of resources challenged the participants financially and academically as they attempted to navigate the unfamiliar community college systems. This was countered by participants’ ability to navigate on their own and determination to receive a local education at a low cost.

### **Confidence Development**

Community college strengthened participants’ mathematics and personal confidence. Personal confidence was expressed as building confidence in oneself and developing one’s racial identity. All participants expressed an appreciation for the confidence they developed while attending community college.

**Math confidence.** Five participants expressed the need to work hard and take ownership of education to build mathematical confidence. Pablo knew he struggled in mathematics so he worked hard and sought out support systems to overcome and take ownership of his education. “I started off in Algebra 1A in high school...one of the lower math classes”. Then in community college, he was “placed in Algebra 2” after two high school years of Algebra 2. Pablo progressed

through upper level mathematics courses in community college. He expressed his positive experiences and growing math confidence in the following statement:

(Retaking math courses) made me feel real confident. I felt like it really brushed up my Calculus skills and helped me...My best experiences were at a community college... I think the foundation of math skills that I received were from my (community college) experience. I don't feel like I received that at the University.

Wade concurred on the importance of community college as a “turning point” in his mathematical confidence:

I think (community college) was really a turning point for me. As I mentioned, when I was in school, I was always good at math. High school hit and math got a little more difficult. I managed through it... (In community college) I had a math teacher who I absolutely adored. When I had some difficulties with math, she informed me that, "Don't think about it as math. Think about it as there is some problem that you're faced with, and you have to find a solution." If you're faced with a problem and you just want to ignore it or just guess at it, throw some kind of answer, you need to understand what the rules are. Understand the process, and then find that solution. Or if you're given the solution and you're given a situation, what's the process to get to that point? That just always stuck with me.

Pablo and Wade began community college in pre-college-level mathematics and proceeded through upper level mathematics, while changing their perception about their mathematics ability and building their confidence and skills.

Some participants also acknowledged negative input early in their and others' education, adversely affecting math confidence, which was overcome in community college. Yuna viewed

mathematics education as a means to overcome “preconceived notions when it comes to math... ‘I can’t do math. My mom and dad aren’t good at math. My third-grade teacher told me I couldn’t do this. I’m not fast’”. The Focus Group acknowledged this negative image and stigma of mathematics. Mayleen expressed to the group,

I feel like there's a bad stigma around math. It's a lot of work, work that doesn't go anywhere, work that makes them feel stupid, that they don't feel competent in. They also don't understand what it is and what it's for very often. I think school doesn't always help them see through that.

Wade added, “That's what really helped me with my professor at (community) college, where it was like it's all about solving problems.” Mayleen summed up to the group the role community college played for her to overcome this impression, “(Tutoring at community college) forced me to take higher-level math classes, which led to make discovering that math was really fun and I really enjoyed it. I didn't enjoy it until I got to calculus, then linear algebra sealed the deal.”

**Personal confidence.** All participants expressed an opportunity to build personal confidence in community college. Javier recommended community college as a place to grow:

When you go from high school to the university and if you're not mentally prepared and you don't feel mentally, or academically prepared, it could be a shock... But if you're having those doubts, trying one or two classes in the community college actually sets you on the right path.

Yuna used her community college experience to grow personally from a high school student to a college student with “freedom”, while still officially in high school. In addition to beginning to visualize mathematics as a “process of thinking”, she stated:

[Community college] opened up my mind. I think it was a good transition for me. I think it was better than me going straight from high school to college. I think it was better than I do as a (high school) senior than I had done it ... I don't know if it would have been as fulfilling for me if I done it as a freshman in college as much as a senior in high school, so I'd do it again.

Yuna and Pablo also expressed appreciation for the community college experience to enable them to develop their racial identity. Yuna began to think about racial identity during her community college experience.

It was the first time that I felt like I'd really heard people complain about color of skin. I don't know if it was because I hadn't paid attention when I was in high school or if it just got ... And that was part of the purpose was to be in that discussion environment where high school is very different. It's not a lot of free thinking and 'I'm gonna speak my mind.' They weren't mad at each other. They weren't mean to each other. They were just vocal and it was very different. That was my first and I really felt like that's maybe my only experience where color really became a piece. I don't know if it was because I hadn't paid attention when I was in high school... I think I went through a lot of my life thinking that maybe you just treated people the way you did because of who they were not, because of what color they are or what economic background they had... It really stuck with me.

Pablo indicated a feeling of loneliness and isolation as he was discovering his own racial identity.

I rarely spoke Spanish. I kind of got ridiculed in high school whenever I tried to hang out with anybody of my race. For me, growing up, I kind of almost distanced myself. I almost didn't see myself as Latino, I didn't see myself as Mexican. I just saw myself as American...I didn't think about my race...and how it could potentially impact me.

Then Pablo became active with a Latino organization on campus. He began to consider his racial identity:

I was taking you know, Calculus, Chemistry, Physics, the club became my priority and my identity at that school. We started doing all this outreach, and this kind of political stuff. I started slowly becoming, I guess more political and identifying more as a Chicano, than any other kind of acronym that I kind of even thought of myself. I think that was, at that time where I finally felt proud of who I was, and kind of felt proud of the identity that I had.

After developing this racial identity, his focus shifted. He began learning about “undocumented and documented student issues that I was going through. I didn't even know I was going through” and became an advocate, testifying on legislation. Pablo began noticing how race influences his and others' lives:

When I was in class, I felt like in a lot of ways, I had to represent more than just myself...I didn't want to fail because I did not want anybody to look at me and be like, ‘Oh, well these kind of people have a hard time with these classes. (In) pre-Calculus 2, I remember looking back and seeing an African American girl in class, and just looking at her....that's an image I will always remember. I

remember looking back that day, and I'm like, 'Oh, there's somebody else, a person of color in here'.

**Culturally relevant mathematics teaching and confidence development.** Participants each became more confident while in community college. No formal culturally relevant support structure provided this growth, which concerned some of the participants. Pablo, Javier, and the Focus Group explored the necessity of providing culturally relevant support for minorities to develop racial identity and math confidence. Pablo was passionate about infusing social justice into mathematics education to change perceptions and develop racial identity as well as math confidence, because

math is a neutral subject, but it shouldn't be...It's not like (people of color are) really represented in European Mathematics...I think in a lot of diverse areas, we need more relevant, and more social just curriculum that connects with students' lives. We need to 'have a curriculum where students learn about themselves'.

Javier recommended "creating programs ... to promote math to students of color." The Focus Group recommended using culturally relevant mathematics teaching in the community for parents and other adults (e.g., "Math in the Community", math problem cards/contests, financial management, problem-solving challenges, role playing to fix a situation using math) to enable students of color to see themselves in mathematics and increase mathematics and personal confidence even before entering community college. Mayleen summed up the Focus Group's comments:

I really love that (idea of) going to the community and taking classes there and bringing math to them. That's totally ethno-math, mathematically culturally based.

Culturally sounds fun too. That's a great idea. There's so much potential and good ideas that can come from that.

To summarize, each participant expressed growth in math and/or personal confidence, paralleling Martin's (2006) trajectory. Martin (2006) discusses the withholding of cultural capital (i.e., historical poor math exposure for African American students) and its impact on initial low confidence, such as the participants experienced. Martin's (2006) parents in his study, currently in community college, examine their own poor math experiences, which leads to low self-confidence, and share ideas on increasing confidence in future generations. Parents discuss their negative experiences with mathematics and their impact on increased anxiety and decreased confidence. One parent decides to become a teacher in order to "demonstrate to children that a Black person is intelligent and they know what they are talking about, that that will help them have more confidence in themselves and their own people" (Martin, 2006, p. 218). Another parent discusses the importance of family engagement in mathematics to increase her own and her children's confidence. Participants in this study also expressed desires to become teachers to improve others' lives.

While low confidence among students of color is supported by CRT literature (Martin, 2006), CRT literature indicates oppressive college structures exacerbate this low confidence through micro-aggressions (Solorzano, Ceja & Yosso, 2000; Yosso et al, 2009). This study found that despite negative encounters with institutional systems and isolating experiences upon entering community college all participants increased their math and personal confidence while in community college. Participants were able to overcome the oppressive structures through their own systems as discussed in the next theme.

### **Support Systems and Development of Counterspaces.**

Individual faculty and staff members provided emotional and advisory support to participants. However, racial micro-aggressions faced prior to community college persisted in some classes and on campus. Micro-aggressions aimed toward students of color on college campuses leads to the erosion of self-confidence and confidence decreases when students experience a stressful college environment (Solorzano et al, 2000; Yosso et al, 2009). Constantine, Wilton, & Caldwell (2003) found that developing support systems with people of similar ethnic/racial backgrounds who are experiencing a similar situation may counter the effect of the micro-aggressions and help cope with this stress. Participants in this study expressed the ability to develop confidence in spite of being oppressed.

**Supportive faculty and staff.** All six participants found the availability and openness of individual professors helpful. In addition, each had at least one professor who made a big difference in his/her personal success. Javier's primary support in community college came from his professors:

The teachers are very supportive. The teachers are very supportive. They really connected with you, again because they didn't have the massive amount of students, they really connected with you.

Furthermore, Javier, Mayleen and Pablo remarked that community college staff members, such work study supervisors or counselors, provided key assistance. Javier makes this point resources and transfer assistance:

The counselors were available. Resources were available. When you wanted to go talk to somebody about this class, that class, or my transition, they were available. Because when I try to do that in the university it's really difficult just to get an appointment. Then of course you have to go through these loops, hoops and that.

But at community (college) people were really willing to help. I guess because of the number was so much less.

Mayleen's work-study supervisor "became kind of like my second mom":

The (primary) support would be ... The biggest one is the math learning center and the supervisor who was there was just this wonderful, maternal person who just took me under her wing and was super sweet to me and was acting like my second mom because I was here without any family and that made a ... that was a huge influence and even though in (the community college) I felt constantly out of place and discrimination reared its ugly head here and there, I really did feel at home there in the math learning center.

Pablo initially was challenged trying to find work-study opportunities by going through existing systems. He wandered around campus but received no formal support. Because of this search, he found a supportive staff member:

I was looking to do work study. I wanted to do work study. I believe that's what I wanted to do so I was going all over the place trying to get help to see how I could basically work at school and get paid for it. I went to where I took my Compass test first and they directed me to this location. I went there. I went downstairs and I was like, 'Tell me how to do this.' They told me to go upstairs. I went upstairs. I went to a little corner. They're like, 'Go down this way.' I just kept going and then I ran into him.

This one staff member reached out to help. Pablo's work-study supervisor directed him towards other Latino students and support services. The individual assistance received from this one supervisor changed Pablo's entire community college experience.

He kind of introduced me to everything. He introduced me to TRiO. He got me involved with TRiO I think the day I walked in and talked to him. He said, 'Let's get you signed up with TRiO.' He was telling me they have an English Learning Center where you can go and get help. I took advantage of that. They have a Math Learning Center. He really outlined all these kind of support services that were available to me. I think he even talked about something they had in the library and even things that seemed so obvious, like being able to rent out a study room. It never occurred to me to go to the library and rent out a study room. He was able to really help me identify my resources available to me and scholarship opportunities.

Literature supports the importance of supportive college faculty and staff. Academic advising and faculty's role was the "most critical service available for community college students" with respect to retention (McArthur, 2005, p. 3).

**Unsupportive faculty, staff, and society.** Participants confirmed that supportive faculty and staff aided their endeavors; however, faculty who were not culturally sensitive made them feel excluded. While each participant had at least one supportive professor and staff member, not all professors, fellow students, or society were encouraging. Participants recounted numerous situations in which professors were described as not being culturally sensitive or aware with respect to student diversity. Participants entered community college already feeling insecure about their ability to succeed because of society's impression of people of color. Micro-aggressions persisted, leading to feelings of racial isolation.

Mayleen did not feel a part of the classroom because of the cultural differences between her and her professors. She cited frustration around some of her community college professors:

Teachers weren't very culturally sensitive even though they thought they were...It just takes one professor, one instructor to do, to behave in a way that makes a person feel excluded or unwelcome or not in a position to succeed.

Wade described micro-aggressions he experienced from white society while in community college:

But then also, white Americans looking at me like, who are you, you're with the honor society? Being surprised or impressed like, wow, you're with the honor society.

Javier also expressed the oppression he felt from white society before, during, and after his community college experience:

(Now) as a math teacher of color. As long as, this challenger, or this belief that we're not smart enough, I'm Mexican, and so there's this belief that, I felt it when I was doing my teaching, all that, that mathematics is for smart people, and me being Mexican, I'm not as smart. I'm not smart. I'm supposed to be cleaning cars or being a janitor, which there's nothing wrong with being a janitor, but I wanted more for myself. There is this belief, this push that math is just for smart people, and I'm not smart because I'm Mexican. I'm not good with numbers. It can be a little intimidating because they put this, and I felt it, like I said, this label on you that mathematics is not just for us. I'm thinking about Mexican people.

Javier concluded that this intimidation is perpetuating the lack of diversity in his middle school leading to continued feelings of isolation:

The pictures of the faculty, you can see that all of them are white. Math, they're mostly white males. Yeah, so I don't know. It can be lonely because you don't have anybody to identify with.

**Counterspace development.** This feeling of exclusion because of racial micro-aggressions by white peers and faculty led participants to pursue spaces where they were able to feel “at home”. Five of the participants found a space to alleviate feelings of isolation and stated it was critical to their success. The sixth participant, Yuna, was content being on her own. The spaces found were unique to each participant. Manuel sought out refuge in the library and discovered a tutoring opportunity:

(I saw) a flier in the library because that's one of places I, I used to always hang out at the library, middle school, high school, that's where I was at. If I could sneak my lunch in there that's where I would be eating my lunch... I was good with math so I was a tutor at the library. At community college I was actually hired as a math tutor. And so again even being a freshman being able to help other people with their math that were at times much older kind of gave me appreciation and helped me build my confidence in my own skill.

Manuel found a space to match his introvert personality, became more confident, and began to consider mathematics teaching as a career.

Mayleen “felt like an outsider” until finding work-study. She highly recommended the math learning center as a place to build inclusion for students of color:

Because it really does provide a way for people to feel included and part of this culture that is created within the learning center and the common grounds are the learning and the inner action that between people that arise from needs for help in

tutoring and just learning and it just really feels like this really great way for a common in culture to merge...(It was) a really supportive environment...because it was just math infused and people infused...it just had such a positive impact in my experience, emotional, educational just in every way so I don't know how it would have turned out without it.

Mayleen's confidence in her teaching abilities grew in this supportive environment so she continued her work-study at her community college after transferring to university.

Pablo's connection with his work-study supervisor enabled him to discover MEChA, which "redefined who I was as a person moving forward because that's when all of the sudden, I started learning about race". He discussed his experience with MEChA:

I ended up joining the club. Then I went a few times. Then after that, it was just like, I always want to go there because I love the people there. I thought, finally I felt like I had almost like a family, so for me it was, I loved going to school. I loved going to our little meetings that we had. I kind of felt like I had a place for me, right? I could show up there and take a nap on the couch.

As a result of MEChA, Pablo began "advocating or wanting to make some kind of difference, so then we started doing high school outreaches. I got signed up with One America...and I testified in Olympia against a bill... that basically wanted to make a driver's license indicate whether someone's undocumented or not."

Wade embraced a leadership organization as his primary support in community college to overcome feelings of isolation:

The biggest thing for me was just being involved in the honors society, Phi Beta Kappa, and I realized at that point how important it was to not go at it alone.

Because being a part of the honors society I had my fellow officers, I had the members that worked with me. Several of my members were part of other student organizations, by them being part of other organizations they would invite us in to take part in their activities. We then created our own community within the universe of engaged students that were working together and, I mean it was one of those situations where you never even felt like there was an opportunity of not being successful or failing because there were so many people that were in your corner.

Wade's leadership outreach activities grew his desire to "help communities and help people who are struggling". He also benefited from a smooth transition from community college to university. "There were so many people who knew me at the time that were graduating from community colleges throughout the region...I just felt like I was at home (in university)".

Javier's initial space was formed with his classmates, but he sought out more support and found a Latino organization on campus.

I really needed that support. I really needed to connect, so I researched. I did research and it said in the bulletin boards there were meetings. It was nice going to those meetings. Because again, we didn't just sit there and share our stories. We did our homework, or we went out, or we talked about teachers and classes and all that. Having that bond was really important... I was part of that, which made me feel much more comfortable because there were people like me. People that still had some emigration issues so I could identify with people. That made it a lot easier. I wasn't the only one on the boat. Other people were with me on the boat

and so that made it easy to find that connection that I had in common. It was a Latino/Mexican Association that helped me.

Javier recommended students of color find their own space as a means to feel part of the college and also to overcome the stigma of going to a community college rather than a university:

A lot of students want to start with university because it's not only going to classes but it's also, you're part of the club, part of this, part of an event, part of political life, free speech, whatever. The community college in my opinion needs to emulate it to a certain extent. Provide those students with an opportunity to join different clubs, to do this, to do that, to get involved. Not just academically but also in life of the community college. I think that if they are able to connect with that then the community college wouldn't feel as bad.

Despite supportive faculty and staff members, micro-aggressions ensued. Micro-aggressions based upon race and ethnicity produced community college experiences imbedded with feelings of racial isolation were common among all participants and supported by CRT literature. "Microaggressions continue to manifest in higher education and, in doing so, impede first-generation and low-income college students of color" (Sarcedo, Matias, Montoya & Nishi, 2015, p. 2). CRT literature describes spaces developed as a response to racial micro-aggressions as counterspaces. They are places where "positive collegiate racial climate" can be established and maintained (Solorzano et al, 2000, p. 63). They provide students of color support to manage feelings of racial isolation and to counter oppression. Although not all participants developed counterspaces specifically with other students of color, each of the five participants sought out

and found respite from racial isolation. Pablo summed up the unified sentiment that these counterspaces “alleviated a lot of the challenges of loneliness”.

### **Community Outreach and On-campus Promotion**

Deficient external and internal publicity challenged participants when selecting community college for their post-secondary education and identifying secondary mathematics teaching as their career. Participants expressed concern over not being exposed to secondary mathematics teaching as a career prior to entering or after entering community college. Secondary mathematics teaching career promotion by the community college out in the local community and on the community college campuses was found to be non-existent but necessary to increase the teacher of color pool.

**Community outreach.** There was no community outreach or indication from the community college to the community that local students were needed or wanted for the secondary mathematics teaching profession. This challenged participants in selecting a career prior to entering community college, as well as embracing community college in their pursuit of a career. All participants and the Focus Group expressed concern that the local community was not aware of secondary mathematics teacher preparation opportunities available to the local youth at the community college.

Career selection was challenged because of lack of community outreach. Three participants entered community college with a career focus other than elementary or secondary teaching. Yuna was torn between industrial design and law but did envision, if she chose law, “to go to law school, but not to be an attorney, to be a professor.” Wade desired a career in communications but “wasn’t quite sure of what I was going to do. I was just like, ‘Well, I just want to get a degree’”. Mayleen was looking at mathematics research and recommended

community colleges “infiltrate minority communities so that they are more aware of opportunities that are available to them.”

The other three participants entered community college to be a teacher but without a pre-determined transfer pathway to secondary mathematics teaching. Manuel was planning on majoring in mathematics and psychology with a target to teach. Pablo knew he wanted to work with youth so chose teaching. Javier wanted to be a math teacher focused on special education. Even with a focus on teaching, participants began community college without a clear vision of how to achieve their goal.

There were no formal community outreach activities to promote beginning secondary mathematics teacher preparation at the community college. Javier was aware of community college’s reputation to prepare future teachers through his peers. “It seems like everybody coming to community college wanted to be a teacher”. However, when asked about specific outreach for secondary mathematics teachers of color to a community college, he stated, “I don't see that being promoted, being pushed. I don't see that.”

The lack of community outreach promoting community college’s role in preparing secondary mathematics teachers also was linked to the local community’s perception of community colleges, although participant perceptions varied. Javier felt community colleges had a negative status:

When I graduated high school, I really did not want to go to a community (college). I really had a, a really bad impression of it, because that's where ... People would say, "Well that's where dumb kids go," or "That is just for kids that are not smart enough to cut in university," and so I didn't want to go there, but that was the only thing I could afford.

Wade was not familiar with community colleges before registering.

I didn't really know a lot about community colleges. I knew I had to apply to universities and hope to get accepted. When it came to community college ... I talked with my wife. I was married at the time. I was like, 'Okay, so I'm going to apply and hopefully I get accepted.' She's like, 'It's community college. You get accepted. I'm like, 'But ...' You know, I sent in my application. I was like, 'Oh, I'm in. Hey.'

The remaining four participants embraced community college as an opportunity to prepare for their career in teaching. Mayleen felt her community college "had a really good reputation". Manuel didn't "view community college versus a four year college as any different. That's one of the reasons why I went to community college." Yuna was excited to leave the high school setting and go to college as a high school senior: "I didn't want to be in high school". Pablo also was excited to begin at community college: "I wanted to go straight from high school to college, so as soon as I graduated, two weeks later I went to community college and took three summer courses right away". Despite the variance in community college perception, each participant verbalized the importance community college plays, and could play, in the local community.

Individual participants and the Focus Group felt community colleges needed to reach out to the local community with a message promoting the college and its role in preparing secondary mathematics teachers. Yuna visualized the community college reaching out to parents of elementary and secondary students:

I think you just have to change their experience and give them that opportunity to see what it feels like when it's not formulating. I do think formulas are important, but I think that if you want more people to go into math that'll be creating future

candidates that can problem solve, then a lot of it has to be thinking and not necessarily, 'Can you memorize the formula?'

Manuel also recommended community colleges target parents to generate interest in mathematics education and to create interest in students to pursue a career in secondary mathematics teaching:

To rekindle interest for parents who don't see the value of math anymore it would be nice to have a community college class just a summer class or something that's inexpensive, something to just get people to come and go, 'Hey let's see Math Everyday or Math in Cooking, Math in Music.' And it's not that you're...for me music is way beyond my skill set but Math in Music that would be interesting for me. Kind of go, 'Okay how will this relate to me? How can I play with that?'

Wade focused on community college students for outreach:

You know this goes back to what I actually wanted to do years ago, get community college students to go back into the classroom. Have them, maybe as part of one of their courses where they are now, volunteer in the elementary (classroom), helping out in the math classes, really supporting students to show them this is a pathway to get to college and these are some of the things that you can do.

As part of the Focus Group, Wade emphasized, "The message is we need teachers. We need more people desiring to influence others and benefit others and be a contribution to society because people like this change the world for the better". Mayleen concurred stating the importance to emphasize "the many other rewards that are not necessarily financial". The group began discussing a "media blitz" highlighting the benefits of teaching within local low-income

minority communities and discussing the necessity of preparing a local community-built teacher workforce.

**On-campus promotion.** Internal promotion of the secondary mathematics-teaching career also was found to be lacking on the community college campuses. This again challenged participants when considering potential careers and, once teaching was identified as a career, course selection and transfer options. The lack of defined clear pathways for community college courses and university transfer hindered on-campus secondary mathematics teacher career promotion. Participants found their own way into secondary mathematics teaching as a career but expressed desire to have the career more explicitly marketed.

Participants stated their community college experience did enable them to further define their career in teaching. Wade was pursuing a general associates degree and discovered education to be a means to serve the local community. His “community college experience just gave me more, more of a desire to actually just work with people”. Then he was told “if you’re really interested in education, not many people from outside of education can change education...so you should become a teacher” which aided his career exploration. Mayleen knew she enjoyed mathematics but was uncertain about teaching as a career and expressed:

(I) went in to the community college not knowing at all what I would do...it exposed me to a lot of tutoring/teaching experiences (in the math learning center) that really did reinforce the idea of how rewarding it was to help.

Yuna’s experience in community college “pushed me more into thinking about being a professor, or a teacher”. Manuel had a different experience in community college that “the biggest impact it had on that was I knew I was interested in becoming a teacher and they guided me to focus on

content area” (i.e., mathematics). None of the participants developed their teaching career definition formally; each used their clubs, classmates, faculty, and staff member connections.

Pablo felt formal promotion on community college campuses would have illuminated career opportunities. “There was nothing like (promotion) that told me, ‘Hey, do you want to be a math teacher?’” He envisioned an on-campus promotion “scenario where you gave different booths where other teachers of color...talk about what it’s like to be a teacher of color”.

Community colleges did provide all participants focus and direction into the teaching career.

The participants’ community colleges had no on-campus promotion, including defined program and transfer pathways, to support the participants. None of the participants took specific courses to identify teaching as a career; despite literature indicating that specific career exploration courses positively influence new first-time community college student retention and persistence (French, 2013).

There also was no formal community outreach to encourage secondary mathematics teaching as a career. Community colleges in states other than Washington State have structured community outreach programs for secondary mathematics teacher preparation. Service learning, a component of Florida’s Miami Dade College’s teacher preparation programs, including secondary mathematics, is a means for the community college to connect with the local community (Padrón, 2013). Arizona’s Rio Salado College sponsors a professional organization, Educators Rising, to provide opportunities for community outreach and on-campus promotion (Educators Rising, n.d.). California’s Santa Ana College offers support services as well as outreach opportunities to future secondary mathematics teachers through their Center for Teacher Education (Center for Teacher Education, n.d.). California’s Cerritos College Teacher Training Academy also provides on-campus support and service-learning opportunities for its

students and local community (Cerritos College, n.d.). Individual participants and the Focus Group presented several scenarios to provide secondary mathematics teaching outreach to the local community and internally promotion on community college campuses to students of color; many of which already are supporting community college students in states other than Washington State.

### **Implications and Recommendations**

Because this analysis is based upon six cases, its findings are more suggestive than conclusive. However, researchers and practitioners may benefit from the findings for future research and action.

### **Research**

More information is needed on teacher preparation of secondary mathematics teachers of color in Washington State. The small number of cases examined and the even smaller number of participants involved in the Focus Group limit the findings of this research project. Although over one hundred potential participants were contacted to determine interest, only six acted. This may be indicative of the total number of secondary mathematics teachers of color located in western Washington State. Additional research is needed to assess how many secondary mathematics teachers of color are serving Washington State students. The participating cases also were not all educated in Washington State community colleges. Community college experiences from Washington State and two other states were explored. After assessing the number of secondary mathematics teachers of color in Washington State, the experiences of those specifically educated through the Washington State community college system is a future topic to explore.

Community college guided pathways (Bailey et al, 2015), including clearly defined program and transfer pathways, are currently being implemented in 30 institutions including three in Washington State (The Pathways Project, n.d.). The colleges and AACC are collecting data to assess student success through comprehensive guided pathways. None of the Washington State community colleges included in the study have a secondary mathematics teacher preparation pathway. Addition research is necessary to assess this specific pathway in other states' community college Pathway Projects. States with secondary mathematics teacher programs should be identified and data extrapolated for this specific pathway.

Other states have established community outreach and on-campus promotion programs. However, research on the effects of these programs was not available. Awareness of these programs was made at the National Association of Community College Teacher Education Program's 2016 conference. Identification of additional programs is necessary to then compare program objectives and outcomes. This research could then lead to practice application in Washington State.

## **Practice**

**Implications.** Despite the research limitations to the study, cases indicated similar community college experiences. Community colleges offered access to a low cost and local education but did not provide awareness and easy navigation of existing resources. This implies that community colleges are providing services, which are not readily accessible to students unfamiliar to post-secondary education (e.g., students of color). Future secondary mathematics teachers of color are able to begin their post-secondary education in a community college but once on campus feel lost when trying to find support.

Professors and staff played a vital role in providing informal academic and advising support to students but students of color still experienced racial micro-aggressions. This implies that community colleges are not providing a welcoming atmosphere to future secondary mathematics teachers of color. Community colleges are not offering sufficient cultural sensitivity or relevancy training to professors and staff members who in turn are not providing a safe environment in their classrooms, through campus organizations, and on campus.

Secondary mathematics teaching career promotion was non-existent in the local community and on the community college campus. This implies that community colleges are not adequately serving their local community. Community colleges provided secondary mathematics teachers of color the courses necessary to begin their teacher preparation but without a clearly defined program and transfer pathways. Therefore, community colleges are not able to promote secondary mathematics teaching as a career for local students of color.

**Recommendations.** Recommendations for community colleges to address these implications would increase the role community colleges play in preparing more community-built secondary mathematics teachers of color. Specific recommendations to develop a stronger secondary mathematics teacher of color pipeline utilizing the Washington State community college system involve internal community college programming to change the campus climate and external community outreach and engagement to increase awareness of mathematics education. The recommendations are to:

*1) Increase resource awareness and navigation through formal mentoring programs.* It is recommended to formalize the already strong mentoring role of community college professors as faculty advisors to increase resource awareness and navigation. Professors have frequent contact with their students and already are informally advising secondary mathematics teachers

of color in community colleges. McArthur (2005) relates the importance of the student-faculty relationship to student persistence and development. However, faculty advisors often are not properly trained, which could cause more harm (McArthur, 2005). McArthur's (2005) study recommends assigning a student to a faculty advisor upon initial registration and providing specific advisement training for faculty members. As part of this training it is recommended to include information on student of color support organizations and instruct faculty advisors to encourage students of color to reach out to the organizations for additional support.

**2) *Strengthen culturally responsive and inclusive teaching and advising.*** It is recommended to improve cultural sensitivity and stop macro- and micro-aggressions campus-wide through faculty/staff training. Community colleges serve a diverse population yet some faculty and staff members were found to be culturally insensitive and were practicing non-culturally relevant mathematics teaching. Faculty members are not prepared to handle the increasingly diverse community college student population (Murray, 2002). Professional development training for faculty helps to raise faculty awareness and increase faculty ability to respect the diverse student population (Costner, 2003). Various training models for community colleges exist to increase cultural (Costner, 2003). It is recommended that community colleges identify appropriate training model(s) for their institution that includes cultural sensitivity and culturally relevant mathematics teaching.

One training option is to utilize support services already on many community college campuses. Community college campuses often provide support services for students of color (e.g., TRiO, Center for Academic Support and Achievement (CASA)). In addition to these national programs, campus-specific organizations such as Tacoma Community College's Center for Multi-Ethnic and Cultural Affairs (MECA) and Highline College's Multicultural Affairs

serve diverse student populations through missions such as TCC's CASA/MECA program's to "increase awareness of the diversity issues and educational opportunities" (CASA/MECA, n.d.).

While the focus of these organizations is direct student support, it is recommended that current advocacy services be expanded to include faculty and staff cultural awareness training.

Sacramento City College's Cultural Awareness Center (CAC) is an example of such programming. CAC sponsors diversity workshops to promote advocacy, inquiry, and inclusion (Cultural Awareness Center, n.d.).

**3) Prepare and promote a secondary mathematics teaching pathway.** It is recommended to expand existing community college teacher education programs to include secondary teacher preparation within all Washington State community colleges and universities. Participants were challenged by lack of a clearly defined program and transfer pathway, increasing their time and money spent earning their degree. Participants found they needed to repeat upper level mathematics courses after transferring to university. Tacoma Community College has an AAS degree focused on Secondary Education Mathematics (Mathematics, Secondary Education, n.d.). It is recommended that other Washington State community colleges use this model to develop their defined pathway. Walker et al (2008) relay the necessity of transfer partnerships between community colleges and universities to increase the diversity of the teaching profession. The Illinois model has been shown to successfully increase the number of teachers of color.

**4) Develop a future teacher group/club on community college campuses.** It is recommended to install the organization with the purpose of community outreach and on-campus teacher-career promotion, as well as member support. Participants were challenged when identifying teaching as a career because of a lack of community outreach and on-campus

promotion. It is recommended that Washington State community colleges cultivate a club similar to those at Miami Dade College, Rio Salado and/or Santa Ana College. The focus would be on community outreach as well as on-campus promotion of teaching as a profession.

Outreach would include developing partnerships with local elementary and secondary schools to increase teaching career exploration, exploring feasibility of “Math in the Community” programs (e.g., relevant mathematics courses for parents held off campus in community venues). Burbank & Diaz (2012) discuss the importance of community colleges forging community partnerships between community partners and families to encourage youth to consider teaching as a career and increase teacher diversity.

Implementation of these internal community college programming and external community engagement and outreach recommendations would synthesize to develop a greater awareness within the local community of Washington State’s community colleges’ role in preparing, expanding and diversifying the secondary mathematics teacher pool.

### **Conclusion**

The purpose of this research was to explore the experiences of current Washington State secondary mathematics teachers of color when pursuing their teaching dream and the role their community college played in that professional preparation. Critical Race Theory provided the framework connecting race, racism and power for the study. The voices and stories of secondary mathematics teachers of color who included community college education in their teacher preparation pathway revealed systems of oppression and possible solutions through interest convergence.

Findings include areas in which community colleges prepared and assisted, and supported or challenged the participants. Community colleges prepared and assisted current secondary

mathematics teachers of color by providing access to an affordable and local education and developing confidence via mathematics and personal confidence growth. Community college-educated secondary mathematics teachers of color were supported through availability of the community college programs but were challenged through cumbersome navigation of these existing support systems. Despite the community colleges offering many support programs and resources, support awareness and navigation proved challenging. In addition, program and transfer pathway clarity proved cumbersome. Participants were supported through available and supportive professors but were challenged by deficiencies in cultural awareness training, which added to racial micro-aggressions and feelings of racial isolation. Oppression was noted through varied racialized experiences, specifically insufficient cultural awareness training for community college professors. Feelings of racial isolation from this oppression led to the need for counterspaces. In addition, community college-educated secondary mathematics teachers of color were challenged in career identification by their community college system due to inadequate local community outreach and on-campus community college secondary mathematics teacher preparation promotion.

The role community colleges could play in developing a community-built secondary mathematics teacher of color pool for Washington State includes internal community college programming and external community engagement. The implications of this study led to specific recommendations for the development of a stronger secondary mathematics teacher of color pipeline utilizing the Washington State community college system. Recommendations are to 1) formalize the already strong mentoring role of community college professors as faculty advisors to increase resource awareness and navigation, 2) improve cultural sensitivity campus-wide through faculty training, 3) prepare and promote a secondary mathematics teaching pathway

(beginning in community college) within all Washington State community colleges and universities, and 4) develop a future teacher group/club for community outreach and on-campus teacher-career promotion. The ultimate step will be to apply the resulting recommendations to support and counter identified oppressive structures for future community-built community college-educated secondary mathematics teachers of color.

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Appendix A

Table 1							
<i>Participant Survey Data</i>							
Name (pseudonym)	Gender	Age	Race/Ethnic Background (self- identified)	Education and Teaching Proximity	Educational Background	Certificate Year and Endorsemen t Area(s)	Teachin g Math in Middle or High School
Manuel	Male	38	Hispanic	HS: Oregon (within 1 mile of Oregon CC)	Associates: No degree – focus on AS in mathematic s and psychology	WA 2015 Middle Level Math	Middle School
				CC: Oregon– Utah – Oregon	Bachelors: English and Writing		
				UNIV: Oregon (within 80			

				miles of CC)			
				TCP: Oregon (online – within 25 miles of CC)	Graduate: MA Education separate from Bachelors		
				Teaching: Southern WA (within 65 miles of CC)			
Javier	Male	3 8	Hispanic	HS: Texas (within 10 miles of CC)	Associates: AA focus on Special Education	WA 2014 Special Education, Social Studies, Mathematic s, English, Reading	Middle School
				CC: Texas	Bachelors: Social Studies/Sec		
				UNIV: Texas (within 20	ondary Education		

				miles of CC)			
				TCP: Washington	Graduate: MA		
				Teaching: Washington	Education separate from Bachelors		
Mayleen	Female	30	Chinese/Caucasian	HS: Pennsylvania	Associates: AA	WA 2015 Mathematics Grades 5 - 12	High School
				CC: Washington	Bachelors: BS		
				UNIV: Washington (within 10 miles of CC)	Mathematics		
				TCP: Washington (within 300 miles of CC)	Graduate: MA Education separate from		

				Teaching: Washington (within 300 miles of CC)	Bachelors		
Pablo	Male	2 4	Latino/Mexi can- American	HS: Washington (within 50 miles of CC)	Associates: No degree – foci on general education and mathematic s	WA 2015 Mathematic s	High School
				CC: Washington	Bachelors: BA		
				UNIV: Washington (within 40 miles of CC)	Mathematic s with minor in Diversity		
				TCP: Washington (within 40	Graduate: MA Education		

				miles of CC)	continuous from		
				Teaching: Washington (within 20 miles of CC)	Bachelors		
Wade	Male	4 1	African American	HS: Georgia	Associates: AAS	WA 2011 Special Education, Mathematic s	High School
				CC: Washington	Bachelors: BA		
				UNIV: Washington (within 15 miles of CC)	Communica tion and Education		
				TCP: Washington (within 15 miles of CC)	Graduate: Masters in Teaching separate from		
				Teaching: Washington	Bachelors		

				(within 35 miles of CC)			
Yuna	Female		Japanese/German	HS: Washington (within 10 miles of CC)	Associates: No degree – Running Start in High School	WA 2005 Mathematics 4 – 12	Middle School
				CC: Washington	Bachelors: BA Pre-Law		
				UNIV: Washington (within 40 miles of CC)			
				TCP: Washington (within 5 miles of CC)	Graduate: Masters in Teaching separate from Bachelors		
				Teaching: Washington			

				(within 1 miles of CC)			
<p><i>Notes.</i> HS = high school. CC = community college. UNIV = university (Bachelors). TCP = Teacher Certification Program post Bachelors. Teaching = location of current teaching position. AA = Associates of Arts degree. AS = Associates of Science degree. AAS = Associates in Arts and Sciences degree.</p>							

## Appendix B

### Survey

#### **Email Introduction**

Thank you for your time and interest in participating in this research study. The purpose of this study is to understand the roles community colleges have played in preparing current Washington State secondary mathematics teachers of color. This study will explore four to six individual case studies of secondary mathematics teachers of color who have earned community college credits prior to their teaching certificate. Themes developed through your voice and stories will be evaluated through the lens of Critical Race Theory to develop potential solutions to systems of oppression you and the other cases express and build upon indicated strengths of community college systems you and the other cases identify.

The purpose of this survey is to determine your willingness to participate, demographic background variables, community college experience, and the number of years teaching mathematics in a middle and/or high school. Based upon this data, a combination of community college-educated middle and high school teachers of mathematics will be selected from different schools to participate in two individual interviews and one focus group discussion over the next two to three months. Interview questions will be emailed to each participant prior to meeting. Written responses are not being collected, but I would like you to have the opportunity to consider each question before we talk. Participants will have the opportunity to review the draft paper and article and their own transcribed interview and focus group notes, if desired. The expected time commitment is 30 - 60 minutes per interview and 60 - 90 minutes for the focus group discussion. I anticipate having the draft paper and article ready for review before June 2016.

Thank you for considering this opportunity as we aim to increase the number of secondary mathematics teachers of color through a community college pipeline.

**Online Survey Questions (e.g., Catalyst or SurveyMonkey)**

- 1) Are you willing to participate in this research study?
- 2) Name:
- 3) Race/Ethnic background:
- 4) Gender:
- 5) Age:
- 6) Language(s):
- 7) Years as a secondary mathematics teacher:
- 8) School where you currently teach:
- 9) Classes you currently teach:
- 10) Degrees you earned and year earned (Bachelors, Masters, Doctorate):
- 11) Certification and year awarded:
- 12) Endorsement(s):

**Education History Prior to Earning Teaching Certificate**

- 13) From what high school did you graduate (name, city, state)?
- 14) Which community college(s) did you attend prior to earning your teaching certificate?  
(institution name, city, state)
- 15) When did you attend community college prior to earning your teaching certificate? Dates enrolled:

- 16) What course(s) (general or mathematics) did you complete at the community college prior to earning your teaching certificate?
- 17) What degree/certificate did you earn at the community college prior to earning your teaching certificate?
- 18) When and where did you complete your undergraduate degree (Institution, city, state)
- 19) What was your undergraduate major and minor?
- 20) Where did you complete your teacher preparation? (institution name, city, state)

Professional Development **After Earning** Teaching Certificate

- 21) When did you begin teaching?
- 22) What course(s) did you take in a community college after earning your teaching certificate?

## Appendix C

### Initial Interview

#### **Opening Remarks**

Thank you again for your time and interest in completing the survey and participating in this research study. The purpose of this study is to understand the roles community colleges have played in preparing current Washington State secondary mathematics teachers of color. This study will explore four to six individual case studies of secondary mathematics teachers of color who have earned community college credits prior to their teaching certificate. Themes developed through your voice and stories will be evaluated through the lens of Critical Race Theory to develop potential solutions to systems of oppression you and the other cases express and build upon indicated strengths of community college systems you and the other cases identify.

Prior to the interview, let's discuss the Informed Consent. This document explains the project, your time commitment, and your rights as a volunteer. (Go over form). What questions do you have? Are you willing to proceed with the study and sign the Informed Consent form? You may remove yourself from this study at any time, if you desire.

Thank you for agreeing to share your story. The purpose of this Initial Interview is to learn about your journey to becoming a teacher; specifically, the role community college played and your transfer process to earning your degree and certificate. Let's start the interview.

- 1) What made you want to become a math teacher?
- 2) How did you become a math teacher? What was your path to becoming a math teacher?
- 3) As a mathematics teacher of color, were there any critical moments/experiences along your professional pathway that supported or challenged your professional preparation?
- 4) Tell me more about the role community college made in your decision-making process.

Now, I would like to learn about what your community college experience.

- 5) What was the main factor motivating you to take community college courses as part of your path to becoming a math teacher?
- 6) Describe your experience at the community college in preparing to become a secondary math teacher. [Probe for experiences in math and math education courses]
- 7) If you were to do it over again, would you attend community college to pursue your professional career as a secondary math teacher? Why or why not?

Now I would like to ask you about your experiences in transferring.

- 8) Please talk about your experience of leaving the community college and continuing your education and preparation to becoming a secondary mathematics teacher.

I have some final general questions about entering the mathematics-teaching field.

- 9) If you were to give advice to someone of color interested in pursuing a career as a mathematics teacher what would you advise?
- 10) What advice would you give policymakers and teacher educators to diversify the teaching workforce in STEM education, specifically mathematics teacher workforce?

- 11) Given your experience as a successful secondary mathematics teacher of color and the need to increase diversity within the teacher workforce, when the majority of secondary mathematics teachers are white, what would you recommend to increase the number of secondary mathematics teachers of color?

### **Wrap Up**

I appreciate you sharing your story. I will have these notes transcribed before our next interview, which will delve in deeper to your community college experience. I also will be asking for your recommendations to increase the number of secondary mathematics teachers of color. I will send the list of questions before the interview so you may review them. If you any questions, please do not hesitate to contact me. Thank you.

## Appendix D

### Follow-up Interview

#### **Opening Remarks**

I appreciate you sharing your story during the Initial Interview. Do you have any questions about the Initial Interview? Before we delve into your community college experiences, let's review the Informed Consent form. This is the same form you previously signed. (Go over form). What questions do you have? Are you willing to proceed with the study and sign the Informed Consent form? You may remove yourself from this study at any time, if you desire.

Thank you for agreeing to continue to share your story. The purpose of this Follow-up Interview is to explore your community college experience more deeply and gain your perspective on increasing the number of secondary mathematics teachers of color. Let's begin.

- 1) How did your community college experience impact your professional teaching preparation?
- 2) Describe the primary supports you embraced by taking community college courses.
- 3) Describe the primary challenges you faced at the community college.
- 4) Thinking of these specific challenges, how did you respond and what motivated you to continue or discontinue in the community college?
- 5) Would you recommend others take community college courses to become secondary math teachers? Why or why not?
- 6) Given your experience as a successful secondary mathematics teacher of color and the need to increase diversity within the teacher workforce, when the majority of secondary

mathematics teachers are white, what would you recommend to increase the number of secondary mathematics teachers of color?

- 7) What would you advise the role of community college be to support this recommendation?
- 8) What advise would you give to community college educators/administration to strengthen the community college role and diversify the secondary mathematics teacher workforce?

### **Wrap Up**

Thank you for sharing your story and your recommendations. I will have these notes transcribed before our next meeting, the Focus Group discussion. All participants will gather for the Focus Group discussion. These same 8 questions will be explored as you share your individual ideas and interact with each other. Do you have any questions about the next step?

## Appendix E

## Focus Group Discussion

**Opening Remarks**

I appreciate each of you sharing your stories during the interviews. Before we again delve into your community college experiences, let's review the Informed Consent form. This is the same form you previously signed. (Go over form). What questions do you have? Are you willing to proceed with the study and sign the Informed Consent form? You may remove yourself from this study at any time, if you desire.

Thank you for agreeing to continue to share your story with this Focus Group. The purpose of this Focus Group discussion is to share your community college experiences with each other, build upon each other's ideas to develop recommendations to increase the number of secondary mathematics teachers of color. Let's begin.

- 1) How did your community college experience impact your professional teaching preparation?
- 2) Describe the primary supports you embraced by taking community college courses.
- 3) Describe the primary challenges you faced at the community college.
- 4) Thinking of these specific challenges, how did you respond and what motivated you to continue or discontinue in the community college?
- 5) Would you recommend others take community college courses to become secondary math teachers? Why or why not?

- 6) Given your experience as a successful secondary mathematics teacher of color and the need to increase diversity within the teacher workforce, when the majority of secondary mathematics teachers are white, what would you recommend to increase the number of secondary mathematics teachers of color?
- 7) What would you advise the role of community college be to support this recommendation?
- 8) What advise would you give to community college educators/administration to strengthen the community college role and diversify the secondary mathematics teacher workforce?

### **Wrap Up**

Thank you for sharing your stories and recommendations. I will have these notes transcribed. Then I will begin my analysis. When I have a draft report written, I will contact you for review, if you wish. Do you have any questions? Thank you again for your time and effort.

## Appendix F

Table 2 Coding Manual

<b>Code &gt;Subcode</b>	<b>Definition</b>	<b>Category</b>
Career Identification	Looking for a career. Supports and/or challenges associated with considering teaching as a career.	Career Exploration
Career Identification >Community	Supports and/or challenges associated with looking a teaching as a career with respect to teaching community definition/development. Identified with the teaching community and wanted to be a part of it.	Career Exploration
Career Identification >Environment	Supports and/or challenges associate with looking at teaching as a career with respect to the teaching environment (e.g., autonomy, “summers off”, always learning, blame from society/legislature)	Career Exploration
Career Identification >Security	Supports and/or challenges associated with looking at teaching as a career with respect to job security	Career Exploration

	(e.g., jobs available, consistent pay)	
Community College Status	Public/personal perception of community college status – good or bad.	Teaching Career Promotion
Culture Match	Match (direct or mismatch) between students and teacher/students and students (racial or other – e.g. interests, upbringing, SES)	Racialized Experience
Culture Match >Code Switch	Needing to code switch in order to “match” cultures	Racialized Experience
Institutional Oppression	Focus on the institution (e.g., college, university, state, nation) specifically – more specific than the structure of the institution.	(See sub-codes)
Institution Oppression >Class Location	Multiple campuses. No one base campus. Classes held on multiple campuses.	Accessibility
Institutional Oppression >Course Challenge	Academic level of institution (community college, university, graduate) compared to other institutions (easier or harder).	Accessibility
Institutional Oppression	Instructor/administrator/society perception of students of color –	Racialized Experience

>Perception	general – not related to math identity or ability.	
Institutional Oppression >Math Department	Oppression directly related to how the math department operates	Accessibility
Institutional Oppression >No Certification	Institution does not offer certification for teaching – a pathway and course plan may exist but even when completed, students do not earn a teaching certificate. The institution’s inability to certify teachers – just provide courses.	Pathway Clarity
Institutional Oppression >Instructor Support	Professor/teacher does not support students of color or students in general. Related to institutional mission and how the specific institution operates. Ideas for how a professor/teacher could support if interested.	Accessibility
Institutional Oppression >Promotion	Lack of marketing of an academic or support program on campus (e.g., math, work study, financial aid) or within the community. (Not teacher	Support Awareness and Navigation

	preparation promotion)	
Institutional Oppression >Residency	US or state residency hindering education pathway. Recent immigration, came to US as child without documentation, moving from state to state.	Residency/Citizenship
Institutional Oppression >Salary	Because of low salary, teacher/professor were not able to provide educational support to students. Reality that teacher/professor is sacrificing financially to teach. Students are not interested in pursuing reaching because of salary.	Teaching Career Promotion
Math Identity	Internal perception of how math is related to self.	Confidence Development
Math Identity >Ability	Perception of how well can do math.	Confidence Development
Math Identity >Application	Perception of how math is applicable to own life.	Confidence Development
Math Identity >Enjoyment	Perception of how “fun” math is.	Confidence Development
Math Identity	Insecurity around how math relates to	Confidence

>Insecurity	self and desire to try to succeed in math.	Development
Math Identity >Role Model	Ability of participant to understand students and be a role model for math. Participant had a role model who helped (or hurt) math identity.	Confidence Development
Math Identity >Work Hard	Perseverance and effort necessary to succeed in math.	Confidence Development
Racialized Experience	Experiences specific to race ranging from subconscious feeling of being different based upon race to micro-aggressions to overt discrimination based upon race.	Racialized Experience
Self Perception	Internal feeling of ability to succeed (in general, not related to math).	(See sub-codes)
Self Perception >Confidence	Took the initiative to embrace challenge and try.	Confidence Development
Self Perception >Financial Insecurity	Low socio-economic status led to desire to overcome financial insecurity.	Teaching Career Promotion
Self Perception >Financial Security	Desire to gain financial security (not based on deficit perception).	Teaching Career Promotion
Self Perception	Personal identity is being developed	Confidence

>Identity Development	through experience.	Development
Self Perception >Make a Difference	Desire to make a positive change in community, society, teaching profession, others, etc.	Teaching Career Promotion
Self Perception >Racial Identity	Personal development of self with respect to culture and race; growing from individual to a member of racial/cultural group.	Racialized Experience
Structural Oppression	General structural gateways to individual or group (not specific to an institution but a concept or process).	Racialized Experience
Structural Oppression >Isolation	Micro-aggressions leading to feeling of not being included.	Racialized Experience
Structural Oppression >Application Process	Application process hindered ability to accurately demonstrate skills (e.g., community college, university, job).	Accessibility
Structural Oppression >Class Scheduling	Class registration process, lack of organized cohort scheduling, etc. hindering ability to take necessary classes and be in classes with students with similar goals.	Pathway Clarity

Structural Oppression >Economy Collapse	Impact to job/schooling/career pathway directly related to recession.	Teaching Career Promotion
Structural Oppression >Entrance Test	Entrance exam for community college/work hindered ability to accurately demonstrate skills (more specific than just application process).	Accessibility
Structural Oppression >Instructor Availability	Instructor unavailable because of work load, large classes (outside control of instructor).	Accessibility
Structural Oppression >Instructor Preparation	Teacher/professor preparation lacking with respect to how to teach students of diverse backgrounds and content area.	(See sub-codes)
Structural Oppression >Instructor Preparation >Math	Teacher/professor preparation with respect to how to teach content area (math).	Confidence Development
Structural Oppression >Instructor Preparation >Racialization	Teacher/professor preparation with respect to how to teach students of diverse backgrounds.	Cultural Awareness
Structural Oppression >Insufficient Credits	Did not earn enough credits to obtain Associates degree.	Pathway Clarity

Structural Oppression >Lack Role Model	Role models not available because of hiring practices and lack of diverse hiring pool.	Racialized Experience
Structural Oppression >Large Community	Large community hindered ability to reach full potential.	Accessibility
Structural Oppression >Math Teacher Preparation Promotion	Teacher profession and teacher preparation not being promoted (purposely or inadvertently).	Teaching Career Promotion
Structural Oppression >Pathway Clarity	Academic pathways (e.g., specific courses to take) not created for program or if created were not found useful.	Pathway Clarity
Structural Oppression >Program Changes	Program changes out of participant's control (e.g., legislation).	Support Awareness and Navigation
Structural Oppression >Program Existence	Secondary mathematics teacher preparation program non-existent.	Pathway Clarity
Structural Oppression >Time	Amount of time to complete program hindered ability to move forward as desired	Pathway Clarity
Structural Oppression >Tuition	Tuition hindered ability to follow desired timeline or pathway.	Accessibility
Support	External support provided to	(See sub-codes)

	increase/decrease success (noted in subcodes as positive and/or negative).	
Support >Cost	Support that enabled reduced costs or have costs covered entirely (positive).	Accessibility
Support >Course Challenge	Support by providing more or less challenging courses (positive or negative).	Accessibility
Support >Ease Registration	Support for registration, credit transfer, flexibility for schedules (positive or negative).	Accessibility
Support >Family	Family (or people considered family) provided support or challenge (positive or negative).	Teaching Career Promotion
Support >Instructor Support	Teacher/professor provided support to enable success in class and/or career (positive).	Accessibility
Support >Minority Scholarship	Because of minority status financial support was available (positive).	Counterspaces
Support >Other Adult	Adult within college or outside of college, volunteer or paid. Not	Accessibility

	instructor. Support enabled success. (positive).	
Support >Pathway Clarity	A clearly defined pathway in community college supported success in transferring to university (positive).	Pathway Clarity
Support >Program Existence	Secondary mathematics education program supported success (positive).	Pathway Clarity
Support >Proximity	Campus location and ease to get to campus (positive).	Accessibility
Support >Residency	Being a resident of US or state provided a benefit (positive).	Residency/Citizenship
Support >Role Model	Ability of participant to understand students. Indication that a person of color was a role model and key supporter to participant becoming a teacher (positive or negative).	Racialized Experience
Support >Small Class Size	Small class size provided a benefit and support (positive).	Accessibility
Support >Small Community	Feeling part of a smaller group, included, no longer isolated, “like family” (positive).	Counterspaces

Support >Study Skill	Tutoring, study skills, supports directly related to classroom success provided by (non-instructor) peers, support services, learning center (positive).	Counterspaces
Support >Clubs	Clubs, organizations (organized or impromptu) that provided support to enable success (positive).	Counterspaces
Support >Work Availability	Work available/provided on campus that enabled balance between home and school and financial support (positive).	Counterspaces
Support >Working Student	Balancing work and school (positive or negative).	Accessibility

## Appendix G

## Sample Coded Transcript

Maria: Here we go. Thank you for agreeing to continue to share your story. The purpose of the follow up interview is to explore your community college experience more deeply and gain your perspective on increasing the number of minority secondary mathematics teachers. Let's begin.

J: Okay.

Maria: How did your community college experience impact your professional teaching preparation?

J: How did it impact it? Let's see ... There was really no ...  
 {InstitutionalOppression>NoCertification}What I thought I was in a preparation program, but I really didn't get that much of the training.{/InstitutionalOppression>NoCertification}  
 {Support>ProgramExistance}Other than early childhood development and a few other basic classes.{/Support>ProgramExistance} {Support>SmallCommunity}What did help me though was that pretty much everybody that was with me wanted to be a teacher. {/Support>SmallCommunity}  
 {Support>SmallCommunity}We had that in common. We all wanted to be teachers. {/Support>SmallCommunity}  
 {Support>SmallCommunity}It was easy to get the information and all that because your peers knew it.{/Support>SmallCommunity}  
 That was the easy part.{Support>SmallCommunity} I didn't feel I was lost.{/Support>SmallCommunity}

Maria: Okay. That's important. Didn't feel as lost?

J: No, because we all pretty much {Support>SmallCommunity}we're going the same direction{/Support>SmallCommunity}.

Maria: Right. Okay. About how many people we're in your group?

J: {Support>SmallClassSize}Well in each class, because there's about maybe 25 to 30.{/Support>SmallClassSize} {Support>SmallCommunity} Even though there was no [cohort 00:01:34] you would still take the same classes. {/Support>SmallCommunity}

{Support>SmallCommunity}When I transferred to university almost the same people I went to classes with were there in the program.  
{/Support>SmallCommunity}

It was funny because that was not intended.

{StructuralOppression>ClassScheduling}We didn't ... You know how you have a cohort and you follow along, right?{/StructuralOppression>ClassScheduling}

Maria: Right.

J: That's not how it was, but {Support>SmallClassSize}I still felt I was part of cohort because we we're such a small, like small classes, and we all wanted the same thing, to be teachers.{/Support>SmallClassSize}

Maria: Okay good. Describe the primary support you embraced at the community college. Course work as well as extra curricular.

J: [inaudible 00:02:49] Support classes wise?

Maria: It can be classes, it can be anything basically. Anything that supported you at the community college that helped you become successful.

J: You know the number, because it was such a {Support>SmallClassSize} small number of students enrolled.{/Support>SmallClassSize} There was, again I think I mentioned this in the last interview. {CommunityCollegeStatus}It was like going to high school again, a bigger high school, for adults.{/CommunityCollegeStatus} The {Support>OtherAdult}councilors were available.{/Support>OtherAdult} {Support>SmallCommunity}Resources were available. {/Support>SmallCommunity}{Support>SmallCommunity} When you wanted to go talk to somebody about this class, that class, or my transition, they were available.{/Support>SmallCommunity} {StructuralOppression>LargeCommunity}Because when I try to do that in the university it's really difficult just to get an appointment.{/StructuralOppression>LargeCommunity} {StructuralOppression} Then of course you have to go through these loops, hoops and that.{/StructuralOppression} {Support>OtherAdult}But at community people were really willing to help. {/Support>OtherAdult}{Support>SmallCommunity}I guess because of the number was so much less. {/Support>SmallCommunity} {Support>InstructorSupport}The teachers are very supportive. {/Support>InstructorSupport}{Support>InstructorSupport}The teachers are very supportive.{/Support>InstructorSupport} {Support>InstructorSupport}They really connected with you, again because they didn't have the massive amount of students, they really connected with you.{/Support>InstructorSupport} Those two supports, {Support>InstructorSupport}the teachers{/Support>InstructorSupport} {Support>OtherAdult}plus the office and councilors. {/Support>OtherAdult}{Support>InstructorSupport} {Support>OtherAdult}Really helped me, guide me in the right direction.{/Support>OtherAdult}{/Support>InstructorSupport}

Maria: Okay great. Describe the primary challenges you faced at the community college.

J: Oh primary challenges, there were many. Within the community college, just any challenges?

Maria: Anything that either was because you were at community college or

because of the community college. Something the community college could-

Yes by the way.

J: My first one was my own personal bias. {CommunityCollegeStatus}My own personal not wanting to be there but not having another option.{/CommunityCollegeStatus}

Maria: Okay.

J: {CommunityCollegeStatus}Me really looking down on community college. I remember when I was in high school and people would say, "Oh community college." You would just go, "Oh, no. That's not for me." I ended up going. For me, in my own mind, I was already blocked there. Because I felt that it was just a nothing school. That was already a big challenge.{/CommunityCollegeStatus}

Another challenge in the community. Some classes were not ...

{InstitutionalOppression>ClassLocation}The campuses were all through the city and so some classes I had to take in a different campus and I had to drive from different location, to different location. {/InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation}One semester for example, I was in the west side and then on the south and the north. Not like when you go to university, everything's there.{/InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation} I had to change.

That made it difficult because you

{InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation}didn't have one base campus.{/InstitutionalOppression>ClassLocation}{/InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation}The next semester you could be at a different one.{/InstitutionalOppression>ClassLocation}

{InstitutionalOppression>ClassLocation}

{StructuralOppression>LargeCommunity}You have to meet new people, meet new teachers, or new staff, all that.{/StructuralOppression>LargeCommunity}

{StructuralOppression>LargeCommunity} That's one of the

challenges. {Support>Proximity}It didn't last long, because then towards my second year all the classes were on the main campus.{/Support>Proximity} But {InstitutionalOppression>ClassLocation}my first year I did that back and fourth.{/InstitutionalOppression>ClassLocation}



Appendix I  
Category Descriptions

<b>Category</b>	<b>Description</b>
Accessibility	Accessibility developed into a broad category involving positive and negative sub-codes in the areas of Institutional Oppression, Structural Oppression, and Support. Cases positively viewed the community college in the Support areas of Cost, Instructor Support, Other Adult support, Proximity, and Small Class Size. The academic rigor level of community college courses was viewed as both positive and negative by cases.
Support Awareness and Navigation	Although supports were available on the community college campus, accessibility to these support systems was hindered by lack of awareness of the programs as well as undeveloped skills to navigate the community college system. The codes Institutional Oppression>Promotion and Structural Oppression>Program Changes constitute this category.
Pathway Clarity	Insufficient clarity in navigating the Class Scheduling, earning Insufficient Credits, understanding the secondary mathematics education Program Existence and transfer pathways increased Time and decreased efficiency of the community college experience.
Career Exploration	Career Exploration emerged as a category as a compilation of the Career Identification code and its sub-codes. Similar to Pathway Clarity category, Career Exploration is specific to community

	college experiences related to exploring secondary mathematics teaching as a career.
Teaching Career Promotion	There was minimal promotion of the teaching career by the community colleges, despite the many perceived benefits of entering the teaching profession. Codes comprising this category are Community College Status, Institutional Oppression>Salary, Self Perception>Financial Insecurity, Self Perception>Financial Security, Self Perception>Make a Difference, Structural Oppression>Economy Collapse, Structural Oppression>Math Teacher Preparation Promotion, and Support>Family. Teacher Career Promotion involves relaying the message to the community that local students are needed and wanted for the secondary mathematics teaching profession.
Confidence Development	The internal perceptions of Math Identity and Self Perception codes of Confidence, Identity Development, were combined with the external Structural Oppression>Instructor Preparation>Math code to construct a complete concept of perception to identity development and growth for participants and community.
Residency/Citizenship	The category of state residency and US citizenship developed from Institutional Oppression and Support codes. Availability of financial aid and cost of tuition are based upon residency and citizenship.
Cultural Awareness	Training around cultural awareness was singled out as leading to

	<p>micro-aggressions on community college campuses but also as a deficiency in teacher preparation programs for secondary mathematics teachers of color learning to relate to students of color. The code Structural Oppression&gt;Instructor Preparation&gt;Racialization became its own category.</p>
Racialized Experience	<p>This category incorporates the codes of Racialized Experience, Self Perception&gt;Racial Identity, Structural Oppression, Structural Oppression&gt;Isolation, Structural Oppression&gt;Lack Role Model, and Support&gt;Role Model.</p>
Counterspaces	<p>Tied to Accessibility and derived from implications of Racialized Experience is the Counterspaces' category. Accessibility to clubs, faculty and staff enabled individual cases to develop their own counterspace. The Support codes included in the Counterspaces category are Small Community, Study Skills, Clubs, Work Availability, and Minority Scholarship.</p>