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Iannarelli, Carmen M. *Racialized Experiences and Academic Success of Minority Students in Postsecondary Career and Technical Education*

Abstract

This mixed method study examined the education success and experiences of racial and ethnic minorities (REM) at one technical college within the Wisconsin Technical College System. Through the use of quantitative archival institutional data, student success was analyzed over a five-year period. Statistical significance difference was found between race/ethnicity and educational success. Further analysis was conducted and specifically analyzed for their effect on career cluster of study, the disaggregate of REM students into a singular racial or ethnic category, and socioeconomic status on REM students' success. Focus groups were used to collect qualitative data on REM student experiences. Thematic analysis was conducted to analyze this data, which revealed five key themes: offensive course content, assumption of being foreign, racial invalidation, attribution/misattribution of ability, and racial expert. Implications of this study's findings are discussed along with recommendations for further study and improving the performance of REM students.

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When I embarked on this part of my educational journey, I thought of it as a profoundly personal endeavor. But as I reflect back on this journey, it was far from a personal endeavor, and it was made possible by the love, support, and guidance of several people.

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Chapter I: Introduction

The United States and the state of Wisconsin have seen significant increases in minority and immigrant populations in the last decade (United States Census Bureau, 2010). Additionally, minority children and youth make up the fastest-growing group in American schools. Latino, Asian, Caribbean, and African Blacks are the largest immigrant groups pursuing education in the United States (Fix & Passel, 2003; Rong & Preissle, 1998). According to the National Center for Educational Statistics, by 2021, there will be a significant rise of minority enrollment in postsecondary education. These trends provide foresight into potential demographic changes that educational systems will continue to experience as these children progress into adulthood and seek postsecondary education (Iannarelli, 2015). Simultaneously, awareness of institutional, subconscious, color-blind, and overt racial and ethnic injustices also have increased and can be seen in social commentary throughout various media channels.

These changes, coupled with the unyielding erosion of the middle class, increases stratification of rich and poor and cause significant workforce changes with a misalignment of workers' skills to the workforce needs (Fuller, Burrowes, Raman, Restuccia, & Young, 2014). The cumulative effect of these phenomena has been the entrenchment of racial attitudes, a growing awareness of the discrepancies in racial/ethnic educational attainment, and the accompanying workforce skills gap. This ostensibly elevates the importance of understanding racial and ethnic variation in enrollment and performance in postsecondary career and technical education (CTE).

Historically, a criticism of CTE research has been the absence of racial and ethnic minorities (REMs) from research and discussion (Rojewski & Xing, 2013). This lack of engagement is notable considering the demographic changes in the United States and the relative

ubiquity of research featuring REMs in other education and social science sub-disciplines. The limited research conducted to date has shown the influential nature of demographic variables such as race and ethnicity in CTE participation and career selection (Fletcher & Zirkle, 2009; Lewis & Cheng, 2006; Wald, 2004).

Over 40 years ago, Sheppard (1975) presented research at the American Vocational Association's annual convention about the absence of REM-focused research in CTE. Sheppard posited that REMs have many commonalities including deprivation, discrimination, and disparity of opportunities, yet also have important dissimilarities, which are necessary to examine. Greer and Collard (1999) acknowledged the notable absence of research focused on the two largest REM groups—Blacks/African-Americans and Hispanics in CTE. Maldonado and Farmer's (2006) targeted research found that few Latino students enroll in and graduate from postsecondary CTE programs. Hirschy, Bremer, and Castellano (2011) also yielded similar findings on success concluding that White/non-Hispanic students are more likely than REM students to complete CTE programs. Although the need for research has been acknowledged, decades later, little has changed.

Rojewski and Xing's (2013) longitudinal analysis of the treatment of race and ethnicity in CTE research indicated that only about one quarter of articles they reviewed during a seven-year period describe the race and/or ethnicity of research participants. When race and ethnicity were reported, minorities were disproportionately represented in the data. Making any extrapolations about REM students in CTE would be an error considering these studies only accounted for 11.45% of all participants in the published research during the period of analysis. Further, Hirschy et al. (2011) noted that it is imperative to consider the intervening influence of poverty when analyzing REM student success.

The absence of research in REM student success at the postsecondary level is also notable considering the findings on REM students at the secondary level. When high school participation rates have been examined for the REM population, it has been found that African-American, American Indian/Alaska Native, and Hispanic students are more likely to take CTE classes and earn more credits in CTE related coursework than their White counterparts (Levesque, 2003). It also has been found that REM students actually benefit more from CTE education at the secondary level than White students (Aragon, Alfeld, & Hansen, 2013). Additionally, CTE enrollment has been correlated with higher graduation rates, lower dropout rates, and improved performance in non-CTE coursework for REM students (Friedenberg, 1999; Greer & Collard, 1999).

Statement of the Problem

The majority of studies about REM student success in CTE have occurred at the secondary level. At the postsecondary level, REM student success studies have focused on liberal arts colleges and universities. This dearth of information, specifically focusing on REM student performance in CTE programs at the postsecondary level, is especially problematic as allocations of state aid in Wisconsin are increasingly being tied to performance measures. The passage of the 2013 Wisconsin Act 20 resulted in implementing a new formula for allocating a portion of general state aid based on state statute identified outcomes. Of the nine performance criteria, all are indirectly or directly linked to REM students (Wisconsin Technical College System [WTCS], 2015b).

Current research, which may include CTE students and programs, is usually aggregated with community college research. This masks potential differences in CTE versus non-CTE student performance. Throughout the United States, many states employ different models for

two-year postsecondary institutions. In the state of Wisconsin, technical colleges are separated from other two-year colleges, although there are five technical colleges within the Wisconsin Technical College System (WTCS) that offer an associate degree in Liberal Arts. A consequence to this lack of consistency is that little is known about REM student success in postsecondary CTE programs.

Purpose of the Study

The United States population continues to increase in diversity making the understanding of racial and ethnic variations in educational representation more essential than ever. From 1976 to 2011, postsecondary school enrollment saw notable increases for Hispanics (4% to 14%), Asian/Pacific Islander (2% to 6%), Black (10% to 15%), and American Indian/Alaska Native (0.7 % to 0.9%) students while during the same period, White student enrollment fell from 84% to 61% (Snyder & Dillow, 2013). This increase in racial and ethnic diversity in postsecondary enrollment hints at potential demographic changes at postsecondary career and technical education institutions. These trends heighten the importance of understanding differences in racial and ethnic enrollment and performance in postsecondary CTE. To date, there has been a deficiency in research that measures REM's performance in CTE, although studying racial and ethnic performance and attainment gaps at the postsecondary level has existed for decades. Further, existing research on secondary performance of REM's should not be used to extrapolate postsecondary performance in CTE since both systems and student population are dissimilar.

The objective of this study was to examine performance differences between REMs and non-REM students at one technical college within the WTCS. It also examined the relationship between race/ethnicity and educational success in CTE programs. For the purpose of this study,

educational success was defined as students who successfully complete a postsecondary career and technical education program within 200% of the standard program schedule timeframe.

REM groups were examined as an aggregated category and disaggregated into individual racial and ethnic categories (i.e., Hispanic, Asian, American Indian or Alaskan Native, Black, Native Hawaiian, or Other Pacific Islander). Additionally, this study controlled for the possible confounding variable of socioeconomic status. The study will help to inform technical colleges within the WTCS of performance differences between REM and non-REM students and make recommendations for mitigation of differences.

Research Questions/Objectives

The primary focus of this investigation was to examine the influence of race/ethnicity on the success of students at a post-secondary CTE institution and to investigate the experiences and obstacles that REM students face. The following research questions guided this study:

1. Are there disparities in educational success between REM and non-REM CTE students?
 - a. If disparities exist, is there a relationship between these differences and career clusters?
 - b. Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories?
 - c. Does socioeconomic status affect educational success for REM and non-REM CTE students differently?
 - I. If so, what are those differences?
2. What are the experiences and obstacles of REM students?

Significance of the Study

Some researchers have discussed the problematic nature of REM-focused research problems, which include: specific focus of research, perceived affect, the need for research, funding sources, and colorblind racism (Carnevale & Strohl, 2013; Esters & Bowen, 2003; Greer & Collard, 1999; Rojewski & Xing, 2013; Sheppard, 1975). Regardless of these challenges, ignoring discrepancies in educational performance of REM students is no longer a viable option. CTE cannot afford to be inattentive of the role of REMs in CTE research. If CTE continues to take a hands-off approach, it will miss potential students as the population of the United States continues to grow in diversity. The results could manifest in shortages in the American workforce at a time when the American economy already faces a misalignment of worker skills and workforce needs. This misalignment will further widen and hinder America's global competitiveness unless more racial and ethnic minorities pursue in-demand technical careers and postsecondary CTE. Additionally, omitting REM students from the research may, ostensibly, exacerbate gaps in educational equity, poverty, and deteriorating race relations.

Assumptions of the Study

Research studying REM students in postsecondary CTE is lacking. CTE students are frequently aggregated with community college students, which masks extensive differences in educational experiences between the groups. With this in mind, the following assumptions were made:

- Postsecondary CTE students differ from community college and secondary students and should be studied as a specific group.
- Postsecondary CTE students will answer questions honestly and in a manner, that accurately reflects their opinions and experiences.

- REM students accurately represent the perceptions/values of the identity they represent.
- REM students have unique barriers and experiences that influence educational success.
- Findings from this study may be generalized to other technical colleges and students.

Limitations of the Study

As with any study, there are shortcomings and limitations to research. Primary among these are questions of the accuracy of the archival data and the temporal range of the sample. Since the investigation is based on archival data from the institution, it is dependent on the accuracy of that source material. Further, this study used two different student samples. First, the quantitative data sample incorporated five cohorts of students starting two-year CTE programs from one technical college. Second, the qualitative sample incorporated current students enrolled in CTE programs from the same technical college. Further, based on the focus group recruitment emails, volunteers were aware that the groups would be discussing issues surrounding their REM status and experiences at the institutions. Therefore, individuals that volunteered to participate in the focus groups were likely those most comfortable discussing these issues and or individuals with notability positive or negative experiences. Moreover, it was unknown if REM students in these samples and at this technical college are widely representative of REM students in other postsecondary career and technical education systems. Findings from this study will provide a portrait of these particular cohorts of students versus insight into previous or future cohorts.

Definition of Terms

To provide uniformity and congruity with terminology in this study, the definitions to follow are provided.

American Indian or Alaskan Native. An American Indian or Alaska Native is “a person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment” (WTCS, 2015a, p. 84).

Asian. An Asian is “a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam” (WTCS, 2015a, p. 85).

Black. A Black person is “a person having origins in any of the Black racial groups of Africa. This definition includes: Native-born Black Americans, Africans, Haitians, residents of non-Spanish speaking Caribbean Islands of African descent” (WTCS, 2015a, p. 85).

Career cluster. A career cluster is a “broad occupational grouping that serves as an organizing tool categorizing common knowledge and skill sets for secondary and post-secondary education through 16 broad groups of occupations and 79 pathways (sub-groups)” (Wisconsin Department of Public Instruction, n.d.).

Economically disadvantaged. An economically disadvantaged student is an individual or member of a family who receives need-based financial assistance or whose income is at or below the poverty level as defined by the U.S. Department of Health and Human Services (n.d.).

Educational success. Educational success is successful graduation or completion of a postsecondary career and technical educational program at the college within 200% of the standard program schedule timeframe.

Hispanic. A Hispanic person is “a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race” (WTCS, 2015a, p. 84).

Multiracial. A multiracial person is a person who selects multiple racial or ethnic identities on admission paperwork (U.S. Department of Health and Human Services, n.d.).

Native Hawaiian or Other Pacific Islander. A Native Hawaiian or Other Pacific Islander is “a person having origins in any of the original peoples of the Hawaiian Islands or the Pacific Islands” (WTCS, 2015a, p. 86).

Non-REM student. A non-REM student is an individual who self identifies as White (non-Hispanic) on institutional paperwork.

REM student. An REM student is an individual who self identifies as Hispanic, Asian, American Indian, Alaskan Native, Black, Native Hawaiian, or Other Pacific Islander on institutional paperwork.

White. A White person is “a person having origins in any of the original peoples of Europe, North Africa, or the Middle East” (WTCS, 2015a, p. 86).

Chapter II: Literature Review

A review of literature examined current research on educational attainment of minority groups including: 1) minority educational achievement, 2) minority student experiences in career and technical education in secondary and postsecondary levels, 3) origins for educational performance differences, and 4) unique barriers for REM students.

Minority Educational Achievement

The existence and persistence of racial educational achievement gaps are widely considered as one of the most pressing problems confronting American education. Studies on racial attainment gaps among minority populations at the postsecondary level have documented significant gaps among the Latino and Black populations (Berkner, He, & Cataldi, 2002; Chellman, Anderson, & Crook, 2010; Cook & Cordova, 2007). Education achievements of Asian populations have shown varied success, depending on if aggregated data or disaggregated data is used in the study. When the aggregated racial category of Asian is used in analysis, educational success is clearly documented with Asian Americans out-performing all other racial groups. When the category is disaggregated into ethnic categories, however, critical educational achievement and attainment differences are revealed (Escueta & O'Brien, 1991; Iannarelli, 2015; Kao & Thompson, 2003, Miller, 1995).

Secondary education. REM achievement gaps in secondary education have decreased significantly in the past 50 years. Irrespective of these improvements, gaps continue to exist and improvements have plateaued for most REM groups in recent decades (Heckman & LaFontaine, 2010; Lorah & Ndum, 2013; Miller, 1995). Depending on the study that is reviewed, the United States high school graduation rate ranged from 66.6% to 86% in 2010. Regardless of these differences in estimates, the persistence of racial/ethnicity disparities remains constant and

suggest that Black, American Indian, and Hispanics students have 25% to 35% lower high school graduation rates than their White and Asian peers (Greene & Winters, 2002; Joo, & Kim, 2016; Kaufman, Alt, & Chapman, 2001; Swanson, 2003; Warren, 2005).

When Asians are disaggregated into ethnic categories, clear discrepancies have been consistently exposed. The discrepancies in academic success have been especially noteworthy for Southeast Asian refugees, particularly the Hmong and Loa (Lee, 2007). Miller's (1995) analysis of high school graduation rates showed differences due to Japanese, Chinese, and Asian Indians having much higher graduation rates than Laotians, Hmong, and Vietnamese. These findings have been consistent with earlier findings in which only 22% of the Hmong population and 43% of the Cambodian population completed high school compared with more than 80% of Asian Indian, Japanese, Indonesian, and Pakistani populations (Escueta & O'Brien, 1991). Recent research illustrates similar findings and a halting of improvements for Southeast Asian groups since the 1980s, with only 35% of Cambodian foreign-born adults (aged 25 or over) and 22.3% of foreign-born Hmong having a high school diploma (Kao & Thompson, 2003).

Postsecondary education. Secondary education disparities are antecedents of low postsecondary enrollment and have no small measure of salience for the trajectory of postsecondary achievement amongst these groups. Racial/ethnic achievement gaps at the postsecondary level have been documented for decades that Blacks and Hispanic populations have lower educational achievement compared to their White and Asian counterparts (Culpepper & Davenport, 2009; Lorah & Ndum, 2013; Miller, 1995; Young, 1994). This achievement gap persists even in studies that control for differential prediction, college readiness measures, socioeconomic status, and gender (Bailey & Dynarski, 2011; Carpenter, Ramirez, & Severn,

2006; Fletcher & Tienda, 2010; Lorah & Ndum 2013; Radunzel & Noble, 2013; Robinson & Lubienski, 2011; Sanchez, 2013).

Increasing minority enrollments in postsecondary education has not alleviated racial and ethnic inequality issues. Achievement gaps existing between White and minority student enrollment have grown over time (Engle & Lynch, 2009). Minority students are much less likely than White students to successfully complete college (Goldrick-Rab, 2010; Yeado, 2013). When numbers are aggregated nationwide, about six in ten White students earn bachelor's degrees within six years compared with only about four in ten minority students (Knapp, Kelly-Reid, & Ginder, 2010).

In Ryan and Bauman's (2016) report for the United States Census Bureau, education attainment was analyzed based on data from a current population survey. This report showed significant disparities in racial/ethnicity educational attainment at all levels of education. Reported graduation rates at the associate's degree or higher, were 46.9% of non-Hispanic Whites, 60.4% of Asians, 32.4% of Blacks, and 22.7% of Hispanics; at the bachelor's degree or higher, 36.2% of non-Hispanic Whites, 53.9% of Asians, 22.5% of Blacks, and 15.5% Hispanics; and in advanced degree category 13.5% of non-Hispanic Whites, 21.4% of Asians, 8.2% Black and 4.7% Hispanics. Consistent with research on secondary educational attainment, non-Hispanic Whites and Asians are more likely to achieve higher levels of education compared to their Black and Hispanic peers at each educational achievement measure. Although, this report illustrated considerable success for Asians, other research, which disaggregates into ethnic sub-categories, illuminates a very different trend specific for Southeast Asian populations.

Kao and Thompson's (2003) study reported substantial differences in postsecondary educational attainment data for Asians when the racial category was disaggregated into ethnic

subgroups. They found that in 1980, “26% of Japanese, 37% of Chinese, and 52% of Asian Indians had completed four or more years of college, whereas only 6% of Laotians, 3% of Hmong, 13% of Vietnamese, 10% of Native Hawaiians, 11% of Melanesians, and 7% of Samoans did the same” (p. 42). Escueta and O’Brien’s (1991) research found similar education achievement gaps, with only 8% of Hmong and Cambodian populations attending four or more years of college compared to the more than half of Asian Indian and Pakistani adults who did so.

More recent research has indicated limited changes since the 1980s, as only 5% of Cambodian foreign-born adults (aged 25 or over) have a 4-year college degree and only 4.6% of foreign-born Hmong adults have a 4-year college degree in 2008” (Kao & Thompson, 2003, p. 421). In Woo’s (2007) examination of the postsecondary educational attainment of South-East Asian Americans—specifically Cambodians, Laotians, Vietnamese, and second-wave Hmong Americans—clear achievement deficiencies in these groups vis-à-vis White students were revealed. The author specifically studied second-generation South East Asian students for comparison, thus controlling for immigrant-specific exogenous variables. Woo concluded that there is wide variance in educational gaps, even within the South East Asian grouping.

Vietnamese immigrants outpace their Cambodian, Laotian, and Hmong counterparts. While the 2010 Census illustrated some improvements in educational attainment for specific Asian subgroups, such as Hmong Americans, attainment gaps persist within the aggregated Asian racial category (Xiong, 2012). These gaps are notable considering the fact the racial category of Asian enrollment trends increase in higher education with nearly commensurate increases in degree completion rates at the bachelor’s and master’s levels (Kao & Thompson, 2003).

Minority Student Experiences in Career and Technical Education

There has been a dearth of ancillary research focusing on REMs student experiences in CTE at both the secondary and postsecondary level. Existing research at the secondary level tends to focus on REM participation trends in CTE or how CTE participation influences overall academic success (Levesque & Hudson, 2003a; Levesque & Hudson, 2003b; Levesque, Laird, Hensley, Choy, Cataldi, & Hudson, 2008; Silverberg, Warner, Fong, & Goodwin, 2004). Several differences were found when high school participation rates were examined by the National Center for Education Statistics between 1982 and 1998 for the REM population. African-American, American Indian/Alaska Native, and Hispanic students are more likely to take CTE classes and earn more credits in CTE related coursework than their White counterparts (Levesque, 2003). This finding is particularly notable since during this time period, overall CTE enrollment at the secondary level was declining (Levesque, Lauen, Teitelbaum, Alt, & Librera, 2000). Additional research by Silverberg, et al. (2004) confirmed earlier findings, showing higher participation rates for all REM population except Asians. In the limited research conducted, race and ethnicity are shown to be strong influencers of enrollment in CTE programming and career selection (Fletcher, 2012; Lewis & Cheng, 2006; Rojewski & Xing, 2013).

Aragon et al. (2013) showed that REM students at the secondary level actually benefit more from CTE education than White students. REM students that participate in CTE report statistically significant higher levels of academic motivation and education aspirations compared to their White peers. These findings support earlier studies that revealed correlation in CTE enrollment with higher high school graduation rates, lower dropout rates, and improved

performance in non-CTE coursework for REM students (Friedenberg, 1999; Greer & Collard, 1999).

Participation in secondary CTE is an important catalyst in the transition of students to postsecondary education (Dare, 2006). Although CTE research at the secondary level has demonstrated robust enrollment numbers and positive influences for REM students, this does not always manifest into postsecondary CTE enrollment or success. In Maldonado and Farmer's (2006) research that targeted Latino students in CTE, they found limited success for Latino students with few enrolling in and graduating from postsecondary CTE programs. Of the graduating students, the vast majority do not complete programs identified as high-skill, high-wage. Hirschy et al. (2011) yielded similar findings on REM success, concluding that White/non-Hispanic students are more likely than REM students to complete CTE programs.

The findings of these earlier studies are consistent with those of a 2015 report from the Georgetown University Center on Education and the Workforce. Researchers found low concentrations of Hispanic workers in some of the economy's fastest growing occupational sectors. These sectors have been comprised of occupations requiring postsecondary degrees, many of which included programs commonly offered at CTE institutions (Carnevale, Porter & Landi-Santos, 2015).

Similar results were found when degree concentrations for African-Americans were examined. Like their Hispanic REM counterparts, African-Americans have been highly concentrated in low-paying, limited growth career fields and underrepresented in educational majors associated with the fastest-growing, highest-paying occupations (Carnevale, Fasules, Porter, & Landi-Santos, 2016). There is a lifetime of economic and personal consequences associated with career selection and non-completed postsecondary education.

When analyzing REM student success, it is imperative to consider the intervening influence of poverty. REM students disproportionately live in poverty, thus creating the consequences of not completing programs and selecting low paying or low growth careers. For decades, the connection between socioeconomic status and student success has been documented (Hirschy et al., 2011).

Origins for Educational Performance Differences

Researchers have elucidated several origins for educational performance differences, including the role socioeconomic status, gender, historical and sociological rationale. Each of these origins will be discussed in detail.

Socioeconomic status. The locus of explanation for these gaps in educational attainment has tended to focus on socioeconomic status. Racial and ethnic minority groups consistently experience higher rates of poverty. American Indian, Alaska Native, Hispanic, and Black students face higher rates of poverty than compared to their White peers. According to the United States Census Bureau's 2014 report on poverty, 10.1% of non-Hispanic Whites live in poverty, while 29.1% of American Indian or Alaska Native, 26.2% of Blacks, 12% of Asians, and 23.6% of Hispanic people live in poverty (DeNavas-Walt & Proctor, 2015). Since many REM groups experience significantly higher rates of living in poverty, this can result in an increased emphasis of entering the workforce after completing secondary education (Roderick, Nagaoka, & Coca, 2009).

For decades, it has been consistently shown that socioeconomic status is a strong predictor of postsecondary completion (Carnevale, & Strohl, 2013; Engles, & Lynch, 2009; Lorah, & Ndum, 2013; Roderick et al., 2009). Therefore, higher rates of poverty continue to influence the trajectory of REM students even after entering into postsecondary education. REM

students are more likely to exit postsecondary education to enter the workforce before completing a degree out of financial need than their White counterparts (DeNavas-Walt & Proctor, 2015; Roderick et al, 2009). Further, student loan debt during the first year of postsecondary education is associated with lower probability of degree completion for low-income and some REM populations (Kim, 2007). These performance gaps have increased in recent decades. Since 1975, the gap between low-income and high-income successful undergraduate completion has doubled (Engles & Lynch).

In the wake of the Great Recession of 2007, it is worth acknowledging that all REM groups have experienced significant losses in wealth and increases of living in poverty. Even Asian Americans, who had made substantial progress, had already surpassed Whites in median incomes, and were close to closing the racial wealth divide, experienced a catastrophic reduction in wealth of over 50% (Rockey Moore & Guzman, 2014). Further, in the aftermath of the recession, more than half a million more Asian Americans are now living in poverty.

Latino Americans and Asian Americans are the two REM groups that have experienced the greatest increases in poverty, with Latino Americans experiencing a 42% increase in poverty and Asian Americans a 38% increase compared to the general population, which has only experienced a 27% increase (Ishimatsu, 2013). The effects of the Great Recession will continue to linger and influence access to education for many REM groups, since parental wealth has been consistently shown to be a strong predictor of access and success in postsecondary education (Asante-Muhammed, Collins, Hoxie, & Nieves, 2016).

Gender. Historically, researchers have cited America's patriarchal norms and patrilineal culture as factors that influence a higher percentage of males than females attending postsecondary education. This rationale has been challenged in the last 25 years as females'

postsecondary degree attainment has increased more rapidly than males at all levels of postsecondary education. According to The National Center of Educational Statistics, in 2015, 50% of females completed an associate's degree or higher compared to 41% of males. Although these gains are notable across racially aggregated gender categories, a different story is revealed when groups are disaggregated by race and gender.

A significant body of research documents how African-American women are outpacing African-American men in postsecondary education in both enrollment and completion rates (Musu-Gillett, Robinson, McFaland, Kewal Ramani, Zhang, & Wilkinson-Flicker, 2016). Research frequently posits that African-American women are progressing quite well in education. However, if African-American women are compared to the total population of postsecondary students, a different conclusion is yielded. In actuality, African-American women are critically underrepresented within postsecondary education and are substantially less likely to graduate than their White peers (Henry, Butler, & West, 2011; Hirscham & Lee, 2005; McDaniel, DiPrete, Buchmann, & Shwed, 2009).

There is little research addressing gender difference among Hispanic Americans. In the existing research, there are some similarities to African-Americans, which include the marked improvement in education attainment noted for both Hispanic American men and women. Even with these improvements, the White and Hispanic gap in postsecondary attainment has widened in the last 20 years. Further, a clear gap gender is present with Hispanic females being more likely to enroll and complete postsecondary education than their male counterparts (Musu-Gillett et al., 2016).

Asian Americans' educational success at all levels of education is well documented. In contrast to their REM peers, Asian women are not significantly ahead of their male counterparts

in educational attainment (Ryan & Bauman, 2016). Disaggregation into ethnic groups demonstrates notable differences in this racial category. For example, Indian and Taiwanese women have some of the highest levels of educational attainment for any racial/gender combination, whereas Cambodian and Hmong woman are in lowest levels of attainment (Joo & Kim, 2016). Culture is frequently the focus of explanations for Asian exceptionalism in education and gender differences, whereas immigration or generational status is commonly used to explain differences within Asian subgroups.

Despite significant improvements in female participation in postsecondary education, women continue to be underrepresented in nontraditional CTE programs and the highest-paying CTE careers (National Coalition for Women and Girls in Education, 2008). According to the National Women's Law Center (2005), women make up 98% of cosmetology, 87% of childcare students, 86% in health-related programs; but only 4% of heating, air conditioning and refrigeration students, 5% of welding students, 6% of electrician, plumbers, and pipefitting students, and 9% of automotive students. Women's career segregation into lower paying career fields, frequently referred to "pink collar" jobs, is another challenge, which also affects the REM population.

These concentrations and segregations at the postsecondary level should not be surprising if secondary CTE participation serves as a pipeline to postsecondary education (Dare, 2006). Eardley and Manvell (2006) examined under-representation of females in non-traditional and traditional secondary CTE courses. Their findings from a 12-state investigation of enrollment data revealed significant levels of sex segregation in both traditional and non-traditional occupations for female students. "High levels of sex segregation were found in CTE course enrollment, with female students making up on average 15% of students in nontraditional

courses and 87% in traditionally female fields” (p. 396). Moreover, the authors noted extensive qualitative evidence of sex discrimination in CTE, which contributes to low enrollment in nontraditional courses.

The social and economic implications of career selection last a lifetime and significantly influence the persistence of the gender wage gap. Economically speaking, the majority of CTE programs that are traditionally female dominated pay substantially less than male dominated fields. Further, many traditionally female occupations provide more part-time employment opportunities than full-time, consequentially reducing benefit eligibility, reducing career advancement options, and/or requiring working multiple part-time jobs to obtain full time hours (Eardley & Manvell, 2006; Toglia, 2013). Socially, gender differences in career selection results in the underdevelopment of human capital and can exacerbate misalignments in the labor market (Daines, Hartenstein, & Birch, 2000). Even with women’s increased participation in postsecondary education and the workforce, many continue to face additional and unique barriers for success, including stereotyping, job-placement difficulties, and institutionalized challenges.

Historical and sociological context. It is imperative to consider the historical context of racial and ethnic performance differences in postsecondary education. Some researchers attribute racial differences in postsecondary education performance to historical institutional discrimination dating back to slavery and Jim Crow (Bertocchi & Dimico, 2012). It has been asserted that colonial slavery still affects current income inequality and becomes racialized in socioeconomic disparities throughout all levels of educational performance (Bertocchi & Dimico, 2014). However, this historical explanation largely addresses African-Americans, since other minority groups were not subjected to slavery and these specific institutional discrimination injustices.

Explanations for Hispanic underperformance in education is historically rooted in accumulated disadvantage with children frequently entering formalized schooling ill equipped to succeed. This disadvantage commonly stems from parents' immigrant and socioeconomic status and lack of family knowledge about navigating the education system (Roderick et al., 2009; Schneider, Martinez, & Owens, 2006). Social science researchers have focused on the role of the self-fulfilling prophecy as negatively impeding Hispanic student success, especially at the secondary and postsecondary levels.

Turcios-Cotto and Milan (2013) reported that Latino youth are less likely than African-American and White youth to picture themselves attending college. Additionally, the value orientation toward education is strongly rooted in early socialization (Morgan, 1996). Latino youth are more likely to hold social goals of starting a family and working to support a family above attending postsecondary education, which may hamper educational achievement (Roderick et al., 2009; Turcios-Cotto & Millan, 2013).

Historically, people with undocumented immigration statuses have had barriers when accessing higher education. Institutions for financing an increasingly expensive and unwieldy postsecondary education system remain closed to most undocumented immigrants. This has proven to be a significant barrier to many Hispanic students whose residency disproportionately trends toward undocumented status. Both Department of Education grants and public/private lenders require valid social security numbers and an increasing amount of background materials to receive financial support (Schneider et al., 2006). Furthermore, these authors noted that familial, housing, food-security, and general instability are endemic to communities with uncertain immigration statuses. These factors have been demonstrated to have a negative covariance with educational attainment. It is also intuitive that individuals whose educational

history is riddled with instability and other barriers (i.e., language, cultural, and discriminatory) have a lower degree of educational attainment vis-à-vis that of their peers.

Other historical explanations have emphasized the affect of minorities disproportionately attending low performing high schools and living in communities that lack academic opportunities, which can manifest into lower postsecondary attendance and educational achievement (Maguire, Starobin, Laanan, & Friedel, 2012; Roderick et al., 2009). Additionally, lower teacher aspirations and expectations for minority students have been well documented, and this lack of support and encouragement can significantly influence students' academic trajectories (Noguera, 2003; Noguera, 2004; Stanton-Salazar, 2001). Further, Beasley (2012) asserted that the impact of stereotype threat, "the anxiety caused by the expectation of being judged based on a negative group stereotype" (p. 427) has been shown to more negatively affect REM students compare to white students at the postsecondary level.

One challenge to many of these explanations is the success of some minority groups, particularly Asian Americans. Research has clearly documented the educational success of Asians as an aggregated ethnic category (Iannarelli, 2015). When this category is disaggregated, a different picture is portrayed, showing critical educational achievement and attainment differences are revealed (Escueta & O'Brien, 1991; Kao & Thompson, 2003; Miller, 1995). The discrepancies in academic success have been especially noteworthy for new Asian immigrant groups and Southeast Asian refugees, particularly the Cambodian, Hmong, and Loa (Lee, 2007).

There has been limited research disaggregating ethnic groups from border racial categories. However, in the existing research, explanations for Cambodian, Hmong, and Loa students' significantly lower academic success are similar to that of racial and ethnic minority groups. These Asians performance differences are explained by sociocultural factors including:

higher rates of poverty, parents' immigrant status, the social importance of starting a family early, and lack of family knowledge in navigating education systems (Escueta & O'Brien, 1991; Iannarelli, 2015; Lee, 2007).

Unique Barriers for REM Students

Unlike their non-REM peers, REM students face a number of unique barriers specifically associated with being minorities that may exacerbate performance differences. These unique barriers include a lack of access to role models, lack of REM educators, and victimization by microaggressions.

Lack of role models. REM students tend to have less access to same-race role models. The benefits of same-race models have been well documented (Ainsworth, 2010; Bonilla-Silva, 2009). Social learning theory posits that people learn through watching others (Bandura, 1977, 1986). These same race relationships may be particularly beneficial “because young people perceive that same-race adults are more like themselves. It also could be because adults may be more comfortable interacting directly with same-race children” (Ainsworth, 2010, p. 403-404). Regardless, positive role models have been shown to directly affect academic performance reducing stereotype threat (Marx & Roman, 2002).

Role models often facilitate career and educational decisions. They illustrate that career attainment is possible, and they serve as a critical person in providing information and guidance about career fields and access to postsecondary education (Karunanayake & Nauta, 2004; Sciarra & Ambrosino, 2011). Role models for REMs are especially critical because of historical discrimination and segregated career options, which can result in lower educational and career aspiration due to internalized oppression (Hackett & Byars, 1996). Since historically education

attainment has been lower for most minority groups, the access to same race occupational role models can be limited as well (Snyder & Dillow, 2013).

The lack of REM role models in CTE has mirrored a long history of similar phenomena associated with technical trades that form the basis for many CTE programs. The history of the labor movement, from the industrial revolution through the Jim Crow Era and beyond, has been rife with the systematic exclusion and segregation of REM workers, particularly in senior positions (Cable & Mix, 2003; Hill, 1996). These efforts have not been entirely employer driven, as historically, many labor unions themselves have served as sorters, erecting barriers to both minority hiring and promotion within certain occupations.

In one such example, an examination of the United Steelworkers union of Birmingham, Alabama found that the union colluded with employers to exclude Black workers from advancement and instituted a seniority system that perpetuated white supremacy in the workplace. Predictably, the de facto apartheid system had deleterious effects on Black labor participation in particular sectors (Hill, 1996). This sort of occupational segregation proliferated during the industrial revolution in the wake of the Civil War, and its affect was felt outside the labor market. Indeed, Cable and Mix (2003) argued that racial discrimination in the labor market is insidious, spreading to other social institutions, including education.

Racism manifested itself in the early educational system with the passage of the 1917 Smith Hughes Act, a policy that expanded vocational education aimed at increasing the skills of the American workforce in order to compete in the global economy. This vocational track was separate from academic education because it prepared future workers for various low-skilled industrial and agricultural occupations (Cable & Mix, 2003; Werum, 1999). Not surprisingly, leaders of these institutions (often professionals and business owners) have promulgated policies

that sort minorities into low-skill, low-pay agricultural and domestic worker industries.

Vocational education has been utilized as a tool by some to perpetuate racial inequalities in labor markets since its inception (Cable & Mix, 2003).

The debate over the role of vocational education in training Black workers has extended well beyond the intent of the original policy makers. Indeed, Black intellectuals, W.E.B. DuBois and Booker T. Washington, clashed over the utility of vocational education in advancing the interests of the black community. According to Frantz (1997), for his part, W.E.B. DuBois, the founder of the NAACP, was the product of a privileged background and elite educational training that included Harvard University and prestigious fellowships at universities in Atlanta and Berlin. Given this background, DuBois remained deeply skeptical of the promise of vocational education, which he likened to “hitching [the black community’s] wagons to a mule” rather than the “star” of elite collegiate institutions (p. 89). Not surprisingly, Washington, educated in vocational institutions, and founder of the famous Tuskegee Institute—a practical and vocationally minded institution in its own right—argued that the best opportunities for Blacks lie in learning trades and agricultural skills. While they disagreed over the best method by which Blacks could advantage themselves in the United States, Washington and DuBois sought to ameliorate the blight of discrimination in educational opportunities.

Today, codified discrimination in educational policy is an artifact of America’s deeply divided and discriminatory past. The continued lack of representation of REM students in CTE makes the legacy of *de jure* occupational segregation and the vocational education, which enabled it, as salient today as it was a century ago. While laws no longer prohibit minority participation in various occupations or academic programs, deeply imbedded social constructs

may continue to guide minority students away from particular occupations or educational options.

In a study by Bigler, Averhart, Liben, and Dannemiller (2003), both White and Black children were able to identify predominately White and Black occupations, according the former more prestige, while associating the latter with lower pay and skills. This internalization of the lack of representation of Blacks in high-wage fields often steers Black children away from these occupations. For many REM youth, the prospect of entering high-wage technological fields remains illusory. Further, REM students are also less likely to have same-race experiences with educators who can also serve as role models.

Lack of REM educators. The positive affect of REM educators of the same race as REM students has been well documented for decades. REM students “need teachers who look like them, who share similar cultural experiences, and who can be role models to demonstrate the efficacy of education and achievement” (Eubanks & Weaver, 1999, p. 452). Teachers serve as critical agents of socialization and powerful illustration of how transformative education can be, especially in low-income communities of color (Hawley, 1989; Sanders & Rose-Adams, 2014). Ostensibly, teachers can serve as gatekeepers and brokers who can either extend or constrain access to educational opportunities (Noguera, 2003; Noguera, 2004; Stanton-Salazar; 2001). Moreover, Blanchard and Muller (2015) reported that secondary teachers have a significant role in guiding students into postsecondary education, and their perception of the student’s ability and potential influences a student’s probability of transitioning to college. Teacher’s perceptions have been particularly decisive for immigrant and non-native English speakers, which are overwhelming REM.

Across all levels of education, there is a shortage of REM teachers. The overwhelming majority of secondary teachers are White females with all REM populations being dangerously underrepresented in American schools (Shure, 2001). Beginning in the 1980s, a myriad of reports began to document and acknowledge limited presence of REM educators (Carnegie Forum on Education and the Economy, 1986; Education Commission on the States, 1990; Joint Center for Political Studies, 1989; King, 1993). Simultaneously, research began to divulge the benefits of these congruent student-teacher interactions. These REM teachers were found to have the ability to relate to REM students and parents in unique ways and teach with a culturally relevant pedagogy (Foster, 1989; Ladson-Billings, 1992; Ladson-Billings & Henry 1990). Further, the aforementioned research also began to acknowledge that educational institutions are reflections of society and how these congruent race interactions assist REM students in being more prepared to be active participants in society. It has also been suggested by some researchers that REM teachers are very effective and responsive with REM students (Eubanks & Weaver; Delpit, 1995; Hale-Benson, 1986).

Teachers' stereotypical expectations of REM students have been subject to ample investigation in educational research. Teachers implicit or explicit racial stereotyping has been found to influence their judgments about REM students' social competence, academic ability, and even the need for special education programming (McCombs & Gay, 1988; Neal, McCray, Webb-Johnson, & Bridgest, 2003; Parks & Kennedy, 2007). Pigott and Cowen (2000) asserted that REM students are judged as having more maladjustment in school and lower education attainment, which manifest in lower expectations of future attainment by teachers. The aforementioned research also found that African-American teachers rate all children, regardless

of race, as more competent, less problematic, and hold positive future educational expectations for all students.

S. Lee (2001, 2005, 2007) and Thao's (1999) studies specifically targeted new immigrant REM groups. The studies indicated that non-REM teachers might single out REM students and treat them as if they are foreigners or apply deviant labels to these groups. Similarly, Glock and Krolack-Schwedt (2014) argued that evidence exists that shows students of immigrant backgrounds are disproportionately tracked into lower academic school tracks. Teachers are the main decision makers in determining student tracking, again illustrating the impact of teacher bias. Since secondary CTE frequently serves as pipeline to postsecondary CTE, the racial composition of secondary educators is particularly important from a role model perspective.

According to the National Center of Education Statistics (2011), 84.9% of public school secondary CTE educators are White, 8.8% Black, 3.9% Hispanic, and 2.5% other (non-White). This is considerably less racially diverse than the student population, which is 49.8% White, 15.5% Black, 25.6% Hispanic, and 9.1% other (Bersudskaya & Forrest Cataldi, 2011). This trend of low minority teacher representation continues into postsecondary CTE, again limiting same race experiences for REM students. As the awareness of this systematic issue has increased, numerous programs across the country have arisen to support and recruit minority teachers. However, few have been targeted at increasing minority teachers in CTE (Shure, 2001; Sim, 2010). Considering all of this research together, the importance of REM role models and teachers cannot be understated.

Microaggressions. Although racial institutional discrimination has legally dissipated throughout education, the presence of prejudiced behaviors has not (Foster, 2005; Nadal, Wong, Griffin, Davidoff, & Sriken, 2014; Sue, Bucceri, Lin, Nadal, & Torino, 2007). Today, REM

students are frequently victimized by racial microaggressions. Racial microaggressions are “subtle statements and behaviors that unconsciously communicate denigrating messages to people of color” (Nadal, 2011, p. 470). Sue et al. (2007) identified three different forms of microaggressions including microassaults, microinsults, and microinvalidations. Microassaults are most closely aligned with overt racial discrimination and racism, for example, stating that college students of Middle Eastern descent in aviation programs are all training to be suicide pilots for ISIS. Microinsults are communications that are insensitive or demeaning to a person’s racial identity or background. Sometimes these statements may even come across as a complement, such as Jewish people are shrewd at business. They can also include White educators failing to acknowledge REM students. Microinvalidations are exchanges that “exclude, negate, or nullify the psychological thoughts, feelings, or experiential reality of a person of color” (Sue et al., 2007, p. 274), and when African-Americans are praised for speaking proper English or White students tell REM students they do not care if people are Black, White, or purple, we are all just humans.

Research has linked microaggressions with increased self-doubt, feelings of social isolation, diminished self-esteem, and invalidates learning environments for REM students (Pak, Maramba, & Hernandez, 2014; Solórzano, Ceja, & Yosso, 2000; Sue, 2010). Further, Minikel-Lacocque (2013) noted that Latino students attending a predominately White college consistently are victimized by all three forms of microaggressions. These experiences with overt and covert microaggressions include experiences inside and outside of the classroom and result in feeling frustrated and disempowerment throughout their education.

Focus groups research by Sue, Lin, Torino, Capodilupo, and Rivera (2009), found microaggressions frequently occur when difficult dialogues about race occurred in classrooms.

Ill-prepared instructors, increasing the impact aggressions, further exacerbated these microaggressions. These REM students reported feeling alienated, silenced from future discussions, and hostility in learning environments.

To date, there is not published research specifically focused on microaggressions in postsecondary CTE. The majority of research on microaggressions focuses on 4-year postsecondary institutions and k-12. In recent research by Suarez-Orozco, Casanova, Martin, Katsiaficas, Cuellar, Smith, and Dias (2015), these authors specifically focused on community colleges. The study was conducted through structured observations conducted at three community colleges to assess the presents of microaggressions in diverse classrooms. The researchers found that microaggressions are present in almost 30% of classrooms observed. The microaggressions most commonly are comments that undermined the intelligences and competence of REM students including microassaults, microinsults, and microinvalidaitons. Further, the presence of microaggressions is most common on campuses with a higher concentration of REM students and is usually actions of instructors versus students.

The emphasis of most microaggression research in postsecondary education focuses on racial microaggressions. Recently, microaggression research has applied other socially disadvantaged groups including, women, people with disability, religious minorities, lesbian, gay, bisexual, transgender, queer, questioning, and asexual individuals (Nadal, 2011; Nadal, et al., 2014). Therefore, some REM students face double or triple jeopardy in facing microaggressions, as they are part of multiple disadvantaged groups. This is frequently the case of female REM students, especially when entering in non-traditional occupations.

Ong, Wright, Espinosa, and Ofield (2011) synthesized 40 years of research on postsecondary educational experiences of REM women in science, technology, engineering, and

mathematics (STEM) fields to gain insight factors that influence retention and educational success. Of the myriad of factors that influence retention and success, learning how to mitigate and address microaggressions has been found to influence educational success. Further, the study determined that female REM students face microaggressions from faculty and peers almost daily, which negatively influences their education experiences. Moreover, female REM students' perception of the educational institution climate influences retention and success. Issues of isolations, invisibility, and feeling of tokenism are common consequences of all three forms of microassaults, microinsults, and microinvalidations, and adverse effects of retention and success for female REM students.

Summary

There is a prodigious amount of information pertaining to REMs in education making the clear absence of research at the postsecondary CTE level even more notable. While researchers have identified a litany of factors that influence educational attainment and success, it is unknown if these factors influence REM students in postsecondary CTE the same way. Considering the dearth of existing research, the results of the research in this study attempted to add to that limited pool of research specifically focused on REM students in postsecondary CTE.

Chapter III: Method and Procedures

REM student success has significant ramifications, and the historical disengagement in CTE research focused on REM students cannot continue if educators and policy makers desire to increase academic, social and economic opportunities for this population. This investigation carried growing insinuation as racial and ethnic diversity continue to grow throughout the United States, the state of Wisconsin, and the WTCS. Further, differences in students' success between REM and non-REM students have social and economic consequences. On a social level, these gaps can affect race relations. Economically speaking, gaps can exacerbate the *skills gap* for various employment sectors throughout the nation.

The purpose of this study was to explore REM student success and experiences in postsecondary CTE. Specifically, the following research questions were used:

1. Are there disparities in educational success between REM and non-REM CTE students?
 - a. If disparities exist, is there a relationship between these differences and career clusters?
 - b. Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories?
 - c. Does socioeconomic status affect educational success for REM and non-REM CTE students differently?
 - I. If so, what are those differences?
2. What are the experiences and obstacles of REM students?

This section explains the methods chosen to determine if educational success gaps do indeed exist between REM and non-REM students and to better understand the experiences and obstacles that REM students face. It begins by examining the rationale for the selected

methodology and then provides a description of the subject selection and instruments used to study them. It is followed by data collection procedures and analysis and concludes by acknowledging the limitations of this approach.

Research Methodology

The proper selection of research methodology is paramount for the validity of any study. deVaus (2001) contended that appropriate methodology reduces the probabilities of drawing incorrect causal inferences from data. Research needs to be structured in a way that does not merely feed into being consistent with particular theory or explanation of phenomena, but allows openness to preferred explanations. It is with this mind that a mixed-method research approach was selected to address this multifaceted topic and address the research questions.

The institution used for study was a specific technical college located in Wisconsin. It was selected for the following reasons: (1) the Black-White educational achievement gap in Wisconsin is the worst in the nation, (2) Black youth remain far behind their peers in educational attainment and standardized test scoring, which, given the mandates of Act 20, provide a strong impetus for reform (WTCS, 2015b), (3) the institution has assiduously tracked minority achievement data, particularly making an effort to disaggregate ethnically heterogeneous populations which often are grouped under the same broad racial taxonomy, and (4) the institution has been very forthcoming in supplying its data for the purposes of this study.

This study used archival quantitative data to evaluate student education performance. The method for measuring education performance was program completion through secondary data analysis of REM and non-REM students enrolled at the selected technical college within the WTCS. Additionally, enrollment data provided descriptive information on each student's race/ethnicity, career cluster, gender, and if the student is identified as economically

disadvantaged. This descriptive information assisted in providing a clearer image of the students being served at this technical college.

This researcher utilized a number of statistical analyses through Statistical Program for Social Sciences (SPSS) version 21.00, Microsoft Excel, the chi-square test, Cramer's V, and a Lambda analysis. These analyses were used to determine if a significant relationship exists between REM and non-REM students' success in program completion and their career cluster, race/ethnicity, and socioeconomic status.

Based on the categorical nature of the variables, a chi-square analysis was conducted to determine if a statistically significant difference exists between REM and non-REM students in program completion rates (Hole, 2006). Since a significant relationship was found, Cramer's V was used to analyze the strength of the relationship (Fields, 2006). A Lambda analysis was used to examine the strength of the relationship.

This data analysis did not, however, provide some much-needed context for the numbers. For example, there may be a significant difference in program completion rates between REM and non-REM student, but the numbers alone did not provide insight as to why these discrepancies exist. To better understand the contextual antecedents that affect these numbers, focus groups were used to capture the specific barriers REM students face throughout this technical college.

Focus groups are a group interviewing technique. The development of this technique is attributed to sociologists who have been collecting data from group interviewing since the 1920s. Since the mid-1980s, there has been a notable surge in this type of data collection, particularly in the social sciences. It is also increasingly being used in education research (Kevern & Webb, 2001; Morgan, 1996; Wilson, 1997).

According to Kevern and Webb (2001), focus group methodology is particularly fitting for exploratory academic research. “In general, student focus groups were found to be a valuable adjunct to evaluation procedures by providing fresh perspectives on the students’ world previously uncharted” (p. 329). They also provide more authenticity in subjects’ voices and increase face validity (Wilson, 1997). They are particularly well suited for studying non-dominant subcultural groups and gaining insight into sensitive topics (Bers & Smith, 1988; Kevern & Webb). Moreover, focus groups have been used previously to study issues of inequality and issues encompassing race and ethnicity (Jarrett, 1993, 1994; Pinderhughes, 1993). Based on these aforementioned studies, this researcher believed that if REM students experience unique challenges such as experiences with microaggressions, they will be more likely to share these experiences in a group setting with other REM peers.

This researcher used thematic analysis to examine the data set from the focus groups. Thematic analysis identifies, analyzes, and reports patterns or themes within qualitative data. Its flexibility, theoretical freedom, and compatibility with both essentialist and constructionist paradigms are advantages to this approach and led this researcher to select this technique (Braun & Clark, 2006). Qualitative data gives context to the quantitative findings, and more fully, the exploring of the research questions by capturing the specific experiences and obstacles REM students’ face, which may result in performance differences between REMs and non-REM peers. Using different types and methods to collect data provided a more comprehensive approach to this topic and resulted in more fully capturing REM student performance in CTE than would be achieved through the use of a single method approach to this topic.

Although this mixed-method approach is a newer approach to research, it has become recognized as the third major research approach (Johnson, Onquegbuzie, & Turner, 2007;

Litchman, 2012). This approach was selected because mixed-methodology offers a number of advantages over a strictly quantitative or qualitative approach and has the ability to draw on the strengths of both research approaches. Some advantages to a mixed-methods approach includes triangulation, the validation of data through combining data sources and methods and expansion, and the widening of understanding and more holistic understanding of contextual factors that influence creativity the situation (Litchman, 2012; Tashakkori & Teddlle, 1998, Tashakkori & Teddlle, 2003).

This researcher received Institutional Review Board (IRB) approval from The University of Wisconsin-Stout as well as the technical college used in the study. It was determined by both IRBs that the study met ethical standards. All focus group participants were given informed consent forms (see Appendix B) and signed forms were collected before the beginning of the focus groups.

Subject Selection and Description

Quantitative. To measure education success of REM students compared to non-REM students, a secondary data analysis was conducted of those formerly enrolled at the selected technical college based on how they chose to self-identify as Hispanic, Asian, American Indian, Alaskan Native, Black, Native Hawaiian, Other Pacific Islander, Multiracial, or White on institutional enrollment forms. This researcher specifically focused on students who were enrolled in two-year associate degrees and technical diplomas.

Since the operational definition of educational success in this study is program completion within 200% of the standard program schedule timeframe, only students enrolled in these targeted degree programs, two-year associate degrees and technical diplomas, were included in the study, and only the data included from academic periods of Fall 2009 through

Fall 2013. With a population of 7,238 students, there were 6,599 non-REM students and 639 REM students. Any student with non-reporting data was removed from the sample. A stratified random sample was then taken to create comparable sample sizes since the two groups have disproportionate values. This provided an $n = 658$ of non-REM and an $n = 639$ REM students for this study.

Qualitative. The quantitative data set did not, however, provide some much-needed context for the numbers. For example, there could have been a significant difference in program completion rates for REM versus non-REM students, but the numbers might have failed to give insight into why these disparities occur. To fully understand the contextual antecedents that affect these numbers, focus groups were conducted to explore unique barriers that affect REM student success. The qualitative data for this study was drawn from focus groups. An email list was provided by the institution of REM program students enrolled Spring 2017 who had attended and were enrolled in the institution for at least one semester resulting in a population of 397. Additionally, this researcher attended a Diversity Student Organization club meeting to recruit participants.

This narrower sample was logistical in nature. Namely, because these students had current email addresses, access to the college's learning management system, thus could be recruited via email.

Instrumentation

The selected technical college provided archival data, which allowed for analysis and comparison of REM student program success to non-REM students. This data did not provide insight into barriers that may affect REM student success. Utilizing the email list provided by the institution, this researcher sent out a series of three recruitment emails to REM program

students between February 17, 2017 and February 27, 2017. The recruitment email asked students to complete an online questionnaire via Qualtrics to determine their interest and if they were current students of this researcher, which excluded them from the focus groups. Potential participants were asked to select all times they were available to attend focus groups.

Additionally, the survey asked for the participants to provide a method of communication for this researcher to finalize focus group participation. This researcher then followed up with an email or text message confirmation of focus group time and a reminder message the day before the focus group.

After an extensive review of literature, group interview questions were developed to address key research elements. This review of literature assisted in establishing content validity of focus groups interview questions. After initial development of focus group questions, this researcher consulted with the University of Wisconsin-Stout's Applied Research Center (ARC). Based on feedback from the ARC, modifications were made to the instrument. Internal reliability for focus groups was achieved through using interview protocol and identical questions in focus groups (see Appendix B). Focus groups were scheduled for 1 hour, and participants were questioned about their transition to postsecondary CTE, social supports, access to role models and or mentors, and their experiences within the postsecondary CTE institution. A total of three focus group sessions were conducted.

Data Collection Procedures

Quantitative data collection. Archival data was used in this study, which was obtained from pre-existing records that were made available to this researcher through the selected technical college's computerized record-keeping system. All non-REM (White) and REM student program completion data was used to analyze differences in educational success for the

academic periods Fall 2009 through Fall 2013. This data was also used to identify possible career cluster differences and influence of being economically disadvantaged.

Qualitative data collection. Qualitative data in this study was collected through focus groups. The sample of participants was drawn from REM students' enrolled at the selected technical college during Spring 2017. The reason for this narrower number, yielding an $n = 397$, was logistical. Since these students are currently enrolled, they could be recruited for the focus groups via email and through outreach to student clubs.

The technical college provided an email list of currently enrolled REM program students that had completed at least one semester of coursework. A series of three emails was sent out for recruiting participants to the focus groups. Interested students were asked to respond to an online questionnaire, which indicated their program of study, their availability to participate in a focus group, and a method for the research to follow up and confirm focus group participation. A *weeding* question was included on the questionnaire. It asked potential participants if this researcher was currently his or her instructor. Current students of this researcher were excluded for the focus groups.

Focus groups occurred over a two-week period and each group was scheduled for 1 hour. This researcher organized the focus groups based on availability of participants. To maximize group analyses, the ideal number of participants for focus groups ranges from 4 to 12 participants. It was with this in mind that this researcher created target numbers for focus groups (Kress & Shoffner, 2007; Seal, Bogart, & Ehrhardt, 1998; Sue et al., 2009).

Focus groups were conducted in an enclosed private room in the learning center on campus at a variety of times throughout the day. Conducting focus groups in an enclosed private room in the learning center was intended to help participants feel more at ease and not frame the

interaction as a teacher-student interaction. With the permission of participants, all focus group sessions were recorded and transcribed verbatim. This researcher preserved an accurate record of information and coded the information to maintain confidentiality of participants. Data was collected with the use of a short demographic questions intended at obtaining basic information about race, ethnicity, gender, program of study, semesters in attendance at the institution, and if the participants was economically disadvantaged. Data was securely stored on a password protected network storage device.

Data Analysis

Analyzing quantitative data. The researcher utilized a number of statistical analyses through SPSS 2100, Microsoft Excel (Microsoft, 2010), and a chi-square test. All of these were used to determine if a significant relationship exists between education success/program completion and REM status, economically disadvantaged, and career cluster. Based on the categorical nature of the variables, a chi-squared analysis was conducted to determine if a statistically significant difference exists between non-REM and REM students in program completion. When a chi-square analysis indicated a significant relationship, Cramer's V was used to evaluate the strength of the relationship (Fields, 2006), and a Lambda analysis was used to examine the strength of the relationship.

Analyzing qualitative data. To provide further context to the quantitative archival data and elucidate the qualitative research question, focus groups were conducted. Demographic information was collected about this sample including gender, race/ethnicity, program of study, semesters in attendance at the institution, and if the participant was economically disadvantaged. This information was used to create a profile of the REM students who participated in the focus groups. Questions were developed to address key research elements. The focus groups

participants were questioned about their transition to postsecondary CTE, social supports, access to role models and or mentors, and their experiences within the postsecondary CTE institution.

Thematic analysis was used to analyze the data.

Thematic analysis. This researcher applied Braun and Clarke's (2006), six phases model of thematic analysis. Phase 1 consisted of this researcher becoming familiar with the data, during which time transcription of interviews, reviewing data, and noting initial ideas took place. In phase 2, initial codes were generated. Coding was done in a systematic fashion across the entire data set. In phase 3, this researcher looked for themes, collated codes, and gathered data relevant to potential themes. During phase 4, themes were reviewed and a thematic map was constructed. In phase 5, ongoing analysis continued and themes were refined and named. Definitions for each theme were also established. The analysis concluded with the reporting of results and the selection of key examples.

Limitations

This study provided the opportunity to draw interesting conclusions about REM students in postsecondary CTE; however, there were limitations and shortcomings as with any study. Primary among these were questions of accuracy of the archival data, the temporal range of the samples, and the use of two different samples. Since the investigation was based on the archival data from the selected technical college, it was dependent on the accuracy of that source. Further, based on the relatively small sample of REM students compared to non-REM students, student success measures in this study required the aggregation of data over a five-year period, which masks any changes through this timeframe.

The sample for this study incorporated only students at one technical college during a specific five-year period for a quantitative analysis and a one semester time period for a

qualitative analysis. Based on the focus group recruitment emails, volunteers were aware that the groups would be discussing issues surrounding their REM status and experiences at the institutions. Therefore, individuals that volunteered to participate in focus groups were likely those most comfortable discussing these issues and/or individuals with notability positive or negative experiences. It was also unknown if REM students in either the quantitative or qualitative sample were widely representative of their peers at other postsecondary CTE institutions and if the findings will represent trends in REM students or just a snapshot of these particular cohorts.

Summary

A mixed-method approach was employed in this study to explore if possible educational success gaps exist between REM and non-REM students at technical colleges and to better understand the unique barriers that REM students face. Archival data was used in the quantitative analysis to evaluate potential education performance gaps between REM and non-REM students. Qualitative methods, through the use of focus groups, were conducted to provide context to quantitative findings.

Chapter IV: Presentation of the Findings

The purpose of this mixed method research study was to examine REM student success, experiences, and obstacles in the pursuit of postsecondary CTE. With reference to the literature reviewed and key research questions, this section details the quantitative and quantitative findings. It discusses the review questions, research methodology, demographics of samples, and closes by presenting the findings. Findings are organized by the following research questions:

1. Are there disparities in educational success between REM and non-REM CTE students?
 - a. If disparities exist, is there a relationship between these differences and career clusters?
 - b. Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories?
 - c. Does socioeconomic status affect educational success for REM and non-REM CTE students differently?
 - I. If so, what are those differences?
2. What are the experiences and obstacles of REM students?

Review of Methodology

To answer the research questions, data was collected using quantitative and qualitative methods. Research question 1, Are there disparities in educational success between REM and non-REM CTE students? was examined through the use of a quantitative research methodology. Through the use of secondary data analysis, archival data of formerly enrolled REM and non-REM students enrolled at the selected technical college was used. This researcher utilized descriptive statistics, chi-square, and Cramer's V for analyses. Research question 2, What are

the experiences and obstacles of REM students? was examined through qualitative research methodology. Data was collected through the use of focus groups of currently enrolled REM students at the selected technical college. Braun and Clarke's (2006) six-phase model was used to provide a thematic analysis to ensure to validity and reliability of thematic coding and analysis coding as shown in Figure 1.

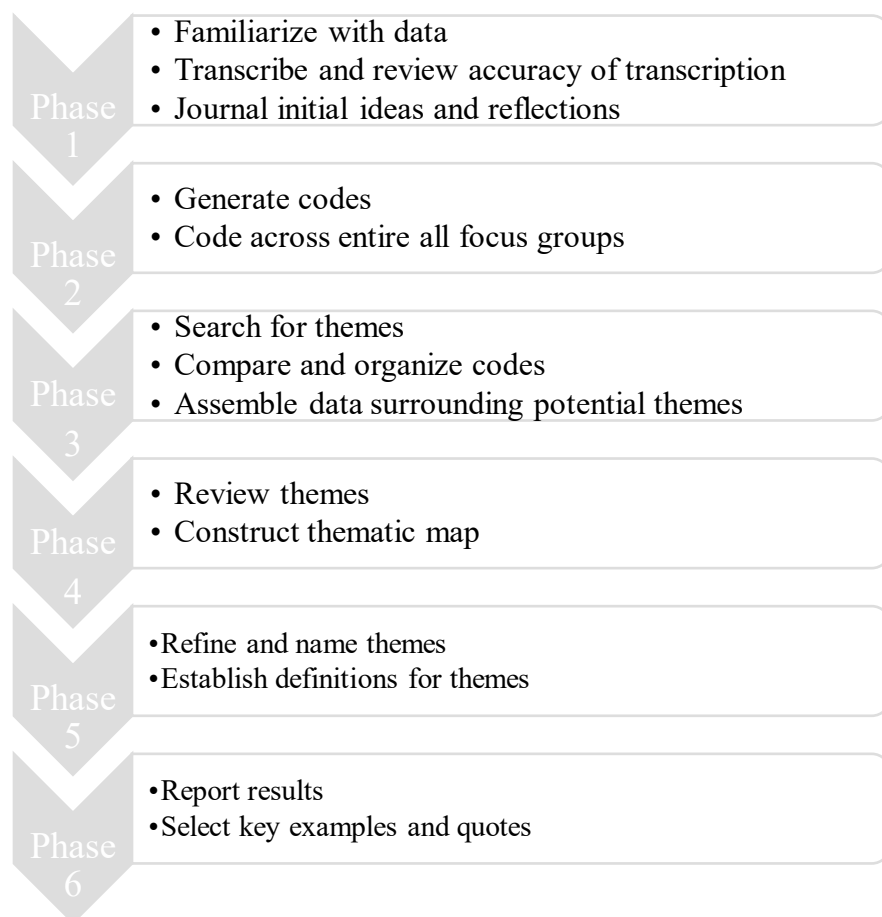


Figure 1. Thematic analysis diagram. Adapted from Braun and Clarke, 2006.

Demographics

To answer the research questions, the researcher secured the support of administrative leadership of a technical college located in Wisconsin. This technical college offers over 60 different career and technical programs and serves an unduplicated headcount of approximately

15,000-16,000 students. Over the past 10 years, this institution has seen a significant increase in REM students.

There were two samples drawn from this institution for this research. The quantitative data used to address research question 1 was obtained through drawing a sample of institutional archival data. This sample consisted of formerly enrolled students in two-year associate degree or technical programs at the selected technical college during the academic periods of Fall 2009 through Fall 2013. The resulting $n = 7,237$ students with 6,599 non-REM and 639 REM students. All non-reported were removed from the sample.

A random stratified sample of non-REM students was drawn to create a comparable sample sizes between non-REM and REM students, which yielded an $n = 658$ non-REM and an $n = 639$ REM students. Of the REM students selected for this sample, the largest REM group were Asians who made up 18.7% of the population, followed by Hispanics at 10.7%, Blacks 9.6%, Multiracial at 6.2%, American Indian/Alaskan Native at 3.3% and Pacific Islanders at .6%. Table 1 provides a visual breakdown students' self-identified of race and/or ethnicity on institutional enrollment paperwork for the sample.

Table 1

Demographics of Quantitative Sample

Race and Ethnicity	Frequency	Percentage
American Indian/Alaskan Native	43	3.3%
Asian	243	18.7%
Black	125	9.6%
Hispanic	139	10.7%
Pacific Islander	8	.6%
Multiracial	81	6.2%
White	658	50.7%
Total	1,297	100%

The qualitative data used to address research question 2 and was obtained by using focus groups. This sample consisted of currently enrolled students in two-year technical or associate degree programs at the selected technical college during the academic period of Spring 2017. The selected technical college provided an email list of REM students currently enrolled in two-year technical or associate degree programs who were enrolled in at least their second semester of study. A series of three recruitment emails were sent out to these 397 students. In this initial contact, students were sent a survey to identify their availability to participate in the focus groups. Eighty students began the survey. Sixty-five students completed the survey, and 52 students reported availability during the scheduled focus groups times. Three focus groups were

then conducted yielding an *N* of 25 students. Of the REM students selected for this sample, the largest REM group were Asians who made up 41.7% of the population, followed by Blacks at 33.3%, Hispanics at 12.5%, American Indian/Alaskan Native at 8.3% and Multiracial at 6.2%. Table 2 provides a visual breakdown of these students' self-identified race and/or ethnicity on focus group survey for the sample.

Table 2

Demographics of Qualitative Sample

Race and Ethnicity	Frequency	Percentage
American Indian/Alaskan Native	2	8.3%
Asian	8	41.7%
Black	8	33.3%
Hispanic	3	12.5%
Pacific Islander	0	0%
Multiracial	4	6.2%
White	0	0%
Total	25	100%

Through analyzing the frequencies of reported career cluster in both samples, the pluralities of students were enrolled in the following career clusters: business; management and administration; health sciences; information technology; law; public safety and security; and

marketing, sales, and service. The complete distribution of programs for both samples is shown in Table 3.

Table 3

Career Cluster of Participants by Samples

Cluster Area	Frequency Quantitative Sample	Percentage Quantitative Sample	Frequency Qualitative Sample	Percentage Qualitative Sample
Agriculture, Food, & Natural Resources	21	1.6%	0	0.0%
Architecture & Construction	27	2.1%	0	0.0%
Business, Management, & Administration	370	28.5%	5	20.0%
Education & Training	31	2.4%	1	4.0%
Finance	82	6.3%	0	0.0%
Health Sciences	218	16.8%	14	56.0%
Hospitality & Tourism	26	2.0%	0	0.0%
Human Services	29	2.2%	0	0.0%
Information Technology	160	12.3%	2	8.0%
Law, Public Safety, & Security	144	11.1%	1	4.0%
Manufacturing	68	5.2%	0	0.0%
Marketing, Sales, & Service	70	5.4%	2	8.0%
Science, Technology, Engineering, & Math	31	2.4%	0	0.0%
Transportation, Distribution, & Logistics	20	1.5%	0	0.0%
Total	1,297	100.0%	25	100.0%

In terms of economic status, the quantitative sample of archival institutional data showed that 62.6 % ($n = 812$) of the students in the sample were economically disadvantaged as defined as being eligible to receive need-based financial assistance or having an income below the federal poverty level. The focus group survey asked students to report if they were eligible to receive need-based financial assistance. Ninety-six percent ($n = 24$) of students in the sample reported that they are economically disadvantaged.

Research Objectives

There were two primary research objectives in this study. The first was to examine performance differences between REMs and non-REM students at one technical college within the WTCS. This study specifically examined the relationship between race/ethnicity and educational success in CTE programs. For the purpose of this study, educational success was defined as students who successfully complete a postsecondary career and technical education program within 200% of the standard program schedule timeframe. REM groups were examined as an aggregated category and disaggregated into individual racial and ethnic categories (i.e., Hispanic, Asian, American Indian or Alaskan Native, Black, Native Hawaiian, or Other Pacific Islander). Additionally, this study analyzed the influence of the possible confounding variable of socioeconomic status. The second objective was to investigate experiences and obstacles that REM student face in postsecondary CTE at this same technical college within the WTCS.

Results

Research question 1: Are there disparities in educational success between REM and non-REM CTE students? The first objective was to determine if there was any significant difference in educational success between REM and non-REM CTE students. Educational success was examined through the analysis of CTE program completion. Based on the

categorical nature of these variables, chi-square tests were utilized to determine what, if any, relationship exists between race/ethnicity (REM and non-REM) and educational success (successful program completion of a postsecondary CTE program within 200% of the standard program schedule timeframe). A chi-square goodness of fit was conducted between race/ethnicity and education success for the aggregated five cohorts of students starting two-year CTE programs from one technical college (Fall 2009 through Fall 2013).

All expected cell frequencies were greater than five. The statistical results, $\chi^2 (1, n = 1,297) = 7.390, p = .007$, Cramer's $V = .75$, indicated that the frequencies of students by race/ethnicity are not equally distributed within educational success. Frequencies are statistically significant in difference from what would be expected by chance. The analysis revealed that non-REM students ($n = 295$) are disproportionately over-represented in the educationally successful group and REM students ($n = 239$) are under-represented. Cramer's V indicated that there is a large or strong association between REM status (REM versus non-REM) and educational success or lack of educational success.

Research question 1a: If disparities exist, is there a relationship between these differences and career cluster? Since a significant statistical difference was found between race/ethnicity and educational success, further analysis was conducted. Based on the categorical nature of these variables, the chi-square tests were utilized to determine if any relationship exists between race/ethnicity (REM and non-REM), educational success (successful program completion of a postsecondary CTE program within 200% of the standard program schedule timeframe), and career cluster (a broad occupational grouping system used in postsecondary education). All expected cell frequencies were greater than five.

The statistical results, $\chi^2(13, n = 1,297) = 27.645, p = .01$, indicated that the frequencies of students by race/ethnicity are not equally distributed within non-successful program completion and career cluster. Frequencies are statistically significant in difference from what would be expected by chance. Further examination of standardized residuals indicated a high proportion of REM student who are non-educationally successful in the cluster areas of marketing, sales, and service (standardized residual = 1.7); business, management, and administration (standardized residual = 1.6); agriculture, food and natural resources (standardized residual = 1.3) and information technology (standardized residual = 1.2), which contribute to this significant result. Table 4 provides a complete breakdown of standardized residuals by career cluster and REM status.

Table 4

Standardized Residuals of Educational Success by Career Cluster and REM Status

Cluster Area	Standardized Residual Educational Successful REMs	Standardized Residual Educational Successful Non-REMs	Standardized Residual Non-Educational Successful REMs	Standardized Residual Non-Educational Successful Non-REMs
Agriculture, Food, & Natural Resources	-1.0	.9	-1.3	1.4
Architecture & Construction	-.6	.6	-1.1	1.1
Business, Management, & Administration	.4	-.4	1.6	-1.6
Education & Training	1.2	-1.1	-.3	.3
Finance	-1.1	1.0	-.3	.3
Health Sciences	-.7	.7	-.3	.3
Hospitality & Tourism	1.2	-1.1	.2	-.2
Human Services	.1	-.1	-.5	.5
Information Technology	1.8	-1.6	-1.2	1.2
Law, Public Safety, & Security	-.7	.7	.5	.6
Manufacturing	-.6	.5	-1.1	1.2
Marketing, Sales, & Service	.8	-.8	1.7	-1.8
Science, Technology, Engineering, & Math	.0	.0	-.8	.8
Transportation, Distribution, & Logistics	.1	-.1	-.9	.9

The influence of career cluster was further investigated through the disaggregation of successful and non-successful REM students by career cluster. REM students experience the highest rate of educational success by percentage in the transportation, distribution, and logistics career cluster with 75% successfully completing a two-year postsecondary CTE program within 200% of the standard program schedule timeframe. REM students also experience high rates of

educational success by percentage in the health science career cluster with 65.7% successfully completing a two-year postsecondary CTE program within 200% of the standard program schedule timeframe. The lowest percentages of educational successful for REM students were found to be in the business, management, and administration career cluster with only 19.1% successfully completing a two-year postsecondary CTE program within the 200% of the standard program schedule timeframe. Similarly, the finance career cluster had low levels of REM student success with only 19.4% successfully completing a two-year postsecondary CTE program within the 200% of the standard program schedule timeframe. Table 5 provides a complete breakdown of educational success by disaggregated racial or ethnic grouping.

Table 5

REM Educational Success by Career Cluster

Cluster Area	Frequency Educational Successful REMs	Percentage Educational Successful REMs	Frequency Non-Educational Successful REMs	Percentage Non-Educational Successful REMs
Agriculture, Food, & Natural Resources	2	40%	3	60.0%
Architecture & Construction	2	22.2%	7	77.8%
Business, Management, & Administration	40	19.1%	169	80.9%
Education & Training	7	41.2%	10	58.8%
Finance	7	19.4%	29	80.6%
Health Sciences	65	65.7%	34	34.3%
Hospitality & Tourism	7	43.8%	9	56.2%
Human Services	6	46.2%	7	53.8%
Information Technology	35	43.8%	45	56.2%
Law, Public Safety, & Security	31	50.0%	31	50.0%
Manufacturing	13	50.0%	13	50.0%
Marketing, Sales, & Service	13	28.3%	33	71.7%
Science, Technology, Engineering, & Math	5	38.5%	8	61.5%
Transportation, Distribution, & Logistics	6	75.0%	2	25.0%
Total	239		400	

Research question 1b: Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories? When REM students

were disaggregated into singular racial or ethnic categories, disparities in educational success were revealed. Pacific Islander students are most likely to be educationally successful with 62.5% successfully completing a two-year postsecondary CTE program within 200% of the standard program schedule timeframe. It is worth noting this was the smallest REM group when disaggregated with an *n* of 8. American Indian/Alaskan Native students are the least likely to experience educational success, with only 11.6% successfully completing a two-year postsecondary CTE program within the 200% of the standard program schedule timeframe. Asian students are the second most successful group when disaggregated with 47.3% successfully completing a two-year postsecondary career and technical education program within 200% of the standard program schedule timeframe. Pacific Islanders and Asian students are the only two REM groups that have higher rates of success than the White students in the sample with White students yielding a 44.8% success rate. Table 6 provides a breakdown of educational success by disaggregated racial or ethnic grouping.

Table 6

Educational Success by Race and Ethnicity

Race and Ethnicity	Frequency Educational Success	Percentage Educational Success	Frequency Educational Success	Percentage Educational Success
	No	No	Yes	Yes
American Indian/Alaskan Native	38	88.4%	5	11.6%
Asian	128	52.7%	115	47.3%
Black	88	70.4%	37	29.6%
Hispanic	92	66.2%	47	33.8%
Pacific Islander	3	37.5%	5	62.5%
Multiracial	51	63.0%	30	37.0%
White	363	55.2%	295	44.8%
Total	763	58.8%	534	41.2%

Research question 1c: Does socioeconomic status affect educational success for REM and non-REM CTE students differently? Socioeconomic status was dichotomized into two groups (economically disadvantaged (Yes) and non-economically disadvantaged (No)) and based on if a student was eligible to receive need-based financial assistance or having an income below the federal poverty level. Based on the categorical nature of variables, chi-square tests were utilized to determine what, if any, relationship exists between race/ethnicity (REM and non-REM) educational success (successful program completion of a postsecondary CTE program within 200% of the standard program schedule timeframe), and socioeconomic status. All expected cell frequencies were greater than five.

The statistical results, $\chi^2 (1, n = 534) = 8.965, p = .003$, indicated that the frequencies of students by race/ethnicity and socioeconomic status are not equally distributed within educational success. Frequencies are statistically significant in difference from what would be expected by chance. It appeared that non-REM students that are non-economically disadvantaged ($n = 169$) are disproportionately over-represented in the educationally successful group and REMs that are non-economically disadvantaged ($n = 126$) are under-represented. There was no statistically significant association between race/ethnicity (REM and non-REM), non-educational success, and economically disadvantaged (Yes/No), $\chi^2 (1, n = 763) = 2.003, p = .157$.

Research question 2: What are the experiences and obstacles of REM students?

Braun and Clarke's (2006) six-phase model of thematic analysis (as was shown in Figure 1) was applied through the combined transcripts of three focus groups. This process yielded five key themes: offensive course content, assumption of being foreign, racial invalidation, attribution/misattribution of ability and racial expert. Table 7 captures these themes and provides a brief definition of each.

Table 7

Themes from Focus Groups

Themes Associated with Experiences	Definition
Offensive course content	Lecture, class discussions, or course materials that promulgate inaccurate information of minority groups or promote stereotypes of groups
Assumption of being foreign	Assuming that an REM student is foreign-born or a non-U.S. citizen
Racial invalidation	A statement made to minimize or question a REM students' racialized experience
Attribution/Misattribution of ability	The assigning of ability or inability based on race
Racial expert	The expectations that a REM student is an expert on REM group history or the assumption that the REM student desires to educate others on about REM cultures

Themes

Theme 1: Offensive course content. The REM students reported numerous examples of faculty presenting materials or making erroneous statements about REM groups by using inappropriate or dated terminology, endorsing stereotypes, or other offensive comments. These experiences occur directly during course lectures, class discussions, and in course materials. A multiracial student shared how an instructor was discussing the importance of ordering cultural inclusive meal options; however, the example they provided was erroneous. “He was talking about if certain groups of people would be present [at a business function], like Muslims, it would be important not to serve chicken.” The student went on to explain that the instructor

failed to acknowledge his mistake and went on to make a second erroneous statement. “I figured he meant pork, so I raised my hand asked, ‘do you mean pork?’ and he responded, ‘no, people from India don’t eat pork.’ I was honestly shocked and didn’t know what to even say.”

Similarly, an Asian student shared how an instructor inaccurately reported marriage practices of an ethnic group. “The teacher said ‘most Hmong [people] practice arranged marriage.’ I was like here we go again. Then this White guy chimed in and said, ‘And they kidnap young women and force them to get married.’” She went on to explain how the instructor affirmed the White student’s comment with the response, “I am sure that happens sometimes.”

REM students also reported that representations of minorities in course materials reinforce stereotypes. In the following account, an Asian student shared an experience about a class discussion:

Like I said, my experiences here are a little more different than in high school because in my first year of college here in [name of class], we talk about people's body language, speech, and that kind of stuff. The teacher asked, “Can you give me an example of a racial difference in body language or speech?” A student [White] shared, “Well, there was lots of Asians in my high school. Those people make bad eye contact, but Asian people have ‘Chinky eyes.’” The teacher said, “Can you define Chinky eyes?” The student just pulled his eyes to imitated Chinky eyes at us [the class], and everyone in the classroom were all quiet. The teacher said, “that’s rude” but nothing more.

Multiple REM students articulated how images on PowerPoint slides during class associate minorities with poverty. One student said:

I don't know if you noticed this [said to other focus group members], but on some of our slides [PowerPoint], I feel like there's relationship between minorities and poverty. It is

almost like minorities and poverty are not used interchangeably. I just noticed that throughout many of my classes.

Another student spoke about a similar example:

I see a big relationship between poverty and being a minority [in course materials]. I know, and I totally recognize that this school is trying to be culturally competent, understanding, and aware of different cultures, which I think it great. But White people are also poor and let's talk about that.

REM students also shared how their career goals have been framed in racially stereotypical ways. An Asian student recounted,

During class, we were discussing our dream jobs. I said, "I want to be my own boss one day, own my own shop." I can't remember just how the teacher said it, but they assumed I meant nail salon. I kinda [sic] snapped, "no, a clothing store!"

Additionally, several students commented on faculty using dated terminology when discussing REM groups. Examples included referring to Asian people as oriental, Native American people as Indians, multiracial people as mulatto and undocumented people as illegal aliens or the illegals.

Theme 2: Assumption of being foreign. The REM students reported various interactions with faculty, staff, and peers that treat them as though they are non-U.S. citizens, non-native English speakers, and/or foreign born. They talked about frequently being asked seemingly innocuous questions such as "where are you from?" or "where were you born?" sending the message to REM students that they are foreign or a non-U.S. citizen. Many REM students disclosed that these statements are commonplace. One REM student expressed the

frequency of these comments by making a joke, “If I had a dollar for every time someone asked where I was from, I would be debt free!”

Other members of the focus group affirmed that student’s comment with head nodding and laughter. An Asian student explained how he was questioned during an introductory discussion in an online class:

I usually take online classes. Last month in our first discussion [introductory discussion board], we had to talk about ourselves, just like every class. Someone asked where I was from? I responded here [a current town in Midwest] and someone in the class was like, “No, where are you really from?” I was offended and didn’t respond. I don’t know if it was my picture, name, or what, but I didn’t see anyone else asked that.

REM students noted that these comments and questions come from both faculty and other students.

REM students described experiences of people making assumptions about their language skills. One student talked about an interaction with a faculty member: “I was having a hard time in class, and so I went to see my teacher. The instructor suggested I go to the ESL lab, but that wasn’t the problem, I only speak English!” Another student shared an experience with a person in the financial aid office when asking a question about loans: “They explained everything really slow and loud ... I just wanted to scream, “I speak English!” REM students disclosed being complimented on their English skills or lack of accent, which further expresses the assumption of being a non-native English speaker. One REM student recounted an experience after doing a class presentation:

We had to give five minute speeches ... I was nervous ... I mean everyone hates standing in front of people talking, right? When I was done, this guy in class said me ... I think meaning to be nice, "You speak good American ... almost no accent."

REM students also shared that when being praised for their English skills, they are frequently asked if they were adopted, which further reinforces the assumption of being foreign.

Theme 3: Racial invalidation. This theme presented itself in statements made by faculty or students that challenged or minimized a REM student's racial experiences. These experiences include denying a REM student's racial reality by seeking alternative explanations for the experiences or directly asserting to the REM student that their experience is not a result of discrimination, racism, or prejudice. REM students reported that when class discussion have turned to topics of race and ethnicity, they have often met with invalidating comments such as "not everything is about race" or White students expressing skepticism of their personal accounts. One REM student said, "I was sharing how DWB [driving while Black] in this very White town was a problem, and this White girl said, 'that's not a thing.'" The student then went on to reassert the experience again by giving a specific example, and another White student said, "Maybe you're getting stopped because you suck at driving."

Another REM student recounted how they had shared in class about being treated as a janitor at their internship site:

I was taking a break and this person came up to me and told me someone had spilled coffee. I was confused ... I realized they thought I was a janitor. When I told this story in class, the teacher said it had nothing to do with race. It was because I was young.

They are wrong; this is not the first time something like this had happened to me.

More than one REM student disclosed frustration about non-REM faculty and students wanting them to prove their experiences were racially influenced. One REM student said, “I am so sick of people telling me it is not about race I could throw-up. Like ‘how do you know it’s about race?’ and I’m like ‘how do you know it wasn’t?’”

A multiracial student talked about having a hard time finding a job in their field. This was notable since most of the other students in their program were already working in the field. The student spoke about an encounter with the program director:

I was telling them [program director] I am having a hard time finding a part-time job. I keep getting interviews and they [company hiring] say, “Oh, the interview went well, blah, blah, blah,” but I keep waiting for their call. No luck at getting the job. I told them [program director], it’s because I am Black and they jumped all over it. “Maybe you need to work on your interview skills.”

In the following passage, a Latina student discussed expressing concerns to a faculty member about how she was treated during a clinical experience:

I had a situation at clinicals. A person referred to me as the dark one. I asked her if she's talking about my hair color, and she said “no.” I briefly brought I up with my classmates who were actually offended. My classmates were like, "You should say something." It briefly got brought up, but it wasn't really addressed. They [the instructor] brushed it off as not being about race. Maybe they were uncomfortable because they couldn't do anything ... but I just wanted to talk about it and feel heard.

The REM students also expressed racial invalidation through non-verbal body language (i.e., eye-rolling, angry facial expressions) and paralinguistic communication (i.e., tone expressing doubt) by faculty and non-REM students.

Theme 4: Racial attribution/misattribution of ability. This theme was illustrated by REM students' ability or inability to be framed by race and/or racial stereotypes. At times, these experiences framed the REM students as having added ability because of race, yet other times REM students also have been framed as having less ability. In the following excerpt, a REM student discussed a class experience:

Asian people, in general, are given this stereotype of being smart; excelling in certain fields, and I experienced this the first time in my [science] class. I understood the material really well because I studied and am good at studying and ask questions when I'm confused. This gal was just like, "I'm gonna [sic] sit with the smart Asian kid because he knows what he's talking about." There was an awkward pause in the classroom and one gal was just like, "Oh my gosh, I can't believe you said that." I wish the instructor would have said something.

Many focus group participants shared experiences about how their REM status influenced their experience involving group work. One particular student spoke about being put into groups during class:

When teachers assign you in groups, and then you're assigned to a group, a lot of them [non-REM students] roll their eyes, which is kind of a non-verbal way of saying, "You had to be in my group?" I was feeling like, "Hey, I'm here. I've made ... I mean I'm at this level. I didn't make it without having any prerequisites or being accepted, I'm sitting in the same chair as you are, so potentially I have the same knowledge background, you know? "

Other REM students disclosed similar experiences with negative non-verbal behaviors from peers when being placed into groups.

Focus group participants reported how their race made them desirable when working on certain subjects and undesirable in other subjects. Multiple REM students asserted this duality. One Asian student described this contrast in treatment very directly connected to subjects: "People want me in their group if we are doing math but don't want me in their group if we have to write. I am consistently faced with one stereotype of another." Whereas, another student explained this disparity in treatment in the context of program courses and general education requirement:

In my program classes, people want to work with me. Everyone thinks my people [racial group] are great in IT. But it is a different story when I am in English classes. No one ever wants to work with me on stuff like peer editing.

REM students talked about their input in groups being devalued. One REM student discussed experiences with taking group exams:

In [program area stated by student], sometimes we take a group exam. Sometimes you may know the answer and you tell them [group] this is it, and then some other person might say ... maybe they're White, "Oh this is so and so," then the whole group tends to favor that other person's answer simply because they are White. Sometimes I feel like, "Oh well, this guy has an accent, he probably doesn't know it."

Other REM students mentioned being underestimated by classmates or the assumption that REM students are held to different standards. A Black student spoke about frustration concerning non-REM peers believing that she gained access to their program because of affirmative action.

I overheard a couple of students [White] discussing us [two people in the focus group] saying that the only reason they are in this program is that they check the minority box, and not the White one. This has also happened to me at work.

Similarly, another Black student described an experience when discussing future jobs. A few non-REM peers told the Black student, “You will get a job because they will have to hire you because of affirmative action.” REM students also expressed non-REM students exerting negative feelings with diversity student services on campus with the non-REM students often making comments that these services make things easier for REM students versus non-REM students.

Theme 5: Racial expert. This theme presented itself in REM students reporting the expectation that they are supposed to be experts on REM group history, current experiences, or the assumption that the REM students desire to educate others about these topics. This theme most commonly presents itself during class discussions. The REM students talked about experiences of being directly called upon during class discussions and being asked to share their REM group’s perspective.

A Native American student shared the following experience: “Last semester, I didn’t even know how this came up, but we were discussing the pipeline protest in North Dakota, and the teacher asked me just point blank, “how does your tribe feel about this?” The same student also told about how the background was inaccurately assumed in another class and they were asked, “how do Mexicans feel about NAFTA?” Similarly, a Latino student explained being asked, “do you want to explain to the class how Mexican people felt about immigration?” by an instructor during a class discussion. One particular REM student expressed frustration about class discussions:

You happen to find yourself in a class. Maybe you're the only Black guy. Sometimes it seems like, “Oh you're the Black expert, so what's your opinion.” In a way, even though

they're not trying to be racist against you, they expect you to know all things Black, like you are some kind of expert.

REM students described how fellow students have directly asked them to “give the [REM group] perspective.” A multiracial student explained their experience:

“My experiences with race are different, because I pass as White. But I have noticed when people find out my background, I’m questioned, usually by other students, about history. And honestly, I don’t know much about it and feel judged for it.

REM students expressed feelings of pressure and frustration about being asked to educate others about their groups. One Black student said, “This is all new to me. In high school, I was the minority, so no one asked me about being Black. Now I feel like I have to know things about my race, cause people ask tons of questions.” Other Black students talked about their frustration this way: “I’m just sick of it. I mean now many times am I going to have to explain my people! If I am gonna have to educate people, at least pay me for it.”

Several REM students talked about feeling pressured to “set the record straight” about their particular REM group. One said, “Give others an education about [their] history” and “[their] responsibility to enlighten other people about [their] culture.” An Asian student explained about experiences in which she is expected to know about all Asian ethnic groups:

I know being Asian. I’m Chinese, but they group all Asian cultures together. We’re all extremely different, that’s my pet peeve. They’re like, “Oh you’re Asian, so you’re Hmong ... you’re Korean.” I’m not, and I don’t know about these groups, but people expect me to be some kind of authority on all things Asian.

REM students also exerted this theme through non-REM, non-verbal body language, such as faculty and students staring at them when race or race related topics are addressed or feeling as though people are trying not to look at them when such topics come up.

Summary

This mixed methods study demonstrated REM versus non-REM students having different levels of success in postsecondary CTE programs at one technical college. Further, the quantitative results illustrate that career cluster, racial/ethnic groups, and socioeconomics appears to influence success. Through the thematic analysis of focus groups, five key themes in relation to REM student experiences and obstacles emerged. These themes included: offensive course content, assumption of foreign, racial invalidation, attribution/misattribution of ability, and racial expert.

Chapter 5 will present the summary, conclusions, and recommendations from this study.

Chapter V: Summary, Conclusion and Recommendation

The purpose of this study was to examine the educational success and experiences of REM students in postsecondary CTE. For over a decade, the state of Wisconsin has witnessed significant increases in REM populations (United States Census Bureau, 2010). It is projected that based on the changing demographics of students at the primary and secondary level, REM postsecondary enrollment will only continue to rise throughout Wisconsin and United States (Fix & Passel, 2003). Additionally, the racial disparities in poverty is a greater issue in the state of Wisconsin compared to United States as a whole, since the gaps between REM and non-REM groups are widening (Jones & Knutsen, 2016). At the same time, the workforce is experiencing significant changes with a misalignment of workers' skills to workforce needs (Fuller et al., 2014).

The absence of research addressing REM students' success and experiences in postsecondary CTE is particularly notable considering the breadth of research focused on REM students in other areas of education. The cumulative effects of these phenomena elevate the importance of understanding REM variations in success and experiences in postsecondary CTE.

Summary

To explore this issue, a mixed-method research study investigated REM students' educational success and experiences at one technical college within the WTCS. This study posed the following research questions:

1. Are there disparities in educational success between REM and non-REM CTE students?
 - a. If disparities exist, is there a relationship between these differences and career clusters?

- b. Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories?
 - c. Does socioeconomic status affect educational success for REM and non-REM CTE students differently?
 - I. If so, what are those differences?
2. What are the experiences and obstacles of REM students?

A review of literature addressed the educational success of REM groups at all levels of education and the experiences and obstacles of REM students face within education systems. It affirmed the need to address this multifaceted topic and these research questions through a mixed-method study approach.

The quantitative portion of this study allowed this researcher to explore the educational success differences between REM and non-REM students, the influence of career cluster on educational success, the differences in racial/ethnic categories, and the influence of socioeconomic status. This analysis was conducted with the assistance of archival data of a cohort of students provided by the selected technical college for a five-year period.

The qualitative portion of this study provided insight into the lived experiences and obstacles that REM student faced in postsecondary CTE programs. Three focus groups were conducted to explore the experiences of current REM students at the same institution. Data was transcribed from these groups and the researcher used a six-phrase process to code, analyze, and report key themes that emerged.

Key Findings and Discussion

The analysis of quantitative and qualitative data in this study revealed several key findings. They are organized by the research questions posed in this study.

Research question 1: Are there disparities in educational success between REM and non-REM CTE students? Through the use of the chi-square test and a further analysis through Cramer's V, this study shows that there is a statistically significant difference in educational success between REM and non-REM students in postsecondary education, with REM students having lower rates of success compared to non-REM students. This result is consistent with other studies that have documented differences in postsecondary success between REM and non-REM groups for decades (Goldrick-Rab, 2010; Knapp, Kelly-Reid, & Ginder, 2010; Lorah & Ndum, 2013; Miller, 1995; Yeado, 2013; Young, 1994).

Research question 1a: If disparities exist, is there a relationship between these differences and career cluster? A chi-square test indicated there is a statistically significant difference in non-educationally successful REM students versus non-REM students based on career cluster. The results show that differences between REM students versus non-REM students in marketing, sales, and service; business, management, and administration; food and natural resources; and information technology career clusters contribute the most to the statistically significant differences. Further, when the percentage of educationally successful versus non-educationally successful REM students are analyzed by career cluster, transportation, distribution, logistics, and health science career clusters experience the highest levels of REM student success. Business management, administration, and finance career cluster experience the lowest level of REM student success. To date, this researcher could not find other studies that examined the influence of career cluster; therefore, it is not possible to make comparisons based on these findings.

Research question 1b: Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories? Disaggregation of REM

students into singular racial or ethnic categories reveals disparities in educational success between REM subgroups. The differences found in this study are consistent with earlier research (Culpepper & Davenport, 2009; Lorah & Ndum, 2013; Miller, 1995; Young, 1994). For example, in this study, Pacific Islander (62.5%) and Asian (47.3%) experience higher rates of educational success compared to non-REM students (44.8%). Further, Black (29.6%), Hispanic (33.8%), and American Indian/Alaskan Native (11.6%) students experience lower levels of educational success. These findings are consistent with Ryan and Bauman's (2016) latest report for the United States Census Bureau, which analyzed education attainment by race and ethnicity.

Research question 1c: Does socioeconomic status affect educational success for REM and non-REM CTE students differently? Non-REM students that are ineligible to receive need-based financial assistance or who had an income above the federal poverty level are statistically the most likely to experience educational success. The examination of intersection of socioeconomic status and race and ethnicity illustrates that socioeconomic status affects REM and non-REM students differently. Non-REM, non-economically disadvantaged students experience the greatest amount of educational success, whereas REM economically disadvantaged students experience the least amount of educational success. Additionally, REM students are more likely to be economically disadvantaged, 67% compared to only 59% of non-REM students. Further, only 13.5% of REM students that were also economically disadvantaged completed postsecondary CTE program within the 200% of the standard program schedule timeframe. These findings are consistent with decades of research that has shown that REM groups experience higher rates poverty and socioeconomic status strongly influences

postsecondary completion (Carnevale, & Strohl, 2013; (DeNavas-Walt & Proctor, 2015; Engles, & Lynch, 2009; Lorah, & Ndum, 2013; Roderick et al., 2009).

Research question 2: What are the experiences and obstacles of REM students?

Through the use of Braun and Clarke's (2006) six-phase model of thematic analysis, five themes emerged, which indicated REM students' experiences and obstacles at a postsecondary CTE institution. These themes include: offensive course content, assumptions of being foreign, experiences with racial invalidation, attribution or misattribution of ability based on race, and expectations to be a racial expert.

Focus group participants in this study indicated various ways in which their REM status influences their experiences and creates obstacles in post-secondary CTE programs. Focus group participants also shared experiences in a variety of academic settings including, faculty provided course content, class discussions, non-classroom interactions on campus and experiences in off-campus learning experiences (i.e., internships, clinical, and career exploration experiences). Although no focus group participant used the term "microaggression," the experiences and themes articulated by these REM students are consistent with all three forms of microaggressions identified in earlier studies. In Sue et al. (2007) three different forms of microaggressions were identified, including microassaults, microinsults, and microinvalidations. Microassaults are most direct and closely aligned with overt racial discrimination and racism. Microinsults are communications that are insensitive or demeaning to a person's racial identity or background. Microinvalidations are exchanges that "exclude, negate, or nullify the psychological thoughts, feelings, or experiential reality of a person of color" (Sue et al., 2007, p. 274).

Table 8 shows the themes that emerged from this study, the classification of microaggression they illustrate, and the key examples.

Table 8

Illustration of Microaggressions Based on Themes and Examples

Theme	Type of Microaggression	Example
Offensive course content	Microassault	Racial slurs (e.g., “Chinky eyes”) Stereotyping career goals (e.g., the suggestion that Asian student wanted to own a nail salon)
	Microinsult	Derogatory terminology (e.g., Oriental versus Asian, mulatto versus multiracial, or illegal aliens versus undocumented people) Associating minorities with poverty
Assumption of foreign	Microinsult	Asking REM students’ questions of origin (e.g., “Where are you from?” “Where were you born?” “Where are you really from?”) Speaking really slowly and loudly to REM students
	Microinvalidation	Faculty assuming that a REM struggling academically needs help with English Praising REM students for English skills (e.g., “You speak good American.” “You have no accent”)

Table 8 continued

Theme	Type of Microaggression	Example
Racial invalidation	Microinsult	Negative non-verbal body language when REM students share experiences (e.g., eye-rolling and/or angry facial expressions)
	Microinvalidation	Failing to acknowledge REM students or experiences Non-REMs expressing skepticism of REM students' personal accounts (e.g., "How do you know it's about race?")
Attribution/misattribution of ability	Microinsult	Assumptions of academic abilities based on race (i.e. assuming Asian students are good at math and science). Negative non-verbal body language when REM students are assigned to groups during class Devaluing REM students input or contributions Stating a REM students gained entry into a program or obtain a job because of affirmative action
Racial expert	Microinsult	REM students being stared at or eye contact avoided with topics of race are discussed. Expecting REM students to perform as racial experts.

Consistent with these findings (Sue et al, 2007; Sue et al, 2009) microaggressions present themselves during class discussions or when REM students share their experiences. Further, focus group REM students reported that ill-prepared faculty members exacerbate these experiences, as in the example of when a White student used the racial epithet "Chinky eyes" the instructor only minimally responding to the comment. This is also present when the REM

students recalled how instructors “negate or minimize” REM students’ experiences during class or individual conversations. The effect of postsecondary education instructors’ lack of preparedness is also consistent with results in earlier studies (Sue et al., 2009).

Conclusions

After the extensive review of REM focused literature, the quantitative analysis of archival data over a five-year period at a selected technical college and thematic analysis of focus group data, this researcher draws the following conclusions:

1. REM students are not as successful as non-REM students.
2. Career cluster of study influences the success or lack of success differently for REM students versus non-REM students.
3. The disaggregation of REM groups into singular racial or ethnic groups is important in analyzing student success.
4. Socioeconomic status is a variable to control for in the analysis of student success.
5. REM status influences student experiences and creates obstacles in postsecondary CTE.

As the quantitative data in this study illustrates, the ascription of a racial or ethnic minority status negatively affects students’ success in two-year postsecondary CTE programs. When racial or ethnic groups are disaggregated into singular racial or ethnic subgroups and socioeconomic status is included in analysis, additional disparities are revealed and provide a more holistic representation of this phenomenon.

Although there has been a dearth of ancillary research focusing on REMs student success in CTE at the secondary and postsecondary level, these findings are consistent with other research focused on REM student success in postsecondary education. This study also yields a

correlation between REM student successes based on career cluster. This finding requires further investigation to fully understand this phenomenon.

Through the analysis of focus groups data, five key themes emerged. Each of these themes illustrates how REM status negatively influenced student experiences in postsecondary CTE. REM students in this study articulated personal experiences in a variety of academic settings with faculty, peers, college staff, and in off-campus learning experiences. The extent and variation of these experiences produces challenges in mitigation.

Although REM students never used the term “microaggression,” their reported experiences are indicative of microaggression at all levels, including microassaults, microinsults, and microinvalidations. With the study of microaggressions still in its infancy, this researcher was unable to find literature that has specifically investigated REM student experiences with microaggressions in CTE. Nevertheless, this finding is consistent with other research focused on REM student experience in other postsecondary education.

This study was conducted to examine the possible educational success differences of REM versus non-REM student in two-year postsecondary CTE programs at one technical college within the WTCS. Since educational success differences were found, this researcher examined the role of career cluster, race, and ethnicity disaggregated into singular racial categories and the role of socioeconomic status on REM student success. Further, through the use of focus groups, this study investigated lived experiences and obstacles these REM students face in postsecondary CTE. A desire to understand these under-researched groups in CTE was the driving catalyst behind this study.

Over the last 40 years, significant progress has been made in reducing the poverty rate and increasing the educational success REM people, yet there is significantly more that needs to

be accomplished. Although it is important to acknowledge and celebrate some successes, more must be done to build upon these accomplishments and continue to forward with progress.

Improvements in educational success are likely to manifest in reducing the poverty rates for REM groups. The Wisconsin Technical College System and postsecondary career and technical institutions throughout the nation are posed to play a critical role in these continued successes. If CTE and these institutions do not fulfill that role, there will be very real social and economic consequences for REM groups and society as a whole.

Recommendations

After examining these data and reviewing the summary and conclusions of the research, the following recommendations are offered for further study of REM in postsecondary CTE and ways to improve REM students' experiences in postsecondary CTE:

1. The disaggregation of postsecondary CTE institutions/programs from other postsecondary learning environments is critical for examining REM students. The dearth of data relating to REM students in CTE programs at both the secondary and postsecondary levels is a limiting factor in this study. To fully examine issues surrounding REM student performance in CTE, we must first disaggregate CTE programs from other postsecondary learning environments. In doing so, insight will be gained in the similarities and differences in REM performance in various learning environments.
2. Further research should be conducted regarding career cluster gaps between REM and non-REM students. The results of this study indicate statistically significant differences in educational success for REM student versus non-REM students based on career cluster. This finding raising such questions as: Why do these differences

- occur based on career cluster? Does this finding represent a trend or isolated case at one institution? Further examination is needed to evaluate the role of career cluster.
3. Additional data needs to be collected from non-educationally successful REM students. One of the shortcomings of this study is the lack of data from non-educationally successful REM students. To extrapolate conclusions about the effect of race and ethnicity on experiences in CTE, more data on multiple postsecondary CTE institutions is necessary to draw conclusions. While this study produces a panoply of information directly from 25 REM students enrolled during one semester in CTE, little is known about REM students outside of this sample and if these experiences are consistent with other REM students in postsecondary CTE.

Recommendations for Improving REM Student Experiences in Postsecondary CTE

To improve the experiences of REM students enrolled in postsecondary CTE based on the data collected and analyzed in this study, the following recommendations are presented:

1. Increase social support for REM students in CTE. The focus group data clearly indicates that REM students are cognizant of how their minority status negatively affects their educational experiences in postsecondary CTE. Building on this, increasing formalized social support measures may be able to reduce some of these negative effects.
2. Educate faculty, staff, and students on microaggressions. The experiences articulated by focus group participants in this study clearly indicate that REM students experience microaggressions by faculty, staff, and peers. Often times microaggressions are unintentional, and the individuals committing them are unaware they are offending or hurting others. Regardless of the intentions, these aggressions

- have a significant effect on the victims. Providing educational opportunities for faculty and staff about microaggressions and allowing open and honest communication can increase people's awareness of these aggressions and their effects on REM students.
3. CTE needs to actively pursue partnerships with the REM community. Career and technical education provides a pathway out of poverty for many. Increasing the exposure of REM community partners to postsecondary CTE programs and the high-paying employment opportunities they provide can assist in improving the lives of REM people and reducing the workforce misalignments. The best method for doing this is direct outreach to REM community organizations.

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Appendix A: Informed Consent
UW-Stout Signed Consent Form
for Research Involving Human Subjects

Consent to Participate In UW-Stout Approved Research

Title: Minority Student Success and Experiences in Postsecondary CTE
Research Sponsor: Dr. Carol Mooney
715-559-1998
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Investigator:

Carmen Iannarelli
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Description:

The purpose of this research is to increase understanding of racial and ethnic minorities' (REM) performance and experiences in postsecondary career and technical education. This study is intended to examine performance differences between REMs and non-REM students at one technical college within the Wisconsin Technical College System (WTCS). This study will specifically examine the relationship between race/ethnicity and educational success in CTE programs. The primary focus of this investigation is to examine the influence of race/ethnicity on the success of students at a post-secondary CTE institution and to identify obstacles and experiences of these groups.

The following research questions will guide this study:

1. Are there disparities in educational success between REM and non-REM CTE students?
 - a. If disparities exist, what is there the relationship between these differences and career clusters?
 - b. Are there disparities in educational success when REM students are disaggregated into singular racial or ethnic categories?
 - c. Does socioeconomic status affect educational success for REM and non-REM CTE students differently?
 - a. If so, what are those differences?
2. What are the experiences and obstacles of REM students?

This study will use a mixed method approach. A quantitative approach will be used to evaluate education performance. The method for measuring education performance is program completion through secondary data analysis of REM and non-REM students enrolled at the selected technical college within the WTCS. Archival data will be used in this study, which will be obtained from pre-existing records that will be made available to this researcher through the selected technical college's computerized record-keeping system. These same data will also be used to identify possible career cluster differences, and influence of being economically disadvantaged.

To better understand the contextual antecedents that affect these numbers, qualitative data will be collected through focus groups. These will be used to capture the specific barriers REM students face throughout this technical college. The sample of students will be drawn from REM students enrolled at the selected technical college during the spring of 2017. This researcher will organize the focus groups based on their availability with the goal of having between 6-8 participate in each group.

Risks and Benefits:

The perceived risks associated with the study may be that participants feel uncomfortable as they discuss student experiences, especially if the experiences are negative. This risk will be mitigated as all data will be anonymized before publication and participants being able to opt out of answering questions.

The perceived benefits associated with the study is that results may influence the development or college policy and initiatives that may benefit participants as students. Additionally, the insight gained from this study may improve the ability to serve racial and ethnic minority students.

Time Commitment and Payment:

Participation in a focus groups will take approximately one hour. There is no payment for participating in the focus group. As a token of appreciation, a five-dollar donation will be made for each participant to the Diversity Student Organization or Student Emergency Fund, whichever they choose.

Confidentiality:

Your name will not be included on any documents. We do not believe that you can be identified from any of this information. This informed consent will not be kept with any of the other documents completed with this project”

Right to Withdraw:

Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. Should you choose to participate and later wish to withdraw from the study, you may discontinue your participation at this time without incurring adverse consequences.

IRB Approval:

This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study, please contact the Investigator or Advisor. If you have any questions, concerns, or reports regarding your rights as a research subject, please contact the IRB Administrator.

Investigator: Carmen Iannarelli

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Statement of Consent:

By signing this consent form you agree to participate in the project entitled, Minority Student Success and Experiences in Postsecondary CTE.

Signature

Date

Signature of parent or guardian

Date

(If minors are involved)

Appendix B: Focus Group Protocol and Questions

Interview Protocol

Pre-interview statement

Hello and thanks for coming today. My name is Carmen. I am a doctoral student at the University of Wisconsin-Stout in the in Ed.D. in Career and Technical Education Program. I am conducting this research as part of a dissertation for the program. I will be studying the experiences of racial and ethnic minority student's post-secondary career and technical education. During this focus group, I will ask a series of open-ended questions related to your experience as a minority student. The entire process will take approximately one hour.

Before we begin, there are a couple things I would like to go over:

In order for me to accurately recall all of the responses the group provide in this focus group, I will be audio recording this discussion. With that said, the only person who will be allowed access to your audiotape will be myself, and the transcription service that I am using to transcribe the recording.

Even though this interview will be transcribed, your name and any other identifying information will not be indicated throughout the recording of this interview and pseudonyms will be used to protect your identity, as well as the files being password protected. Still, I would like you all to

know that you are able to ask me to turn off the recorder at any time during the focus group and or you may decline to answer any questions.

Also, there are no direct benefits to you for you participating in this study except the potential of the college gaining a greater insight into the experiences of minority students. Further, talking about your experiences could make you feel uncomfortable. If you feel that you need additional services for processing this discomfort, I can provide you with the information to counseling resources. Any responses you give will be regarded with the utmost confidentiality.

At this time, I would like to go through the informed consent form and procedures for the study to make sure you clearly understand your rights today.

-Provide copies of consent form to participants, give time for participants to read and sign forms, collect-

Do you have any questions before we begin?

Focus Group Questions:

As I said earlier, what I'm interested in is your experiences as a multiracial student here on campus. Each person's experience is unique, so please realize there are not any right or wrong answers. As you describe your experiences, whenever it is possible please give me stories and examples to illustrate your point.

Do you have any questions about this interview?

Turn on the recording device-

Introductory Question:

1. How did you become interested in your program/career field?

Key Questions:

2. What have your experiences been like as a minority student at [REDACTED]?
3. What role, if any, do you feel being a minority plays in your college experience?
4. Would you say the experience of students of color on this campus are basically the same or different than the experiences of White students?
5. How would you describe your interactions on campus? In-class? With staff? With other students? With faculty?
6. Have you ever had an instructor at [REDACTED] of your own race or ethnicity? Either way, how has this influenced your experiences as a student in the classroom?
7. What has been the greatest obstacle you have experienced as a student?
8. What sorts of things could [REDACTED] offer minority students to enhance their experiences?

Ending Questions:

9. Suppose that you had one minute to talk to the president of [REDACTED] about being a minority student at this college. What would you say?