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College-for-all meets skills gap: Millennials’ decisions to pursue certificates in skilled trades

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College-For-All Meets Skills Gap:

Millennials’ Decisions to Pursue Certificates in Skilled Trades

by

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Dissertation

Submitted to the Department of Leadership and Counseling

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Educational Leadership

Dissertation Committee

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June 20, 2018

Ypsilanti MI
Dedication

It’s all for you, Mom.
Abstract

This is a case study of a group of students enrolled in traditional skilled trade certificate programs at a large Midwestern community college. Considering severe shortage of skilled labor in the geographic area of the college, there is great need for better understanding of ways to alleviate the labor shortage by attracting more young adults to the in-demand fields. Therefore, this case study sought to examine millennial students’ decisions to pursue careers in areas of demand. To collect input from multiple perspectives, interviews were conducted with students, college employees, and family members. The influence college-for-all culture had on their decisions was of significant interest. Analysis of the data revealed several major themes and resulted in a skilled trades choice model. The qualities knowledge, appeal, and self-determination were found to combine to produce a disposition that prepared the students to make the decision to pursue their paths. The development of these three qualities depended on the presence of the supports of time, awareness, and values. The process of forming the disposition was challenged by the influence of college-for-all culture and expectations of previous generations. Recommendations for practice, policy, and future research were also offered based on the findings. Overall, in order for students to wisely invest resources in their futures while providing much needed skilled labor for their communities, students must engage in career exploration early in their education, be taught that all useful work has value, and receive personalized guidance informed by the current needs of the local labor market. Anything less results in wasteful, mismanagement of talent.
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Chapter One: Introduction to Study

Introduction

Over the last few decades, Americans have developed a college-for-all approach to post-secondary education (Ahearn, Rosenbaum, & Rosenbaum, 2016; Baum, Ma, & Payea, 2010; Grubb & Lazerson, 2005; Marshall & Plotkin, 2010). According to the college-for-all mentality, changes in the economy and subsequent demands on labor have made college critical to the future success of American youth and the U.S. as a whole. Consequently, there is now an expectation that every high school graduate should attempt to earn a college education and that education is often defined as a bachelor’s degree (Ahearn et al., 2016; Collins, 1971; Holland, 2015; Mullin & Phillippe, 2013; Rosenbaum & Rosenbaum, 2013).

This BA-centric college-for-all paradigm has resulted in a significant increase in the number of emerging adults enrolling in college (National Center for Education Statistics [NCES], 2014a). This growth has been supported by several factors including the open-admissions policies of community colleges, the disappearance of vocational education in high schools, and the perceived growing demand for a degreed workforce (Goyette, 2008; Reynolds, Stewart, MacDonald, & Sischo, 2006; Manley, 2012; Schurman & Soares, 2010). Subsequently, high school graduates are now commonly expected to enter college regardless of their academic abilities or career aspirations (Holland, 2015; Rosenbaum, 2001; Rosenbaum & Person, 2003).

Some scholars argue that too many of these students never complete a degree, but do gain debt, lose time, feel discouraged, and are left searching for employment with no credential (Ahearn et al., 2016; Dwyer, McCloud, & Hodson, 2012; Harrast, 2004; Roksa, 2010). Additionally, by these students attempting to follow the standard four-year degree path, many of their unique skills and abilities are not fully developed in an appropriate way, which hurts the
economy through the mismanagement of valuable talent (Gallagher, 2016; Holder, 2015; Oreopoulos & Petronijevic, 2013). Furthermore, many students are committing to the pursuit of bachelor’s degrees with little awareness of other postsecondary options, which are shorter and less expensive but can result in substantial financial benefits and rewarding careers (Hirten, 2015; Manley, 2012; Rosenbaum & Rosenbaum, 2013; Walkowicz & Wein, 2015). For instance, even though certificates are frequently neglected when studying postsecondary education, they have been championed as a route to increasing postsecondary education attainment and success in the workforce partly because they are obtained quickly and inexpensively when compared to a four-year degree (Bosworth, 2010; Lumina, 2016; Mullin & Phillippe, 2013). In fact, while certificates have a wide range of income premiums, there are fields in which certificates can result in well above average earnings with benefits due to the needs of local economy (Bahr, Dynarski, Jacob, Kreisman, Sosa, & Wiederspan, 2015; Manufacturing Institute & Deloitte, 2015; Matheny, Chan, & Wang, 2015; Michigan Talent Investment Agency, 2017; Xu & Trimble, 2014).

This is particularly true of the skilled trades in Michigan, especially in the field of advanced manufacturing (Gallagher, 2016; Walkowicz & Wein, 2015). Due to economic growth and looming retirements, the state’s employers are challenged and will continue to be challenged to find qualified labor in industrial skilled trades (Gallagher, 2016; Manufacturing Institute & Deloitte, 2015; Walkowicz & Wein, 2015). So, contrary to the belief that manufacturing in the United States is fragile and weakening (Giffi & McNelly, 2011), there is actually great concern over the lack of youth interested in developing careers in traditional skilled trades (Gallagher, 2016; Workforce Development Agency, n.d.). This deficit in Michigan’s workforce could be relieved if more millennials pursued careers in this field. Unfortunately, possibly due to multiple
issues to include an image problem, not enough millennials are attracted to the skilled trades (Aspen Institute, 2013; Gallagher, 2016; Giffi & McNelly, 2011; Manley, 2012; Manufacturing Institute & Deloitte, 2015).

This study aimed to increase our understanding of the decisions of millennials who, having grown up in a college-for-all culture, still chose to enroll in skilled trades certificate programs related to advanced manufacturing at a Michigan community college. Data collected through interviews with students, family members, and college employees were analyzed. This resulted in increased understanding of the decision to pursue certificates in skilled trades, which included key themes, a skilled trades choice model, and recommendations for policy and research.

**Problem Statement**

The key problem this study was concerned with was the mismanagement of talent. In this increasingly information- and technology-driven society, the common narrative is that a young adult needs a four-year degree to obtain a “good job” (Mullin & Phillippe, 2013; Rosenbaum & Person, 2003). This focus on bachelor’s degrees can lead to inappropriate guidance for students that neglects the full range of postsecondary choices by leaving out associate degrees and certificates, which can equip young adults with in-demand skills relatively quickly and inexpensively (Manley, 2012; Oreopoulos & Petronijevic, 2013). Alarmingly, it also results in an absence of youth entering some in-demand skilled trades (Manufacturing Institute & Deloitte, 2015).

This mismanagement of talent is currently occurring in Michigan and is hurting the state’s economy (Gallagher, 2016; Manly, 2012; Walkowicz & Wein, 2015). While the state of Michigan consistently falls below the nation’s average for college completion (Michigan College
Access Network [MCAN], 2015), this has not been not a major concern for past generations since the automobile manufacturing industry provided a middle class lifestyle for high school graduates (Carnevale, Smith, & Strohl, 2010). But, for the labor market of today and tomorrow, a high school diploma is no longer enough. At Michigan’s current pace of college completion, MCAN (2016a) predicted that only 43% of the state’s population will hold a college degree or certificate by 2025. However, it was projected in 2016 that in 2018, 62% of jobs available in Michigan would require postsecondary education. Unless the state’s college completion rate increases 1.8 percentage points every year, the state will need 779,000 more college graduates to meet the state’s workforce needs in 2025 (MCAN, 2016b). This deficit would consist of 439,000 certificates; 64,000 associate degrees; 232,000 bachelor’s degrees; and 45,000 advanced degrees (MCAN, 2016b). It is very possible that this predicted lack of qualified workers will stunt the state’s economic potential (Gallagher, 2016; MCAN, 2016a; Rosenbaum, 2001).

Purpose

This study sought to identify how students choose their academic paths at a community college, and in turn, help other students clearly understand the wide array of options available to them and increase their likelihood of success. More specifically, the aim of this study was to improve understanding of how millennials decide to pursue certificates leading to careers in the skilled trades within a college-for-all environment. Untangling the complexity of the college choice process of the students of the programs of this case study provided opportunities to identify the factors that influenced their decisions, the resources they used, and the timing of each stage of the process. This increased knowledge of the decision process of young adults pursuing certificates may help better manage the high expectations of students not suited for four-year degrees and effectively direct them to less expensive programs that provide in-demand
skills (Ahearn et al., 2016; Carnevale, Rose, & Hanson, 2012; Mullin & Phillippe 2013; Oreopoulos & Petronijevic, 2013; Rosenbaum, Ahearn, Becker, & Rosenbaum, 2015; Rosenbaum & Person, 2003). This could result in fewer students leaving college empty-handed after spending time and money. Instead, the students could complete certificates that provide in-demand skills leading to lucrative careers and, as a result, become more valuable members of the workforce, contribute to the economy, and increase their ability to pay off student loan debt.

**Justification**

The current study followed the much-needed trend to expand college choice theory to include the behavior of groups of students that are often neglected in research, such as community college students (Aldous, 2009; Perna, 2000). Most research on college choice, persistence, completion, and returns is based on the four-year college experience (Bailey, Alfonso, Scott, & Leinbach, 2004; Bahr et al., 2015). Even when studying community colleges and their students, a university paradigm is often applied. This habit frustratingly ignores salient differences between the two populations. In addition, few scholars study community college students according to their types of programs (Bailey et al., 2004). Furthermore, it has been recommended that more qualitative work be done in order to reveal the nuances of the college choice experience of different student populations (Aldous, 2009). In Aldous’ (2009) conclusion to her review of college choice theory literature, she stated,

The vast majority of current college choice research consists of quantitative studies using large preexisting databases analyzed post hoc by researchers attempting to identify and further explicate significant variables. What is needed to move the field forward in this understanding of the nuances of the process are carefully planned and executed qualitative and mixed-method studies that can delve into the how and why questions that
blur our clear understanding of how students experience the process of making postsecondary education decisions. (p. 116)

To answer this call, the nuances of the college choice process for an often-neglected group of students were examined through the qualitative methods of focus groups and in-depth individual interviews within a case study.

In particular, this research takes a close look at certificate students. Lumina (2016) called for a better understanding of certificates in relation to who completes certificates, what schools are issuing them, what do they mean in terms of skills and knowledge, and where do they lead to in terms of jobs and more education. I spent months scouring university library databases and reading articles from multiple disciplines including education, psychology, economics, sociology, and social work. Additionally, I searched Google Scholar, toured numerous government agency websites, and looked though the material of relevant private organizations. Despite the potential value certificates hold for workforce development, I found that little work has been done to explore the decisions of students pursuing these credentials. Acknowledgment of the value of certificates is overdue. Increasing our knowledge of the decisions of students pursuing certificates can have implications for policy and practice for both higher education and the economy (Aldous, 2009; Bosworth, 2010; Carnevale et al., 2010; Matheny et al., 2015; Xu & Trimble, 2014; Rosenbaum & Rosenbaum, 2013). As such, this case study’s analysis of certificate pursuers helps serve this need.

Additionally, in order to inform policy, studies such as this should be rooted in state and industry contexts (Matheny et al., 2015). Of the little research that has been conducted, recent literature related to economic returns on certificates pointed to the importance of analyzing earnings within the local community (Bahr et al., 2015). Since the return on certificates depends
on students’ fields of study and the skill needs of the community, it is vital that students are aware of all of their postsecondary options and carefully consider potential outcomes. Subsequently, this research recognized how vital the local context is by tapping into programs that provide skills in strong demand by the surrounding area.

Another gap in the research was identified by Holland (2015). She argued that even though there is active debate between scholars about the effects of the hegemonic college-for-all message, there is little in-depth research on the perspective of the student. Holland (2015) recommended that more research be conducted to discover how the college-for-all message is interpreted by students within different contexts, how the negative perception of other paths develops, and how high school administrators and faculty can relieve the pressure students feel to attend four-year schools. Accordingly, in the interviews conducted for this study, participants were questioned about their perception of the college-for-all culture and its influence on their decisions. By doing so, this study helped answer Holland’s call to provide a better understanding of how students interpret and are influenced by the college-for-all environment.

Lastly, the concept of multiculturalism has begun to include multi-generationalism which increases the importance of our understanding of different birth cohorts (Forman & Carlin, 2005). The tail end of the millennial generation is currently finishing high school which means the following generation will soon begin tertiary education. A greater understanding of how to serve the current generation of adults may push our methods and approaches to become more able to adapt to changes concerning the needs of the economy and new generations of emerging adults. Workman (2015) recommended for more research to be completed in this area to increase awareness of influences on millennial college students. Additionally, Much, Wagener, Breitkreutz, and Hellenbrand (2014) explained that conclusions about millennial college students
must take into consideration the type of students admitted to the institution where the research takes place. For instance, more research must be completed at elite institutions and community colleges where millennials may have different goals and expectations of higher education. Accordingly, this case study focused on the experiences of students who belong to the millennial generation in order to learn more about the generation’s decisions regarding schools, careers, and credentials.

**Research Question**

Millennials, as many scholars have argued, deal with great pressure to attend college (Ahearn et al., 2016; Baum et al., 2010; Grubb & Lazerson, 2005; Holland, 2015; Rosenbaum, 2001). In fact, these expectations may be greater than any other generation has experienced before them. We should ask if this expectation is satisfied by certificates. In other words, certificates qualify as higher education for this achievement-focused generation? By examining millennials’ decisions to pursue certificates, much may be learned from a population of students who, from the dominant perspective, may seem to disregard or not meet the expectations for their generation. While studying students in certificate programs, I gained access to a perspective often neglected in the literature to address the following question:

How do millennials make the decision to pursue skilled trade certificates at community colleges within the college-for-all culture?

Interviews of students, family members, and college employees were conducted to collect and describe how the decision to enter certificate programs was made by millennials in relation to the common four-year degree expectation. Through the exploration of answers to this question, the findings of this study increases our understanding of the student experience within the college-for-all environment.
Chapter Two: Review of Literature

Chapter Two presents a literature review to situate this study within the context of what is already known about relevant topics. It begins with a discussion of evidence of the nation’s college-for-all culture in terms of growing college enrollment, educational expectations, and how this applies to millennials. Then the related and complex relationship between employment, income, and postsecondary education is explored, which is followed by an explanation of the bachelor’s degree standard, concerns about student loan debt, and a summary of career and technical education. Presented next is an outline of the current demand for skilled trades labor in the state of Michigan and a discussion of two-year colleges. Lastly, an overview of college choice theory in relation to community college is provided.

College-For-All

In recent years, there has been a concentrated effort by leaders of business, foundations, and government to increase postsecondary enrollment and completion in the U.S. (Goyette, 2008; Lumina, n.d.; Oreopoulos & Petronijevic, 2013; Price & Tovar, 2014). For example, President Obama described higher education as an economic imperative that must be affordable and called for the nation to lead the world in postsecondary educational attainment by 2020 (Oreopoulos & Petronijevic, 2013). The Bill and Melinda Gates Foundation aims to double college credentials among low-income youth and the Lumina Foundation wants 60% of adults to have earned a college certificate or degree by the year 2025 (Lumina, n.d.; Price & Tovar, 2014). Another example is how the Community College Completion Corps committed to work toward significantly increasing the number of associate degrees and certificates earned by 2020 (Price & Tovar, 2014). Particularly relevant to this study, the Michigan College Access Network (MCAN) (2016b) has a goal to increase the percentage of Michigan residents who have completed
postsecondary education to 60% by 2025.

Before this national call for commitments to higher education, the number of people enrolling in college had already been growing for decades. As the National Center for Education Statistics (NCES) (2014) reported, in 1973, approximately 47% of those who recently completed high school enrolled in college, 15% in two-year schools and 32% in four-year schools. In 2014, 68.4% of recent high school graduates enrolled in college, 24.6% were in two-year schools and 43.7% were in four-year schools. During the years between 1993 and 2003, there was an 18% increase in college enrollment (NCES, 2016). Then, from 2003 to 2013, enrollment increased another 20% (NCES, 2016). In fact, since 2004, the percentage of recent high school graduates enrolling in college has been above 65% with its highest point in 2009 at 70%. In other words, this last decade has seen significantly more emerging adults entering post-secondary education than at any other time in U.S. history (NCES, 2014a).

It is important to note that enrollment has expanded at both two- and four-year schools. In 1990, enrollment at two-year colleges was 5,240,083 students and at four-year colleges was 8,578,554 students (NCES, 2015a). This climbed to 5,948,431 (two-year) and 9,363,858 (four-year) in 2000 (NCES, 2015a). In 2010, numbers rose to 7,683,597 for two-year institutions and 13,335,841 for four-year institutions (NCES, 2015a).

While enrollment can be affected by educational aspirations, it is also influenced by population growth. However, there was only a 9% increase in the number of 18- to 24-year-olds during the 10 years between 2003 and 2013 (NCES, 2016). Furthermore, the quantity of students who graduated from high school was 2,677,000 in 2003. The number increased slightly to 2,977,000 in 2013. As shown through percentages and raw numbers, the increase in college attendance has increased, and it is not solely due to an increasing number of emerging adults.
Another relationship to consider in this incline in postsecondary enrollment is how students’ postsecondary participation has been positively correlated with parents’ education levels (Goyette, 2008). An assumption may be that as levels of education rise in the general population, the educational attainment of the next generation is positively influenced by the increased education of their parents. Goyette (2008) considered this when she looked at the relationship between parents’ background and students’ rising educational expectations. It was found that education levels in the general population only accounted for a small portion of the rise in academic aspirations between 1980 and 2002. Apparently, over time, there may have been a decoupling of parents’ background and students’ educational expectations. In fact, Goyette (2008) revealed that, compared to students in 1980, students in 2002 were less likely to base their college expectations on not only their parents’ social background, but also the requirements of their desired occupations. Instead, there was a strong and significant cohort effect suggesting the existence of a college-for-all norm.

**Millennials.** The cohort of today’s emerging adults are often defined as being born roughly between the years 1982 and 2000. I will refer to this population as millennials, which is a very popular label for this generation. According to generational theory, as Howe and Strauss (2003) described, individuals born during the same time period share experiences at similar stages of their lives. As history and pop culture help form their beliefs, attitudes, and views, these generational similarities predict the manner in which the cohort reacts to social and political events and issues (Coomes, 2004). As a result, it is believed that there may be significant differences between previous generations of emerging adults and millennials.

Millennials are considered highly diverse, well-educated, and the largest generation to date (Much, Wagener, Breitkreutz, & Hellenbrand, 2014). Howe and Strauss (2007) described
them as “wanted children” and having received the message that they “dominate America’s agenda.” Millennials are often characterized as having been sheltered by parental over-involvement and some scholars have labeled them as overly ambitious, rule-following, confident, conventional, team-oriented, and pressured (Howe & Strauss, 2007; Strange, 2004). Additionally, Howe and Strauss (2003) explained that while pregnancy, abortion, drug use, and violent crime have decreased among the millennial cohort, test scores and expectations for success have increased. Millennials have also been described as confident in their abilities, believing in their future, focused on accomplishments and academic achievement, and having motivations far beyond simple survival (Howe & Strauss, 2003, 2007; Strange, 2004).

However, disagreement exists over whether the current focus on millennials in the media and in research is warranted (Kuron, Lyons, Schweitzer, & Ng, 2015; Giancola, 2006; Trzesniewski & Donnellan, 2010). For instance, Giancola (2006), in “The Generation Gap: More Myth than Reality,” thoroughly outlined multiple arguments against the use of generational theory in the realm of human resource management. He asserted that “a growing body of independent research and expert opinion shows that concerns about a generation gap have been overstated and, surprisingly, the theory behind it has some gaps in logic that raise serious questions about its value” (p. 32). Even though they found that recent generational cohorts have higher educational expectations than previous generations, Trzesniewski and Donnellan (2010) were critical of sweeping comparisons between generations:

Today's youth seem to be no more egotistical than previous generations, and they appear to be just as happy and satisfied as previous generations. In fact, today's youth seem to have psychological profiles that are remarkably similar to youth from the past 30 years. (p. 69-70)
In other words, it is hypothesized that the so-called millennial characteristics that are sparking curiosity in older generations may just be artifacts of emerging adulthood, not something particular to millennials.

Nevertheless, other scholars believe that the current generation of young adults are worth scrutiny and may motivate previous generations to adjust their ways. In their review of literature on characteristics of millennial college students, Navarro and Malvaso (2016) painted a picture of a generation of ambitious yet lost young adults who have difficulties making decisions and solving problems. According to the authors, much of the student affairs literature about millennials describe the current emerging adults as a group of students that tends to demonstrate an over-dependence on external spheres of influence when engaging in critical thinking and decision-making processes. This general fear of autonomy in decision making that millennial students demonstrate further complicates how student affairs professionals can best work with millennial students to choose meaningful, engaging undergraduate majors that also prepare them for life after college in a career field. (p. 44)

Furthermore, during their study of university staff perceptions of millennials, Much et al. (2014) discovered that millennials are perceived to have a sense of entitlement, consider themselves exempt from rules, resist being accountable for their actions, tend to blame others, and either ignore problems or expect others to solve them. Their interviews with student affairs professionals unveiled themes of parental involvement and expectation for others to solve their problems. The authors pointed out that “after a lifetime of having parents, coaches, and teachers solving problems for them, the fact that when students attend college they are perceived to expect the same level of caretaking and intervention is not surprising” (p. 43).
Moreover, Much’s et al. (2014) review of millennial research described various health and social concerns older generations have about millennials. This included how this generation’s young adults have shown a higher tendency to experience anxiety and stress. It is imagined that this may be related to their overprotective parents and strong focus on achievement.

At this point, it may help to be reminded that the concept of development is a social construction. What it means to become an adult is shaped by society, especially the adults who live in the society at the time. As such, what is expected during a transition to adulthood is also constructed and changes with time. Strange (2004), in “Construction of Student Development Across Generations,” took an interesting look at the intersection of generational theory and student development theory. He explored how the values of current and previous generations of college administrators and education researchers define and shape the concept of student development. For example, Strange (2004) explained how expectations of developing individuals have been influenced by traits of Boomers (characterized as being individual) and Gen Xers (characterized as being different):

Endorsement of a “do your own thing” ethic led to constructions of learning, growth, and development that soon emphasized uniqueness, individuality, and independence, rather than conformity, as benchmarks of maturity. Questions of personal identity and fulfillment became paramount as educational and social institutions attempted to respond to a youth cohort bent on having its say and resisting confinement to any prescribed roles and expectations. What was once thought to bring comfort (that is, norms and conventions) was seen increasingly by many observers as a barrier to growth, and as constructions of human development changed so too did our practices. (p. 48)
With this in mind, we should consider how definitions of maturity and development can change depending on who is creating them. Millennials’ characteristics may very well challenge today’s conceptions of learning, developing, and growing. It is possible that the characteristics that so many adults are critical of millennials for may actually be this generation’s brand of development.

Consequently, the value and effectiveness of the practices we depend on could be tested while also inspiring us to reconsider how we serve students. For example, the team-oriented approach of millennials may translate to a preference for experiential learning over traditional abstract conceptualization and individual reflection. This sheltered generation with helicopter parents may need student services to be delivered through mandated methods. These emerging adults may also require far more structured connections between practical education and tangible employment opportunities. This consideration is not just vital for millennial students but also for the upcoming generation of young adults (Kuron et al., 2015).

As the concept of development changes, so does the role of college. Over the last couple generations, the college degree has undergone a transformation. What was considered by previous generations to be a privilege is now the standard for the current generation of young adults. In accordance with the master narrative of college-for-all, it is commonly accepted that today’s emerging adults will simply attend college as they are expected to (Ahearn et al., 2016; Baum et al., 2010; Grubb & Lazerson, 2005; Rosenbaum, 2001).

By a degree becoming an expectation, students’ motivations for attending college change (Bye, Pushkar & Conway, 2007). Now, people consider a college degree a requirement to get a “good job” (Ahearn et al., 2016; Rosenbaum, & Person, 2003). The role of college seems to be transitioning from a time for young adults to expand their mind to a period of career preparation.
Consequently, millennials who otherwise would not consider higher education are now assuming college is a necessity.

Growing college expectations are commonly viewed as a positive trend for multiple reasons. For one, high aspirations are necessary to increase the number of individuals who apply to college, which is an essential step to college attendance. Additionally, some scholars argue that students appear to be inspired by the confidence others have in their ability to attend college and this can result in students putting forth more effort while in high school (Domina, Conley, & Farkas, 2011). Another benefit of the college-for-all mindset is an increase in the number of ethnic minorities and low-income students attending college (Baum et al., 2010). Notably, between 1976 and 2013, the number of ethnic minorities enrolled in college has risen significantly while the percentage of college students who are Caucasian has dropped from 84% to 59% (NCES, 2016). As a result of the college-for-all paradigm, many students who would not have attended college in previous decades now have access to and are encouraged to enroll in postsecondary education (Ahearn et al., 2016).

However, this ambition has resulted in an effort to send everyone to college, even students without clear goals and abilities sufficient for college level work (Ahearn et al., 2016; Baum et al., 2010). Critics of the college-for-all approach argue that these college aspirations can be detrimental because they have not been accompanied by realistic notions of what college requires and career exploration (Ahearn et al., 2016; Holland, 2015; Rosenbaum, 2001). Sadly, while low-achieving students may be accepted into college following high school graduation, many do not possess the skills or sense of purpose to be successful.

So while this approach is valuable in increasing education expectations, it misleads students who are not well-equipped for college by advising them to follow a path that may be
detrimental to their lives. These students may struggle through remedial coursework, accumulate student loan debt, and leave campus without completing degrees (Ahearn et al., 2016; Rosenbaum, 2001).

In regards to the preparation and expectations for college achievement of today’s emerging adults, Michigan does not differ from the national picture. MCAN (2015) measures attitudes towards higher education of Michigan adults through the Institute for Public Policy and Social Research at Michigan State University. In their college-going culture survey, college education includes the pursuit of degrees and certificates at an accredited institution of higher education. During the winter of 2015, 96% of Michigan adults considered college to be somewhat or very important for young people to be successful in the labor market. That previous year, when Michiganders were asked how likely their children were to obtain a college education, almost 93% answered that it was somewhat or very likely. However, this percentage varied greatly by region. For instance, over 84% of southeast Michigan residents reported that it was very likely that their children would earn a college credential, but only 29% of those in northern Michigan and the Upper Peninsula said the same. This comparison is important because the participants of this study attended a college in southeast Michigan and the majority of them were also raised in the area. Therefore, most of the student participants of this study grew up in an environment where a large percentage of adults believe that their offspring will complete college, as opposed to the lower percentage who do in the northern-most areas of the state.

Unfortunately, as also reported by MCAN (2016a), only 20% of Michigan students who graduated from high school in 2016 met or exceeded the ACT’s college-ready benchmarks in English, reading, math, and science. Not surprisingly, of the 2013-14 graduating class, 70% of Michigan high school graduates began college within 12 months. However, nearly 30% of these
students were required to enroll in remedial coursework. Sadly, it is estimated that over one-third of Michigan college students do not persist to their second year.

**Employment, earnings, and education.** The national goal to significantly increase college degree attainment is “a centerpiece of the nation’s workforce development strategy” (Schurman & Soares, 2010, p. 127). Carnevale, Smith, and Strohl (2014) predicted that there will be 165 million jobs in 2020 and 65% of these positions will require some form of education following high school. Of the 55 million openings they forecasted, 10% will require postsecondary vocational certificates, 12% will require associate degrees, 24% will require bachelor’s degrees, and 11% will require advanced degrees. They also predicted that at the current credential completion rate, the United States will fall five million college graduates short from meeting the nation’s demand for workers. To meet the nation’s needs, either the current rate of completion must increase or the nation must decrease its demand for credentialed talent (Carnevale et al., 2010).

One of the underlying reasons for employers’ demand for credentials is degree inflation (Fadulu, 2017). Often employers use college degrees to signal the possession of skills which can be acquired without college. In “Help Wanted: Projections of Jobs and Education Requirements Through 2018,” Carnevale et al. (2010) estimated that about 70% of the rise in education requirements over the past few decades is due to a demand in increased skills in occupations that did not previously require postsecondary training. They offered this example: “What we called a ‘foreman’ or ‘manufacturing supervisor’ in the 1960s, for example, has since morphed into new occupations that now require postsecondary education, including the modern manufacturing engineer” (p.14). Another portion of the increase resulted from new occupations that have developed which require formal postsecondary education plus a growth of jobs that had already
possessed higher education requirements. An example of this is how the “medical doctor” of the 1950’s has evolved in to “a host of new medical specialties that call for a complex set of college-level skill requirements” (p. 14).

By some, this credential-labor market is seen as fair and rational (Maier, 2012). The logic follows that individuals who lack appropriate credentials must not possess what it takes to perform certain jobs well. Credentials are used as an indicator of an individual’s levels of skill, knowledge, and productivity. Accordingly, employers use credentials to decrease the uncertainty innately involved in hiring decisions. They depend on and trust that credentials mean that candidates have the proper skills for the job (Brown & Bills, 2011; Maier, 2012).

However, scholars of credentialism theory posit that credentials are a subjective way of controlling access to resources via elite careers (Bills, 2003; Collins, 1971; Maier, 2012). According to critics, college degrees are minimally related to skills and do not represent knowledge that can be directly applied to occupational responsibilities. School does not accomplish what most believe it is supposed to achieve, which is teach useful skills to students. Instead, credentials signify status and their value lies in their ability to be traded for elite occupational positions.

Essentially, credentialism is about advantage; it is a conflict theory of educational stratification (Collins, 1971; Gerth & Mills, 1946). According to the theory, the most prestigious professional positions are disproportionately occupied by those with the highest amounts of formal schooling (Bills, 2003). People pursue educational credentials to “monopolize access to occupational positions and legitimate power within organizations” (Maier, 2012, p. 13). Those who possess the appropriate credentials have significant advantage in the labor market while those without proper credentials are denied access to lucrative careers. As a result, educational
Credentialism is viewed as an oppressive, elitist system where barriers to degrees maintain social inequality (Brown, 2001).

In other words, appropriate knowledge does not necessarily lie within credentials. Instead, education acts as a sorting mechanism to signal to employers who has the suitable attitude, socialization, and background for occupations (Baker, 2011; Maier, 2012; Matheny et al., 2015). A concept related to this aspect of credentialism, is the “sheepskin effect,” sometimes referred to as sorting theory (Bills, 2003; Matheny et al., 2015). Research that has shown that, through the sheepskin effect, the number of years of education completed does not help individuals appear as qualified for jobs nearly as well as completed credentials. For example, according to the labor market, 16 years of schooling is not equal to a bachelor’s degree (Baker, 2011; Brown & Bills, 2011). In fact, studies show that those who leave college before finishing their goal credential, be it a certificate or a degree, earn salaries comparable to someone with just a high school diploma (Belfield & Bailey, 2011). Only the full completion of a credential has power. Since only the degree is important, the actual learned content and time spent in college are not valued and may actually be irrelevant. This underlines the importance of guiding students toward paths appropriate for their abilities, resources, and interests. Otherwise, they may spend precious time, money, and effort just to drop out of college with zero economic benefit.

Regrettably, this noncompletion can have long-lasting financial consequences for an individual’s life. Carnevale et al. (2010) explained how postsecondary education has become a requirement for access to middle class income and status. According to the authors, “an accurate portrayal of the American class dynamic would be to say that the middle class is dispersing into two opposing streams of upwardly mobile college-haves and downwardly mobile college-have-nots” (p. 3). The report included a chart showing how over the last several decades, the
American middle class has shed those without formal postsecondary education. Over half of high school graduates in 1970 were included in the middle four deciles of family income and only 22% were considered lower class. In contrast, in 2007, only 45% of high school completers belonged to the middle class but 35% were lower class. During the same time period, bachelor’s degree holders dropped from 47% in the middle class to 38% in the middle class. However, the percentage of bachelor’s degree holders in the upper class grew from 37 to 48. When speaking in averages, it definitely still pays to go to college: “Over a career, high school graduates earn $1.3 million, a B.A. gets $2.3 million, a Ph.D. gets $3.3 million, and a professional degree gets $3.7 million” (Carnevale, 2015, p. 5). According to Carnevale, Rose, and Cheah (2011), a person with a four-year degree in 1999 had a lifetime worth of earnings 75% greater than a high school graduate. In 2009, the difference had increased to 84%. Additionally, college graduates also have lower unemployment than those less educated (Oreopoulos & Petronijevic, 2013). What was formally a preferred path to the middle class is now becoming the only path. A high school diploma was adequate for membership in the middle class prior to the 1980s, but now adults do not seem to progress unless they complete college after high school. As Carnevale (2015) put it “The only career strategy more expensive than paying for college is not going to college” (p. 5).

However, Oreopoulos and Petronijevic (2013) explained that the conclusion should not be that if any high school graduate were to earn a college degree they can expect to rise to similar income levels. A college degree alone does not necessarily increase income. Self-selection and ability may also be at play in the relationship between education and income. Those who choose to attend and then complete may also be those who are more likely to possess the characteristics and abilities that allow them to succeed in college. Therefore, “encouraging more youth to attend college will not necessarily generate similar outcomes for them”
Complicating the relationship between education, employment, and earnings further, Carnevale (2015) explained how the value of postsecondary credentials are increasingly based on fields of study. In general, income and employment has become dependent on what you study, not what school you attend (Carnevale, 2015). In other words, students’ majors significantly affect future income (Carnevale et al., 2012; Wiswall & Zafar, 2015). Even unemployment rates vary considerably between degree majors (Carnevale, Cheah, & Strohl, 2012). Most studies on the earnings of bachelor’s degree completers in comparison to other groups of workers use average earnings and do not demonstrate the great differences between disciplines. This is problematic because college majors are not created equal in terms of economic return on investment. For example, the National Association of Colleges and Employers (2016) reported that, with an average starting salary of $40,774, geology graduates had the lowest starting salaries of the class of 2016. In contrast, electrical engineering and computer science majors began at an average of $73,078 and $71,534, respectively. In short, earnings depend greatly on chosen disciplines of study and careers (Oreopoulos & Petronijevic, 2013). In fact, some postsecondary education credentials do not even equate to decent employment and income at all (Carnevale & Smith, 2011). However, it is also important to recognize that a major’s typical starting salary does not indicate the compensation potential over a career.

Moreover, the benefits and costs of higher education are affected by several individual factors such as time to completion (if completion even occurs), the labor market at the time of graduation, the repayment of student loans, rapidly changing technology, and future economic conditions (Mazza, van Ophem, & Hartog, 2013; Oreopoulos & Petronijevic, 2013; Wiswall & Zafar, 2015). By the time the student graduates, there may be high unemployment or the
technology they were trained in could quickly be becoming obsolete. Additionally, returns on education are often oversimplified and do not take into account variables such as ethnicity, gender, taxes, employment experience while in school, and socioeconomic status.

Consequently, students do not really know what the return on their college investment will be when they enroll (Oreopoulos & Petronijevic, 2013). This fact makes college a risky investment with uncertain rewards. Making matters worse, previous literature shows that individuals hold biased beliefs about salary distribution and earnings per occupation (Wiswall & Zafar, 2015). Wiswall and Zafar (2015) found that students considerably overestimate and underestimate average salaries. Overall, many students are not pairing the costs of their college education with careers that will realistically produce adequate returns on their investments. But, of course, economic returns are not the only benefits of postsecondary education. There are also a large variety of nonpecuniary benefits for the individual and the community such as lower smoking rates, increased autonomy, healthier work conditions, higher status, lower incarceration rates, and higher rates of civic engagement (MCAN, 2016a; Oreopoulos & Salvanes, 2011; Rosenbaum & Rosenbaum, 2013).

Unfortunately, the college-for-all paradigm further blurs the postsecondary education landscape for high school students (Grubb, 2006). “Going to college” becomes the goal without fully grasping what differentiates community colleges from universities and what sort of education is necessary to reach their career goals. With inadequate guidance, students are making life-shaping decisions without clearly understanding the consequences. As Grubb (2006) discussed how credentialism impacts students in “Vocationalism and the Differentiation of Tertiary Education: Lessons from US Community Colleges,” students make mistakes and then corrections to their education paths:
The mistakes students make operate in both directions: some students who might have benefited from four-year colleges end up in community colleges because they are the most visible local institutions, while others entering four-year colleges might have been better off at community colleges. In practice there is a great deal of movement among all kinds of institutions, suggesting that many students decide their initial choice was an error. (p. 33)

The movement between institutions by students, also known as swirling, can be a tremendous waste if rooted in ignorance and misjudgment as opposed to growth and learning. Swirling is a product of credentialism where the completion of a degree is more important than the learning behind the credential. What matters most in this environment is knocking out credits in certain subjects, not completing a full, purposeful curriculum. This also results in an “institutional gulf between school-based preparation for the workplace and the workplace itself” (Grubb 2006, p. 40). To bridge this gulf, links must be created in the form of effective counseling, partnerships between businesses and schools, and increased experiential learning. In this environment, it is important to listen to and learn from the stories of students who found bridges and decided to cross them despite the oversimplifying, BA-centric noise of the college-for-all mantra. Students pursuing in-demand certificates hold important lessons for us but there is little discussion of these students in the literature.

**Bachelor’s degree standard.** There is a great diversity of options in postsecondary education. Carnevale et al. (2010) estimated that, of the whole postsecondary education system, only 35% consists of colleges and universities. In 2010, Carnevale et al. reported that approximately $772 billion is expended each year on postsecondary training and well over half of this amount is spent on programs outside of the bounds of what is defined as formal higher
education. The bulk of the system is made up of a variety of programs including on-the-job training, military training, apprenticeships, badges, and massive open online courses, also known as MOOCs (Carnevale, 2015). However, this heterogeneity of postsecondary possibilities is too often forgotten when the college-for-all narrative takes over.

Despite the wide variety of postsecondary paths available to high school graduates, “college” is often the default option and frequently implies a four-year institution (Ahearn et al., 2016; Collins, 1971; Holland, 2015; Rosenbaum & Rosenbaum, 2013). In short, successful career preparation is often narrowly defined by the bachelor’s degree standard (Mullin & Phillippe, 2013). Schurman and Soares (2010) described the traditional view of college as “four to six years of full-time study in the cloistered environment of a college campus before entering the ‘real world’ of work” (p. 128). As a result, many emerging adults’ educational expectations include a four-year degree regardless of their career goals, interests, or financial assets (Holland, 2015; Howe & Strauss, 2003).

In her article “College for All and Community College for None: Stigma in High-Achieving High Schools,” Holland (2015) asked how students manage the high expectations of the college-for-all culture. Through over two years of observation and interviews with students and faculty high schools, she found that students from all social backgrounds embraced the college-for-all message and interpreted college to mean only four-year schools. Even students who were obviously unprepared for college and highly unlikely to be admitted to a university fought the idea of applying to community colleges. In fact, some students rejected the possibility of becoming a community college student due to fear of being ridiculed by peers for it. Goals other than bachelor’s degrees were strongly stigmatized and high school students who did not have college-educated parents, were low-achieving, and ethnic minorities had to cope with this
tension the most. Holland (2015) argued that students used various coping strategies to deal with the shame of not meeting the high expectations of the college-for-all paradigm. Some students totally disengaged, while others insisted that they would transfer to a university, and others said they would just “take a year off.”

Feeding this pattern is the assumption of many high school counselors and teachers that the changes in labor demands and college access mean that they should now advise every student to attend college (Ahearn et al., 2016; Rosenbaum & Person, 2003). Rosenbaum and Person (2003) described the changes in the economy as having “altered the requirements for both college and work, with important implications for school counselors whose job it is to provide information and guidance to students in regard to personal, academic, and career options” (p. 252). Now, counselors are hesitant to tell high school students that they are not prepared for higher education and have a very low chance of completing a college credential (Holland, 2015). So, with the common expectation for students to pursue four-year degrees, even students with insufficient academic abilities and unclear goals are encouraged to aspire to attend a university (Deil-Amen & Rosenbaum, 2002).

Rosenbaum and Person (2003) outlined the misconceptions underlying this BA-centric counseling approach. They described how many counselors believe that high school students do not need to prepare for work, open admissions means that all high school graduates can enter college-level courses, high school students’ plans to attend college increase their academic effort, focus should be on academic preparation to the exclusion of career advising, and a college degree is a requirement for all “good jobs.” Consequently, believing that the key to a “good job” is a four-year college degree, many underprepared students are entering college without identifying career goals while aimlessly spending time and money on a degree that may not
As another effect of college-for-all culture, there now exists an assortment of college preparation and access programs that are funded by federal and state programs, foundations, and postsecondary institutions to help students navigate the maze between high school graduation and the world of work (Aldous, 2009). Unfortunately, the staff of high schools who are responsible for college counseling can be also be overwhelmed by the complicated maze of admission, financial aid, and employment (Schneider, 2015). Understandably, to increase efficiency, some programs may neglect to take students’ individual contexts into consideration and instead push them through steps that are inappropriate (Aldous, 2009). However, to be effective, counselors of these programs must be cognizant of each student’s situation and needs in order to match them to suitable paths.

In her 2104 presidential address of the American Education Research Association, Schneider (2015) called for “increasing enrollment in college that matches student interests and ability” which “is likely to enhance persistence and completion” (p. 395). During her research, she found that 60% of high school students were what she termed unaligned. These students’ under and overestimated the education required to reach their occupational goals. This research also described effective college guidance as more than checking a list and requiring multiple interventions, preferably “personal interactions with a trusted, knowledgeable individual” (p. 400). Schneider’s (2015) work suggested that low-income and minority students whose educational choices are aligned with their ambitions are more likely succeed.

To study the relationship between alignment and success, Rosenbaum, Ahearn, Becker, and Rosenbaum (2015) analyzed results of the Educational Longitudinal Survey (ELS) which questioned over 15,000 high school seniors in 2004 about their education expectations. Then
eight years later, respondents were asked about their actual outcomes. Only 14% of respondents reported that they did not enroll in a college program within the eight years following high school graduation. Of the 86% that did enroll, 37% entered a two-year college and 59% enrolled in a four-year college. Most of the community college students aspired to transfer and earn bachelor’s degrees. However, of those who enrolled in two-year schools, only 20% completed a four-year degree, 33% finished an associate degree or certificate, and 46% earned no credential at all within those eight years. Within the population who began at a four-year school, 67% earned a bachelor’s degree, 10% had an associate degree or certificate, and 22% still had no degree or certificate. Those that only had some college, meaning no completed credential, were not more likely to be employed than those high school graduates who never attended college.

Notably, the scholars found that ELS respondents with low academic achievement and low socioeconomic status were able to complete certificates and associate degrees. Additionally, compared students pursuing who earned an associate degree or certificate, those students who attended college but did not complete a credential of any level were more likely to be from a higher socioeconomic background, to have higher test scores, and report expectations to earn a four-year degree. If college had not been so narrowly defined for this group of noncompleting students and they had considered educational paths other than four-year programs, they may have finished and reaped the benefits of a different college credential (Ahearn et al., 2016).

Ahearn et al. (2016) argued that

by escaping the strict academic requirements emphasized by the dominant college- and career-readiness rhetoric, certificates and associate degrees are attainable by many students and are highly rewarding alternatives to four-year bachelor’s degrees. (p. 51)

Similarly, Mullin and Phillippe (2013) stressed how there are
viable college-level outcomes prior to the bachelor’s degree including, but not limited to, 
certificates and associate degrees. It is a mistake to invalidate the success of students, 
many of whom overcome substantial risk factors, if that success does not directly match 
the reader's conception of what a college education represents (i.e., a bachelor’s degree). 
(p. 92)

The act of a student attending a less selective college than they are qualified for is called 
undermatching (Lowry, 2017). The concept of undermatching could be considered an artifact of 
the college-for-all paradigm and the community college stigma. “Under” has a clear negative 
connotation. It implies that enrolling in a less selective institution is an inferior plan to attending 
the “best” school the student can gain acceptance to. The concern over undermatching suggests 
that students should complete as much education as they are capable of obtaining without 
consideration for their career aspirations or the workforce needs of the community in which 
they live. It is not difficult to imagine how this approach can lead to attrition, anxiety, career 
indecision, and excessive student loan debt. Lowry (2017) explored the experiences of African 
American students who were academically qualified to attend four-year institutions yet chose to 
study at community colleges. Fortunately, Lowry’s (2017) findings described positive, 
developmental experiences of high-performing community college students despite the 
supposed undermatch. Hence, the two-year path should not be easily dismissed or regarded as a 
disappointment, even for those who qualify for university admission. This study hopes to 
support a similar positive perception by exploring the stories of students who attend two-year 
colleges by deliberate choice, not by failure.

In summary, individuals who are uninterested in or unable to earn bachelor’s degrees can 
benefit substantially from enrolling in community colleges and completing associate degrees or
certificates because the demand for workers with nonrepetitive manual skills is strong (Oreopoulos and Petronijevic, 2013). Carnevale et al. (2012) explained that while the skills of certificate holders are often only slightly more the a high school graduate’s level, certificate holders acquire job-specific skills that are rewarded in the labor market above and beyond their general academic skills and that certificate programs are an efficient option for high school graduates with average and below average grades. (p. 19)

Despite this great return on investment, these programs get little attention relative to four-year degrees (Ahearn et al., 2016; Rosenbaum & Rosenbaum, 2013). Students are often not informed about careers that only require applied associate degrees or certificates because they do not fit within the current hegemonic college-for-all narrative (Ahearn et al., 2016). In contrast to being a high school graduate with just some college, these students could have possibly enrolled in a community college, completed an associate degree or certificate with less debt and in less time, and then possessed an in-demand skill (Ahearn et al., 2016; Dwyer et al., 2012; Harrast, 2004; Roksa, 2010; Rosenbaum & Rosenbaum, 2013).

**Student loan debt.** There is also growing concern over increasing amounts of student loan debt and students’ abilities to repay their debt (Harrast, 2004). Most young adults have no experience with debt, and many students are often unable to estimate how much student loan debt they have accumulated (Andruska, Hogarth, Fletcher, Forbes, & Wohlgemuth, 2012). As the largest source of non-mortgage household debt, outstanding student loan debt exceeded credit card debt in 2012 (Federal Reserve Bank of New York, 2012), and more than half of student loans are in a deferred or delinquent status (Hardekopf, 2013). According to a Pew Research Center report authored by Fry (2012),

Student debt is a rising proportion of total debt for most demographic and economic
categories of households. Among households headed by those younger than 35 years of age, student debt rose from 9% of total debt in 2007 to 15% in 2010. The only households in which student debt has not been a growing proportion of total debt were households headed by seniors, households headed by those without a high school education, and households in the wealthiest quarter of households by net worth. (p.18)

Even though most households with outstanding student loan debt are headed by college graduates, “in terms of household wealth or net worth, the nation’s least wealthy households owe most of the student debt” (p. 10). In 2010, households with a net worth less than $8,562 owed almost 60% of the nation’s outstanding student loans, just under half of households headed by someone younger than 35 had student loan debt to repay, and almost one quarter of student loan debt was owed by the poorest two-fifths of households, or those earning $36,723 or less annually.

The state of student loan debt in the U.S. today further underscores the importance of effectively matching students with programs that they have a realistic chance of completing and that teach in-demand skills according to local labor markets. Otherwise, students may earn credentials of little economic value or drop-out with no benefit but with loans to repay.

**Career and technical education.** Another concern is that if high school is viewed as a mechanism to get students ready for higher education, college preparation occurs at the expense of other valuable skills and interests (Ahearn et al., 2016; Manley, 2012). Cantor (1989) explained in “The ‘Re-visioning’ of Vocational Education in the American High School” how, before the college-for-all narrative took over, high school students were placed on tracks often described as college preparatory, academic, and vocational. Vocational programs, now referred to as Career Technical Education (CTE), included specific occupational programs such as auto
mechanics, graphic art, and cosmetology and broader programs that included industrial arts, home economics, and office education.

In the late 1980s, there were about 2,000 vocational high schools or centers in the U.S. Additionally, general public high schools annually enrolled about 9.3 million students in CTE and over 90% of students earned at least one vocational credit. While the majority of students took at least one vocational course, most vocational credits were earned by students headed directly to the workforce after graduation.

Unfortunately, at that time, vocational education in the United States was under the pressure of multiple factors, including the increasing bias against vocational tracks, substantial changes to fund allocations resulting from the Perkins Act, a decreasing number of students enrolled in vocational programs, the aging of expensive equipment combined with rapidly changing technology, gender stereotypes within vocational training, difficulties finding and retaining vocational instructors with up-to-date training, and the questioning of economic and social benefits of vocational education in high school (Cantor, 1989; Manley, 2012). Additionally, the increasing academic requirements and popularity of college preparation left little room for vocational courses in students’ schedules (Cantor, 1989; Manley, 2012).

Despite their value, CTE is typically relegated to second class status in high schools. Cantor described how school counselors actively discouraged “more able students from opting for vocational education courses” (p. 127). Historically, CTE has been perceived as a last resort for low-performing students. Additionally, a disproportionate number of minority and low socioeconomic status students have been placed in vocational tracks. The National Commission on Secondary Vocational Education and National Center for Research in Vocational Education (1985) explained in the report *The Unfinished Agenda: The Role of Vocational Education in the
High School that

the most common perception of vocational education is that it prepares youth for low-status jobs... Because most middle-class parents devalue any high school program that is not a prerequisite for admission to 4-year colleges or universities, they devalue vocational education. Consequently, school officials often view and use some vocational programs as a “dumping ground” for less able students. (pp. 7-8)

This disappearance and stigma has been partly blamed for the skills gap in the labor market (Manufacturing Institute & Deloitte, 2015). It also decreases students’ exposure to and knowledge of non-BA postsecondary paths while leaving those who do not pursue college education without any vocational preparation.

The skills gap. The existence of a skilled trades skills gap is sometimes disputed. It is argued that increasing robotic automation, the deindustrialization of the nation with the growing service sector, and the movement of industrial jobs offshore is threatening the future of industrial skilled trades (Mills, 2016). But, as Holder (2015) explained in an article in Product Design and Development,

With increasing automation and mechanization of the manufacturing industry, the role of skilled trade hasn't diminished, it has only changed. Now manufacturers want the skilled employees to work in tandem with the machinery that essentially replaced them, and make sure that these machines are functioning at maximum productivity levels. (para. 4)

The Manufacturing Institute (2012) also acknowledged this concern and explained that the nature of the work has changed due to many manufacturers redesigning and streamlining production lines by increasing automating processes. The results of the change are that while “some remaining jobs will require less technically skilled jobs, ironically, these trends and innovations
actually demand more skilled workers, such as maintenance engineers” (p. 2). Furthermore, assistant professor of CTE at Western Michigan University, Adam Manley (2012) stated,

The mass implementation of new technology…has increased need for highly qualified technicians to design, build, maintain, and repair it. An excellent example of this need can be found in the automobile industry. While the amount of low skilled workers needed to run the assembly lines have decreased dramatically since the 1950s, there has been an increased need for qualified industrial mechanics to help maintain and repair the technology that has replaced the assembly line worker. (p.18)

In fact, in a guide called the Skilled Trades Playbook: Dynamic Partnerships for a New Economy, the Aspen Institute (2013) described how many organizations report difficulties finding skilled trades labor with the proper skill sets and training for openings, especially in advanced manufacturing. Similarly, Lynch and Aglan (2016) addressed the manufacturing skills gap in Filling the Skills Gap in U.S. Manufacturing: Promoting Internships and Co-op Experiences and Integrating Industrial Engineering Courses to Improve Student Design and Manufacturing Knowledge. They explained,

Students are under the impression that manufacturing is a floundering industry in the USA and there are limited jobs and limited job growth potential. However, this is an incorrect, and perhaps devastating, misconception. To further compound the problem, there is a skills gap with the baby boomer generation retiring and a shortage of available workers. (p. 2)

Lynch and Aglan (2016) continued by citing figures from a report produced by The Manufacturing Institute (2012). From a survey of 1,123 manufacturing executives, 67% reported a moderate to severe shortage of qualified workers and 56% expected for the shortage to worsen
over the next five years. Respondents believed that 5% of their unfilled jobs were due to too few qualified candidates which equated to 600,000 vacant positons nationwide. According to the Associated General Contractors of America, two-thirds of contractors are challenged with a shortage of labor causing one quarter of them to pass on projects (as cited in Holder, 2015). Additionally, three-fourths of construction firms find it difficult to find qualified skilled trade workers (Holder, 2015).

This gap is especially troubling in Michigan. President and CEO of the Michigan Manufacturers Association, Chuck Hadden explained the situation in the state (Michigan.gov, 2015): “Manufacturing has created more than 114,500 jobs since 2009 and employers are still searching to fill thousands of available positions… these jobs represent about one-third of the state’s employment base” (Michigan.gov, 2015, p. 1). Moreover, commentary on Michigan’s skills gap from Gallagher (2016) included,

Shortages of qualified workers … presents a drag on Michigan's future economic growth.

One area where it is felt most acutely is in the state's construction industry, which is facing shortages of carpenters, electricians and other skilled trades. For an industry still recovering from a catastrophic decline during the Great Recession, this skills gap isn't some distant possibility. It's a here-and-now problem. (para. 3)

Gallagher (2016) continued to explain that the “shortage of carpenters, pipe fitters, electricians and other skilled trades means building everything from houses to highways will get built more slowly and at a higher cost. That would create a drag on Michigan's economy” (para. 27).

In 2011, Carnevale and Smith studied job growth and the demand for education during the recovery. Directly related to declines in the automotive market through the recession, Michigan’s unemployment rate rose to well above the national average and the year-to-year
decline in jobs was considerably higher than the rest of the nation’s. The authors found that Michigan had been experiencing job loss since the year 2000, and 68% of these losses were in manufacturing.

Beginning a couple years before the study, Michigan fortunately started recovering from these devastating job losses (Bahr et al., 2015; MCAN, 2016a; Workforce Development Agency, n.d.). As stated on the Pure Michigan Talent Connect website (http://www.mitalent.org/skilled-trades), with nearly 120,000 new manufacturing jobs since 2009, Michigan has been leading the country in opportunities in manufacturing. In 2015, the number of job postings online for skilled trades positions increased 18% (Walkowicz & Wein, 2015). This was almost five times as many as there were in June of 2009 (Walkowicz & Wein, 2015). Walkowicz and Wein (2015) described how data from two years ago showed that skilled trades employment would be advancing slowly in the short-term and modestly in the long-term, but there has been a large change for the better in the past two years. Short-term and long-term projections both forecast significant increases from the previous report, and also show larger growth expected for skilled trades than for Michigan overall. (p. 11)

They also predicted in the State of Michigan’s “Employment and Occupations in the Skilled Trades” that there will be 13.9% growth in skilled trades by 2022 compared to 8.7% in all occupations. The authors projected about 6,600 openings annually in industrial and construction skilled trades through 2022. This is in contrast to 2013, when it was expected that there would be only 7.6% growth with 4,000 openings.

Furthermore, during this recovery, a significant portion of skilled trades labor is approaching retirement which is expected to widen the skills gap (Aspen Institute, 2013;
Carnevale et al., 2010; Gallagher, 2016; Matheny, et al., 2015; Mills, 2016). It is expected that industries reliant on middle-skilled labor will be disproportionately affected by current and future baby-boomer retirements (Matheny et al., 2015). The nation’s workforce does not seem prepared to fill this impending need (Aspen Institute, 2013). Mills (2016) argued in his news article “Are Skilled Trades Doomed to Decline?” that the skilled trades are in strong demand and growing:

Economists are struggling to forecast the broad implications of the overall aging of America’s workforce, the so-called Silver Tsunami, with the wave of retirements expected in the boomer generation. But this wave is coming sooner for the skilled trades. The share of workers over 45 years old in the skilled trades is about 25% greater than for the overall workforce. (para. 9)

Another prediction is that, between 2008 and 2018, the bulk of openings in blue-collar occupations will be replacement jobs, not new positions (Carnevale et al., 2010). Of all the occupational categories ranked by Carnevale et al. (2010), blue-collar jobs were the highest in this measurement with the ratio of replacement to new positions being eight to one.

Additionally, as explained in Gallagher’s (2016) article “Got Job Skills? Michigan Needs You” in the Detroit Free Press, over the next five to 10 years, three out of four skilled trades workers in Michigan will retire. Many of these unfilled positions will offer well above average earnings with benefits while requiring less than a four-year degree (Advantage Oakland, n.d.; Michigan Talent Investment Agency, 2017; Walkowicz & Wein, 2015). Walkowicz and Wein (2015) explained that understanding the current and future dynamics of skilled trades occupations is useful because of the importance of these occupations in the labor market. With a large and
growing number of jobs and above average earnings, the skilled trades provide an increasingly attractive alternative to spending a lengthy period of time earning a college degree. (p. 4)

During a speech in Wisconsin, President Obama stated this same logic:

A lot of parents, unfortunately, maybe when they saw a lot of manufacturing being offshored, told their kids you don't want to go into the trades, you don't want to go into manufacturing because you'll lose your job. A lot of young people no longer see the trades and skilled manufacturing as a viable career. But I promise you, folks can make a lot more, potentially, with skilled manufacturing or the trades than they might with an art history degree. Now, nothing wrong with an art history degree- I love art history. So I don't want to get a bunch of emails from everybody. (Laughter.) I'm just saying you can make a really good living and have a great career without getting a four-year college education as long as you get the skills and the training that you need. (as cited in Holder, 2015, para. 8)

While the average wage of all occupations is $16.70 (Walkowicz & Wein, 2015), work in the skilled trades earns median hourly wages ranging from $18.05 to $31.47 (Pure Michigan Talent Connect, n.d-b.).

Overall, individuals working in the skilled trades in Michigan have great potential to earn an above average income. This is especially significant when considering that the education required to enter the field is less likely to leave a student with the burden of student loans to repay (Walkowicz & Wein, 2015). These educational requirements vary but are typically satisfied through apprenticeships, certificates, occupational associate degrees, or long-term on-the-job training. Most registered apprenticeships are formal relationships between workers and
sponsors consisting of on-the-job training and classroom instruction (Department of Labor, n.d.; Walkowicz & Wein, 2015). The classroom portion is often provided by community colleges which may give college credit to the apprentice. However, despite their potentially great return on investment, these programs are rarely filled to capacity (Manley, 2012).

As the Advantage Oakland County (n.d.) website reported, careers in the skilled trades are frequently overlooked despite the many good jobs within the industry. As a result, while the workforce retires and technology develops, manufacturing businesses are very eager to find people, especially youth, to fill their skilled trades positions (Gallagher, 2016; Giffi & McNelly, 2011; Workforce Development Agency, n.d.). As McNelly (2016), the executive director of the Manufacturing Institute, described,

Manufacturing is facing a serious problem. Over the next decade, 3.5 million manufacturing jobs will likely need to be filled, and the skills gap is expected to result in 2 million of those jobs being unfilled. Manufacturing needs people, and reaching the next generation of workers is a top priority for those of us in the industry. (para. 2)

“Manufacturing and Millennials: Why Closing the Generation Gap is Critical” (Tate, 2014), and “Not Your Grandfather’s Factories: Attracting Millennials to Manufacturing” (Kim, 2015).

Aspen Institute (2013) reported a belief that some of the challenges of finding skilled trades labor are due to negative perceptions of the industry. Too many people envision the career as it was a half century ago (Manley, 2012). In fact, while 82% of Americans believe investments in manufacturing should increase, only 35% would encourage their children to choose manufacturing as a career (Giffi & McNelly, 2011). The Manufacturing Institute and Deloitte (2015) regularly conduct surveys to measure the public’s perception of the manufacturing industry. They found that those with strong familiarity with manufacturing held more favorable images and were two times more likely than respondents with no familiarity to encourage their children to pursue manufacturing careers. Kevin Koehler who is the president of the trade group Construction Association of Michigan, claimed that “the problem is because we really aren’t educating the parents today on the benefits of skilled trades” (Gallagher, 2016, para. 20). For example, many people do not realize that electricians and carpenters can make $75,000 to $100,000 annually (Gallagher, 2016). Also considering parents, Stephanie Comai, former director of Michigan’s Talent Investment Agency, partly blamed the educational system and the lack of career counseling occurring:

One of the things that we find is that in high school there’s not a lot of career counseling….it’s just hard to figure out what the opportunities are out there. ... Helping parents really understand the opportunities they can introduce to their kids is really important. (Gallagher, 2016, para. 7)

To fight this negative image and better inform the public, state agencies promote the skilled trades through its Going PRO media campaign on labor-related government websites.
During a review of the contents, the following examples of Michigan’s marketing efforts for the skilled trades were found on the websites of Pure Michigan Talent Connect and Advantage Oakland. On Pure Michigan Talent Connect’s (n.d-b.) webpage for the skilled trades, the introductory paragraph reads,

> Once seen exclusively as a world of manual labor, today’s skilled trades offer a wide array of opportunities for high school and community college students throughout Michigan. Careers in emerging fields, like healthcare and information technology, often require less schooling and debt than a four-year degree. Which means you could be earning a great salary and benefits sooner than you ever imagined.

Again, the argument for learning a skilled trade is the possibility of attractive income without the expense of a university education. Oakland County also marketed the skilled trades in this manner to southeast Michigan:

> Although most skilled trade professions don't require a four year degree, you do need a mix of talent, experience and possibly a certification or license... Vocational schools, career colleges and technical schools can save you money and time when compared to the expense of earning a two or four year diploma. (Advantage Oakland, n.d.)

Pure Michigan Talent Connect (n.d-b.) also drew attention to how the skilled trades have changed and no longer match the common perceptions people often have of the field:

> A far cry from just a generation ago, today’s Skilled Trades offer an array of opportunities that challenge both mind and body. And not only in traditional fields, like construction and advanced manufacturing, but also in new and emerging fields, including healthcare and information technology.

In addition, skilled trades are presented as more than just manual labor by stressing the use of
mental skills:

Construction involves more than just wearing a hard hat. They’re jobs that require problem-solving abilities and math skills like calculating measurements, weights, and the ability to read blueprints. (Pure Michigan Talent Connect, n.d-b.)

Plus, they messaged youth with comparisons to previous generations:

This isn’t the production line technology of your grandparents or your parents – these are cutting-edge careers using 3-D models, computer simulations, software development and more. (Pure Michigan Talent Connect, n.d-b.)

However and unfortunately, visitors of the Pure Michigan Talent Connect website were also guided to videos titled “Jobs for Young Adults” where Mike Rowe, creator of the television show “Dirty Jobs” and “Somebody’s Gotta Do It” attempts to persuade young adults in Michigan to consider careers in manufacturing and welding (Pure Michigan Talent Connect, n.d-a.).

Similarly, on the webpage “Careers in Michigan for Kids,” Tom Daldin introduces children to various skilled trades. Both of the spokespersons are middle-aged, White males wearing ball-caps. One even has a thick horseshoe mustache, presenting a stereotypical masculine, blue-collar character. These images do not help the poor perception of skilled trade occupations.

Considering the video titles “Dirty Jobs” and “Somebody’s Gotta Do It,” it is not difficult to understand how millennials may not be attracted to these opportunities, especially after being raised in a college-for-all culture and growing up during a recession.

Community Colleges

Mission. Initially, community colleges primarily served students who were seeking general education or intended to transfer to four-year colleges. But, community colleges now seem to try to be everything to everyone. Dissimilar to four-year colleges and universities, the
community college mission currently includes providing technical training for local business and industry, developmental programs for unprepared students, coursework that is transferable to universities, open access to education, service to the community, and lifelong learning (Baime & Baum, 2016; Lamrogowicz, 2014; Nevarez & Wood, 2010; Watson & Brand, 2014). In other words, as Watson and Brand (2014) stated, “Unlike their four-year counterparts, whose primary mission is to provide academic education for baccalaureate attainment and beyond, community college administrators and faculty work to provide curricula to fulfill all the educational needs of their stakeholders” (p. 162).

Consequently, in Schurman and Soares’s (2010) description of the functions of community colleges, they referred to community colleges as the “linchpin in the nation’s postsecondary system” since they are the only schools that explicitly serve all knowledge types demanded in the workforce (p. 137). The authors even questioned if the mission of community colleges is too broad. They continued by listing the credentials students can earn through community college work. Through community colleges, students can complete various levels of credentials including academic associate degrees, applied associate degrees, certificates, and even bachelor’s degrees. While applied associate degree and certificate programs are primarily for students who intend to directly enter employment following graduation, academic associate degrees are better geared for students who expect to later transfer to a four-year institution to earn a bachelor’s degree. Generally, the curricula for applied associate degrees and certificates consist of general education courses and occupational technical courses. These occupational associate degrees and certificates are often considered terminal credentials. So, typically many of the general education credits within a CTE program do not transfer to a four-year school in contrast to how the credits from associate of science or arts degree programs often do.
Sadly, despite all that they do to serve their constituents, community colleges exist on the periphery of higher education and are subordinate to four-year schools (Watson & Brand, 2014). In addition, there seems to be a persistent negative perception of community colleges. Feeding this stigma are many elements including the inappropriate ways of measuring success that community colleges are often subjected to (Baime & Baum, 2016; Fralick, 1993; Hirschy, Bremer, & Castellano, 2011; Lamrogowicz, 2014; Nevarez & Wood, 2010) and the belief that community college credentials are not adequate qualifications for decent employment (Ahearn et al., 2016; Collins, 1971; Holland, 2015; Mullin & Phillippe, 2013; Rosenbaum & Rosenbaum, 2013). Lowry (2017) described how a common misconception is that students who choose 2-year schools do so because they are academically deficient or price conscious even though community colleges are home to competitive technical and medical programs, academic honors programs, and honor societies. (p. 20)

Another example of a contributing factor to the detrimental view of community colleges is the phenomenon of the community college penalty. According to the community college penalty, students who begin their college careers at two-year schools are less likely to graduate with bachelor’s degrees than students who start at four-year colleges (Baime & Baum, 2016; Lamrogowicz, 2014; Nevarez & Wood, 2010).

**Population.** Community colleges enroll about 43% of the nation’s undergraduate population plus approximately five million noncredit students (Mullin & Phillippe, 2013). This sector of higher education experienced the greatest growth between 1960 and 1970 with a 45% increase in numbers (Nevarez & Wood, 2010). Enrollment was 850,361 students in 1963, 4,042,942 students in 1977, and over 6.6 million in 2007 (Nevarez & Wood, 2010). Increases in
enrollment have been influenced by increasing college expectations in addition to population
growth and students’ attraction to community colleges’ affordability, open admissions policies,
geographic proximity to communities, small class sizes, and flexible class schedules (Munsch &
Kelsay, 2014; Nevarez & Wood, 2010).

Watson and Brand (2014) argued that, due to open access, community colleges have the
most diverse student populations in higher education. For example, many academically-advanced
students begin at community colleges with full intentions to transfer. Yet, a large percentage of
community college students require remediation in the gatekeeping subjects of reading, writing,
and mathematics (Mullin & Phillippe, 2013; Nevarez & Wood, 2010). Furthermore, public two-
year schools serve a larger percentage of female, first-generation, and minority students than
other nonprofit institutions of higher education (Baime & Baum, 2016).

But while being relatively diverse, the populations of these colleges also mirror their
surrounding communities (Baime & Baum, 2016). In relation to Michigan, during the 2013-14
school year, the state’s 28 public community colleges had a total enrollment of 411,764. Of these
students, 214,166 were enrolled in for-credit programs and 197,598 were participating in non-
credit programs (Workforce Development Agency, 2015). That year, the state’s community
colleges graduated 31 individuals with bachelor’s degrees; 26,106 with associate degrees; and
10,668 with certificates. The average in-district cost per credit hour was $98.13, while the
average out-of-district cost per credit hour was $161.78. Over 65% of these students were
attending college part-time, and the average age of the Michigan community college student was
25.1 years with 56% of the population being between 18 and 24 years old. In relation to gender,
56% were women and 44% were men. Minorities made up almost 28% of the student body that
year which included African Americans at 17% and Hispanics at 4%. Additionally, of the total
Michigan community college population in 2013-14, 36% were first generation students, 7% were non-U.S. citizens, and 17% were single parents.

Completion. To return to the image-harming concept of the community college penalty, community college students often experience an ease in acceptance but are challenged in completion (American College Testing, 2016; Hirschy et al., 2011; NCES, 2014b; Nevarez & Wood, 2010; Roberts, 2016). As told by the data, there is a sizable discrepancy in the number of students entering compared to those leaving with credentials. American College Testing (2016) reported in the “National Collegiate Retention and Persistence to Degree Rates” that the percentage of full-time, public community colleges students who persisted from fall 2014 to fall 2015 was a low 56%. Likewise, according to the NCES (2014b), only 29.4% of the 2010 starting cohort of first-time, full-time students seeking a degree or certificate at a two-year college completed the credential within 150% of normal time. Furthermore, in “Persistence and Attainment among Postsecondary Subbaccalaureate Students,” Roberts (2016) compared students who initially sought bachelor’s degrees to students who began college with the goal of completing subbaccalaureate degrees and certificates. Of students who began studying in 2003-04, only 39% of the students at the subbaccalaureate level had completed a credential by 2009 while 67% of the four-year level students had earned their degrees. There was no difference between students seeking subbaccalaureate credentials in academic fields and occupational fields.

However, Lichtenberger and Dietrich (2017) reviewed research of the community college penalty and found conflicting results. Some of the studies supporting the community college penalty did not choose an appropriate point to commence tracking outcomes and as a result did not give students enough time to complete their degrees. Another methodological fault of
community college penalty research was comparing university rising juniors with incoming community college students with differing amounts of transfer credit or whole cohorts of community college students which included those who successfully transferred and those who did not. When rising juniors are measured against transfer students who entered a four-year college with an equal number of credits, as Lichtenberger and Dietrich (2017) found, the community college penalty hypothesis was not supported. Additionally, and very importantly, most research on attrition, such as Roberts’ study above, is based in theories related to students of four-year schools (Hirschy et al., 2011). Due to the differences in admissions policies and the college readiness of the applicants, it is unfair to compare completion rates of two-year schools with those of four-year schools.

Furthermore, community colleges have considerable difficulties measuring and demonstrating success due to the great diversity of reasons students have for attending (Baime & Baum, 2016; Lamrogowicz, 2014). For example, Provasnik and Planty (2008) estimated the percentages of 2003-04 community college students working towards various goals: 43% two-year degree, 17% certificate, 36% transfer to a four-year institution, 15% transfer to another college, 42% job skill development, and 46% personal interest. In contrast, another look at goals was taken by Somers et al. (2006), who studied the college choice process of community college students, and they found that most of the participants held goals of transfer and completion of bachelor’s degrees.

And yet another example is how Bailey et al. (2004) found that applied students have higher attrition rates compared to academic students. On the other hand, Bailey and Belfield (2013) found that certificate programs have higher completion rates than associate degree programs, possibly due to length of time to completion. Another way data for community
colleges can be deceiving is due to how it is often for graduation or transfer rates within just two or three years. So, completion and retention rates are blurred by students who “stop out” or attend part-time then transfer years later plus measurements often do not consider the completion of vocational certificates (Baime & Baum, 2016; Lamrogowicz, 2014; Nevarez & Wood, 2010).

Regardless of students’ reasons for attendance or times to completion, community college students can exhibit attrition and still reach their academic and/or vocational goals (Fralick, 1993). This is called positive attrition and complicates the measurements of success for community colleges even more. For example, students who do not intend to finish a credential are sometimes pressured to officially declare a degree or certificate in order to receive financial aid (Nevarez & Wood, 2010). As a result, these students are recorded by the college as intending to complete a full credential, when all they really wanted was a couple courses to update their skills. These students leave college after receiving the training they desired. However, they are counted against the college’s retention rate. This counts as failure for the college even though the school served the students’ and community’s workforce needs well.

Overall, without understanding the nuances of the students and their goals, a negative view of this population unfortunately results (Hirschy et al., 2011). Simplifying community college students’ success to measurements of completion ignores other factors that influence their outcomes and experiences (Hirschy et al., 2011). Therefore, completion and persistence rates should not be used to dissuade students from pursuing community college credentials.

Certificates. The majority of certificates prepare students for positions in vocational fields that require less than a four-year degree and are primarily accomplished via classroom instruction in community colleges and private for-profit schools (Carnevale et al., 2012; Chen, 2016). Although certificate programs may contain some academically oriented courses, most
certificates are predominantly vocational, associated with a limited set of occupations, and do not require academic abilities beyond a 10th grade level (Bosworth, 2010; Carnevale et al., 2012; Rosenbaum & Rosenbaum, 2013). Certificates are typically shorter than associate degree programs, varying in length from less than a year to two years of full-time enrollment, which allows students to gain and demonstrate skills to employers often in significantly less time and expense than in four- or two-year programs (Aspen Institute, 2013). Most certificates are more similar to degrees than certifications and licenses. They “differ from other kinds of labor market credentials such as industry-based certifications and licenses, which typically involve passing an examination to prove a specific competency, completing an apprenticeship or attending company or government training programs” (Carnevale et al., 2012, p. 3). Although there are certificates offered at the baccalaureate and graduate levels, they are a very small minority. These certificates are usually not included in references to certificates in general and are not part of this study or this review of literature.

Even though they are often not included in higher education research and measurements of education levels, certificates play a significant role in the job market (Matheny, 2015; Mullin & Phillippe, 2013). In fact, Carnevale et al. (2010) predicted that in 2018, certificates will be required for 17% of all positions. Another factor that hinders the acknowledgment of certificates is that often they are hidden behind higher credentials. When gauging postsecondary education levels, often individuals are asked for their highest level of education which means a certificate is trumped by higher degrees (Mullin & Phillippe, 2013).

Despite the invisibility of the credential, over the past 30 years, the number of certificates earned in the U.S has grown over 800% (Carnevale et al., 2012). Certificates equaled 40% of all credentials awarded by community colleges in 2009-10 (Mullin & Phillippe, 2013; Xu &
In 2003-04 approximately 7% and in 2011-12 about 8% of the undergraduate population were pursuing certificates (Chen, 2016). Of these certificate-pursuers, 28% in 2003-04 and one-third in 2011-12 already had earned a postsecondary credential (Chen, 2016). Health care, personal/consumer services, and manufacturing/construction/repair/transportation were the predominant fields in which students pursued certificates in 2011-12 (Chen, 2016). According to the NCES (2014c), during the 2013-14 academic year, 969,353 certificates were conferred. For comparison, in 1998-1999, there were only 555,883 people who completed certificate programs (NCES, 2015b). A high was reached in 2010-11 with 1,030,477 students.

Of the certificates earned in 2013-14, there were 479,574 certificates awarded with curriculum lasting less than one year and 489,779 individuals earned certificates from programs lasting longer than one year but less than four years (NCES, 2014c). Of these graduates, 54% were White, 19% Hispanic, 18% African American, and 5% Asian/Pacific Islander (NCES, 2015b). Additionally, 40% of the total consisted of males (NCES, 2015b). The increase in certificate attainment has been due to more women, minority women in particular, pursuing credentials in health care (Mullin & Phillippe, 2013; Quillen, 2009). Furthermore, those with certificates tend to have parents with lower education levels, come from families with low socioeconomic status, and have scores within the lowest quartiles of the Armed Services Vocational Aptitude Battery (Carnevale, Rose, & Hanson, 2012). In relation to the timing of certificate completion, 23% were earned by recent high school graduates, 21% were completed by 20- to 22-year-olds, 22% were for people between the ages of 23 and 29, 18% were awarded to those in their 30s, and 16% were conferred to people 40 and older (Carnevale et al., 2012). Of those who hold certificates, 34% also possessed college degrees (Carnevale et al., 2012).

The Lumina Foundation (2016) in 2014 began including “high-value postsecondary
certificates” in their measurement of the percentage of working-age adults with postsecondary credentials. According to the Lumina Foundation (2016), this was the first nationally representative collection of data on certificates ever conducted. They defined high-value certificate holders as those who reported working in the same field as they held certificates in. This in-field qualification is aligned with the findings of Carnevale et al. (2012) who found that matching field of work with field of certificate raised earnings 31% over those who did not work in the same occupation as their certificate. The result of including high-value certificates was a jump in the percentage of adults with completed postsecondary credentials, from 40% in 2013 to 45.3% in 2014. In the previous six years, the annual increase in percentage ranged from 0.2 to 0.6. So, including certificates raised the percentage by over 5%. In Michigan in 2014, the portion of the population between the ages of 25 and 64 that possessed a two- or four-year degree was 39.3% (MCAN, 2016b.). Thanks to the improved measurements of the Lumina Foundation, we now know that 4% of the working-age adults in Michigan have a high-value postsecondary certificate, bringing the percentage of adults with a college education to 43.3% (Lumina, 2016; MCAN, n.d.).

Although this progress is encouraging, there is still little research on the return on investment for certificates (Matheny et al., 2015). When the financial benefits of these credentials are studied, the focus is usually on associate degrees (Xu & Trimble, 2014). Moreover, certificates are often included in “some college” or “high school diploma” categories (Carnevale et al., 2014). However, there has been a bit of scholarly activity concerned with income premiums for certificates and the methods of measurement are improving.

An example of this research is the report *Certificates: Gateway to Gainful Employment and College Degrees* by Carnevale et al. (2012). From their analysis, they found that the average
income premium for a certificate was 20%. However,

some certificate holders earn as much as or even more than workers with college degrees. Among male certificate holders, 39 percent earn more than the median male with an associate degree, and 24 percent earn more than the median male with a bachelor’s degree. Among female certificate holders, the numbers are comparable: 34 percent earn more than female associate degree holders, and 23 percent earn more than female bachelor’s degree holders. (p. 6)

But, not unlike other college credentials, income varied considerably amongst individuals depending on some important variables. As discussed, earnings were greater for those who actually worked in the same occupational fields as their certificates. The research also showed that gender and ethnicity influenced income for certificate holders. Additionally, there seemed to be a relationship between length of certificate and income in that those lasting less than a year had little value. However, when healthcare certificates were removed from the analysis, this relationship weakened and field became more relevant. It is important to note that there was a high correlation between field and sex. Moreover, the value of certificates were dependent upon the local demand for middle-skilled labor.

Additionally, a meta-analysis by Belfield and Bailey (2011) found that associate degree holders earned 13% (males) and 22% (females) more the high school graduates while the earning premiums for vocational certificates ranged from seven to 24% more. Furthermore, the earnings premium for time spent as a community college student before earning a credential averaged 9%. Generally, college drop-outs did not gain any economic advantages for completing some college.

In their paper “What about Certificates? Evidence on the Labor Market Returns to Nondegree Community College Awards in Two States,” Xu and Trimble (2014) tested the
assumption that certificates are worth the cost and time for students. According Xu and Trimble (2014), “certificates are something of a well-kept secret in higher education. Until recent years, there had been relatively little discussion of certificates either in the academic literature or in education news outlets” (p. 1). While critical of the lack of research, Xu and Trimble (2014) also pointed to the limitations of the research about certificates that has been performed. They explained that studies lacked controls for ability bias, relied on self-reported income from participants, had low response rates, and followed-up too quickly after program completion. Studies also combined various programs into larger categories, which hid salient differences. Compared to forming broad categories containing programs serving diverse industries, revealing the details about program differences is more useful for students, college leadership, and scholars. Students who are making program decisions benefit from information about specific programs. For example, according to Carnevale (2015), “sometimes less education is worth more. A one-year computer certificate earns up to $72,000 a year compared with $54,000 for the average B.A.” (p. 5). Another important finding from Xu and Trimble’s (2014) review is that research based on surveys done at the national level may not be relevant at state and local levels. Community colleges primarily serve the needs of the local labor market. So it is beneficial for students and state policymakers to have more detailed information on the offerings of community colleges specific to their areas.

Fortunately, community college administrative data is increasingly being linked with state data to determine the returns on investment for associate degrees and certificates (Xu & Trimble, 2014). The detailed information kept by colleges allows for more effective methods of measuring the consequences of awarded credentials. Examples of state-based analyses of these levels of credentials are Bahr (2014) for California; Dadger and Trimble (2015) for Washington;
Jepson, Troske, and Coombs (2014) for Kentucky; Liu, Belfield, and Trimble (2015) for North Carolina; and Bahr et al. (2015) for Michigan. The heterogeneous findings resulting from this research at the state level highlights the importance of studying certificates at local levels (Matheny et al., 2015; Xu & Trimble, 2014).

Many of the state-level studies performed used an individual fixed effects model to compare the income of students pre- and post-certificate completion (Xu & Trimble, 2014). Bahr et al. (2015) described how the individual fixed effects model “estimates the average within-person earnings difference before and after earning an award, which allows us to ‘difference out’ person-specific traits that are time-invariant, conditional on the assumption that pre-award earnings capture these fixed effects” (p. 21). The individual fixed effects model allows for the estimation of changes in income while controlling “for any observed individual characteristics that are constant over time” (Xu & Trimble, 2014, p. 3). This is in contrast to the traditional Mincerian method, which approximates income at a given time based on prior work experience, education, and individual characteristics. As demonstrated by Belfield et al. (2013), the two different methods can produce significantly different results (Xu & Trimble, 2014).

Particular to Michigan, Bahr et al. (2015) studied the returns on credentials of 20,581 first-time college students from five of the state’s public community colleges in 2003 and 2004. Of these students, by 2011, 33% transferred to a four-year school, 15% completed associate degrees, 4% earned long-term certificates (15 or more credit hours of coursework), 1% finished short-term certificates (fewer than 15 credit hours), and 68% did not earn a credential. Using quarterly unemployment insurance records, they compared the earnings of those who earned a certificate or associate degree with those who did not finish a credential. Long-term certificates annually earned $2,500 to $3,600 more than those who enrolled but did not complete. Short-term
certificates did not result in gains for women, but men’s income increased by $5,200 per year. Moreover, there was greater employment for all credential levels, with the exception of short-term certificates for women. Consistent with the other state-centered studies mentioned above, the returns for health-related credentials had particularly high returns. But, certificates and associate degrees for technical fields produced varied outcomes across labor markets. In Michigan, manufacturing dominated and males in Michigan reap higher earnings for short-term certificates than in other states. Bahr et al. (2015) concluded their report with this statement:

Some community college awards offer valuable payoffs in the labor market, relative to the gains experienced by students who do not complete a credential … the relative returns appear to depend critically on the field of study and type of award. This highlights the importance of policies and programs that help students carefully consider their choice of field as well as provide them the support necessary to complete their credential. Moreover, these results point to the need for additional and ongoing analyses at the level of the state and local labor market, as there appear to be potentially important differences across locales in terms of the economic returns of community college awards. (p. 30)

Another example of research on community college credentials at a state level is “Assembling a Career: Labor Market Outcomes for Manufacturing Program Students in Two-Year Technical Colleges” authored by Matheny et al. (2015). To test the merits of human capital theory and sorting theory, Matheny et al. (2015) analyzed wage and administrative data for over 6,000 students enrolled in manufacturing programs at Wisconsin community colleges from 2007 to 2009. In support of sorting theory, credential earners had higher rates of employment and greater earnings than those who did not complete their programs, meaning that employers use the completed credential as a signal of the possession of desired skills and education. In contrast,
human capital theory would have been demonstrated through noncompleters being compensated for the skills they developed despite not earning a credential. This is sometimes referred to as “jobbing-out,” where students leave programs prior to completion because they received enough training to progress professionally. Matheny’s et al. (2015) study pointed to the importance of students finishing credentials to avoid joining the population of individuals with some college who are often synonymous with those with only high school diplomas. The study also echoed what other scholars have learned to be true about certificates-the outcomes depend on the discipline studied and the local market. Given the importance of manufacturing to Wisconsin, in general, the students who completed programs in manufacturing earned more than those who earned non-manufacturing credentials. Matheny et al. (2015) also discussed the importance of increasing the understanding of this nuanced relationship especially in terms of the reasons for students’ career choices and their awareness of the local economy and job market.

In relation to the likelihood of success for certificate students, it depends on how success is defined. Similar to how it is unfair to judge community colleges by the same values that four-year schools are judged, which is discussed in an earlier section (Baime & Baum, 2016; Fralick, 1993; Hirschy et al., 2011; Lamrogowicz, 2014; Nevarez & Wood, 2010), measures of success for certificate students should be carefully considered and applied. Reasons for this include the pattern of students jobbing-out of applied programs (Matheny et al., 2015) and the competing priorities of community college students (such as parenting and employment) in comparison to traditional university students (Fralick, 1993; Provasnik & Planty, 2008; Workforce Development Agency, 2015). Another element vital to the consideration of certificate student success is the widespread requirement of remedial coursework (Jenkins & Cho, 2012). Jenkins and Cho (2012) found that community college students were more likely to earn a certificate or
degree if they entered a program within the first year of their enrollment. However, many students struggle to complete a program because they cannot even enter their target programs due to remedial work. Remedial coursework is characterized as a community college challenge due to open access, as opposed to four-year schools, which are more selective and therefore do not have to cope with developmental education needs to the same extent. Another element complicating the success equation of certificate students is the important relationship between field of study, industry of employment, and the needs of the local labor market (Bahr et al., 2015; Matheny et al., 2015; Sutton, Bosky, & Muller, 2016; Xu & Trimble, 2014). For instance, when students work in the same fields of their certificates, their earnings tend to be higher than when they do not (Carnevale et al., 2012).

Overall, there is little research on the experiences of certificate students during or after college (Xu & Trimble, 2014). It was not until recently that the government even began counting certificates as its own category when measuring education levels (Lumina, 2016; Mullin & Phillippe, 2013). So, more research must be done to understand the experiences, goals, and outcomes of certificate students. This knowledge is vital to increasing their rates of success however it is defined. The following study hoped to contribute to this effort.
Chapter Three: Research Design

Chapter Three introduces college choice theory to establish a theoretical foundation for this case study. The chapter discusses community college choice and the decisions to pursue certificates. Following theory, case studies as a method is covered, which includes discussion of case selection. Next, the research design is explained with descriptions of each phase of data collection. The chapter continues by explaining how the data was analyzed. Discussions about credibility and limitations end the chapter.

College Choice Theory

This nation is suffering with a system that frequently mismatches people to education and employment opportunities (Carnevale & Smith, 2011; Carnevale et al., 2010). The deficient links between college and real-life jobs can be improved with information that is often readily available but just not being shared. Within Carnevale’s (2015) commentary on the new labor market in Issues in Science and Technology, he described the importance of effective and efficient connections between education and information about the needs of the workforce:

The market signaling from postsecondary programs to students, workers, and employers becomes a Tower of Babel. Today, there is a need for clear, comprehensive, and actionable information that connects postsecondary education options with labor market demand. The nation has built a vast postsecondary network of institutions and programs with no common operating system that links programs to careers. To get a better handle on the big black box that postsecondary education and training has become and address the inefficient and inequitable use of education and workforce information, we need a new approach. (para. 7)
However, despite the nation’s cumbersome and dysfunctional workforce development system, there are some students who have figured it out. The current study explored the decision process of millennials pursuing certificates in in-demand skilled trades at a community college. College choice theory served as a guide to understand how this match happened.

Choosing to attend college is a complicated process that begins long before college enrollment and involves a variety of variables that influence and often dictate decisions (Henrickson, 2002; Workman, 2015). Many scholars have studied the process by which students choose whether and where to enroll in college in addition to the timing of and influences on this decision (Aldous, 2009). According to Hendrickson’s count in 2002, over the previous 40 years, there had been approximately 1,900 publications about college choice and access. Henrickson (2002) described the college choice phenomenon as a developmental process model capturing “elements of potential students, institutional characteristics, and the college application process” (p. 403). There are various strains of college choice theory, many putting emphasis on different variables and interactions over time (Aldous, 2009). Yet, three theoretical approaches dominate college choice theory research: economic, status-attainment, and a combination of the two (Aldous, 2009; Jackson, 1982; Somers et al., 2006).

The economic model most often used by scholars to describe the decision to invest in college is a return on investment equation based in human capital theory. According to human capital theory, individuals invest in human capital in an effort to maximize satisfaction until the marginal benefits equal the marginal costs (Becker, 1962). Furthermore, the investment return of college education should be a principal motivation to pursue postsecondary education. Thus, when applying the return on investment concept to the decision to attend college, the decision is based on the returns on a college education such as increased salary versus the direct costs such
as tuition and the sacrificed earnings from working instead of attending school (Oreopoulos & Petronjevic, 2013). Simply put, students should invest in college until the marginal benefits equal the costs.

However, economic models assume that students are rational actors and base decisions on clear cost-benefit analysis with complete information (Becker, 1962; Oreopoulos & Petronjevic, 2013). This classic theory presumes that students have knowledge of all costs and benefits, can borrow against their future earnings, and do not possess an aversion to debt or risk (Oreopoulos & Petronjevic, 2013). The equation takes for granted perfect information and an objective perspective. But, being humans, students naturally make decisions with cognitive limitations and influential biases.

On the other hand, sociological models, such as status-attainment, focus on the variety of factors that form a student’s college and occupational aspirations (Jackson, 1982; Somers et al., 2006). According to this perspective, students’ goals plus their individual and social constraints influence their levels of educational attainment. Factors such as race and ethnicity, high school curriculum, family income, parents’ levels of education, expectations of parents, and academic achievement can have significant influence on students’ decisions of whether and where to attend college (Aldous, 2009). Moreover, Aldous (2009) discussed how a psychological interaction occurs between students and an institution’s characteristics such as the availability of financial aid, cost of tuition, and location affects their choices.

In 1987, another sort of model was introduced by Hossler and Gallagher (1987). They developed a three-phase model of the college choice process that is now widely cited and described in the literature (Aldous, 2009; Henrickson, 2002; Jackson, 1982). The first phase consists of the development of aspirations and an assessment of resources that allows for an
evaluation of multiple post-high school options. It centers around the student’s predisposition to attend college based on factors such as parental involvement, socioeconomic status, and the value placed on college attendance. The second phase is considered the search phase. During this phase, students exclude the impractical options and learn more about the most achievable possibilities. In the third phase, students evaluate remaining options and choose a path to pursue.

While comprehensive college choice models like Hossler and Gallagher’s (1987) may serve as a foundation by providing variables and process points for further research, they do not adequately describe the college choice process for students from diverse backgrounds (Aldous, 2009; Henrickson, 2002). Therefore, they fail to describe which factors become salient at what time and in which context for a large percentage of students. With the college population growing increasingly diverse, there is a trend to move away from comprehensive approaches to college choice theory and toward developing models more specific to less-studied groups (Aldous, 2009).

In order to focus on specific student populations, scholars must give more attention to social and cultural context (Aldous, 2009). We must be cognizant of the constraints that disproportionally affect underrepresented students, specifically students of color and those from lower socioeconomic backgrounds. These constraints may include a lack of college preparation courses, parents’ misperceptions of the cost of college and misunderstandings of financial aid, a lack of involvement from high school teachers and counselors, and fear of student loans (Aldous, 2009).

**Community college choice models.** Despite how community colleges are “indispensable to meeting national goals for educational attainment as well as for the development of a productive workforce” (Baime & Baum, 2016, p. 1), most college choice models are based on
traditional students headed to four-year colleges (Henrickson, 2002). Related to college choice and also a crucial decision for students, is the choice of major or program (Workman, 2015). There is a large body of research on this topic and much of it is also focused on students pursuing bachelor’s degrees who frequently choose institutions then programs (e.g., Bartolj & Polanec, 2012; Beggs, Banham, & Taylor, 2008; Malgwi, Howe, & Burnaby, 2005; Robst, 2007; Workman, 2015). With so much literature centered on students pursuing bachelor’s degrees, it is important to make conscious effort to learn more about community college students versus just applying four-year principles to and making assumptions about this student population.

It’s commonly just presumed that students who make the decision to attend community colleges, as opposed to four-year schools, do so because they are academically deficient, cannot afford to attend a university, or need to stay close to their hometown (Lowry, 2017; Somers et al., 2006). To increase understanding of why and how students decide to enroll in community colleges, Somers et al. (2006) used a combined sociological and economic model that considered eight factors found in previous research: student background characteristics, aspirations, educational achievement, social environment, financial variables, net cost, institutional climate, and institutional characteristics. From five community colleges in urban and rural areas of one state, 223 students completed surveys and participated in focus groups. Somers et al. (2006) analyzed the resulting transcripts based on the eight variables found to be relevant in the review of research. They found the following themes: determination to prove wrong those who discouraged them; financial, educational, and personal crises often happening simultaneously; aspirations to transfer and earn a four-year degree; influence of family and peers as opposed to high school teachers and counselors; and institutional characteristics specific to community
colleges (mostly in comparison to universities) such as smaller classes, ease of enrollment, more individual attention, employers’ perceptions of programs, and faculty more interested in teaching.

Another theme revealed in the analysis of Somers et al. (2006) was the importance of the cost and proximity of their colleges in relation to home and work. The students were more concerned about the “sticker price” of their education versus the final cost when including financial aid. However, many participants of the study were part of a program where their state paid their tuition and general fees if they attended one of the state’s public community colleges. This detail may have skewed the responses from the participants. If it were not for this program, they may have made different college choices.

The result of the study was a preliminary model of community college choice based on ten factors that influence students’ decisions to attend community colleges. Somers et al. (2006) divided these ten factors into the three categories: aspirations and encouragement, institutional characteristics, and finances.

Years after the study, Wood and Harrison (2014) questioned whether the college choice model developed by Somers et al. (2006) could be applied to a subpopulation of community college students, specifically African American male students. Using data from the ELS, Wood and Harrison (2014) described those who attended two-year and four-year colleges, completed t-tests to identify differences between the groups, and performed logistic regression to determine the odds of attending each institutional type. Although they used three waves of data, Wood and Harrison (2014) listed the static nature of the data as one of the limitations of their study since it did not represent the dynamic nature of the college choice decision process.
In relation to their dependent variable of institutional type (two-year or four-year), they explored 17 independent variables:

- low expenses
- availability of financial aid
- courses/curriculum
- school’s athletic program
- school’s active social life
- living at home
- being away from home
- low crime
- job placement record
- academic reputation
- school’s easy admission
- degree in chosen field
- racial makeup
- school’s size
- school’s geographic location
- school same as one parent attended
- school’s acceptance of college credit (p. 91).

These variables were rated by the participants using a three-point scale of not important, somewhat important, and very important. While controlling for family income, parents’ levels of education, GPA in high school, and the highest degree the student expected to complete, the authors found that African American males were more likely to select a community college if they were interested in low costs, ease of admission and transferring credit, availability of financial aid, proximity to home, academic reputation, and job placement. When comparing their data to the findings of Somers et al. (2006), they found more emphasis on institutional characteristics and financial considerations and less consideration for educational aspiration.

To learn more about the role parents play in the decision to attend a community college, Bers and Galowich (2002) gathered data from parents through surveys and focus groups. They found that students who began planning for college late in high school or following high school were more likely to attend a community college. Parents learned about schools through various methods and used three informational resources on average. Concerning their level of involvement in the decision, 31% of parents became involved in their student’s college choice process during the first two years of high school, 46% started becoming involved during the junior and senior years, 4% after their child graduated from high school, and 19% of parents
were never involved. Interestingly, a third of the parents who perceived their child’s academic skills to be at the highest levels did not ever get involved in their child’s decision to attend college. College choice factors that were influential during the process were finances, academic skills, and uncertainty about college attendance. Most parents reported that they introduced the idea of attending a community college to their child or that the initial idea was a cooperative effort between the parent and student. For 46% of participants, the final decision to attend a community college was made by the student and for 51%, it was a joint decision. The majority of parents indicated high levels of confidence and comfort in their college choice. During the focus groups, many parents commented on their student’s immaturity, poor academic preparation, and lack of focus. There were also comments about annoyance over remedial coursework combined with overestimations of their child’s academic ability, misunderstandings of many terms used in the college catalogs, confusion about transferability of courses, and how the catalog made no mention of the college’s role in finding employment after graduation.

Within the limited work done in the area of community college choice there was also Boudarbat’s (2008) research that found that Canadian community college students’ choices of field of study were significantly dependent upon anticipated income, Cunningham’s (2006) application of vocational choice theory to students studying construction, Lee’s (2011) dissertation on which variables are influential for high performing students who choose to attend community colleges, Newton’s (2012) findings of a statistically significant relationship between selection of academic credential level and ethnicity, and Cunningham’s (2013) comparison between college choice processes of university and community college students in agriculture programs.
Certificate choice models If the research on college choice for community college students is slim (Somers et al., 2006), the literature on certificate students is slimmer. It is possible that the decision process could be different significantly different for students who do not intend to transfer. For instance, traditional bachelor’s degree students are commonly encouraged to select courses that allow for the exploration of various majors before committing (Rosenbaum & Rosenbaum, 2013). However, certificate pursuers are on a shorter timeline than bachelor’s degree students. This condensed schedule may cause certificate students to experience the college choice process differently. Due to the speed and nature of certificate programs, students choosing an institution may simultaneously be committing to a major and career. This is in contrast to the four-year model where choice of major and career often occurs after the choice of institution is made followed by a period for exploring disciplines (Rosenbaum & Rosenbaum, 2013). This variation is just one example of how the decision process could be significantly different and highlights how important it is to increase understanding of this vital but neglected student population.

Method

The goal of this study was to address the following question: How do millennials make the decision to pursue certificates in skilled trades at community colleges within the college-for-all culture?

While answering the research question, several sub-questions were also considered including the following: How do millennials learn about certificate programs? What are their reasons for pursuing certificates? What and who influences their choices regarding institution, credential level, and career field? At what points in their lives do they make key decisions? What
are their expected outcomes after certificate completion? What is the relationship between the college-for-all culture and the decision to pursue certificates?

**Case study.** The research question was answered using a case study model. The term case study is often misunderstood. It is commonly used as a catch-all for studies that are not clearly a survey or experimental (Merriam, 1998). The term is also sometimes interchangeably used to describe qualitative research in general. Additionally, case studies are often confused with other concepts such as casework, case method, and case history (Merriam, 1998). Since the term is often not applied precisely, it is important to clearly describe what a case study actually is. As defined by Simons (2009), a case study is an “in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system in a ‘real life’ context” (as cited in Thomas, 2013, p. 591). Yin (2014) described case studies as empirical inquiries that investigate “a contemporary phenomenon in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (p. 16). Merriam (1998) offered this definition, “a case study is an intensive, holistic description and analysis of a single entity, phenomenon, or social unit” (p. 34). What defines case studies in education is a focus on a phenomenon related to teaching and learning (Merriam, 1998).

Moreover, case studies are centered on description and exploration, as opposed to experimental designs, which are concerned with explanation and causation (Cousin, 2005). They are a popular way of studying subject matter in detail and consist of exploration of the subject from multiple and differing angles to advance understanding of it (Cousin, 2005; Thomas, 2013). Thomas (2013) explained that “they excavate, elaborate and explicate offering…a form of inquiry that promises kinds of understanding not accessible through other
kinds of research” (p. 599). Merriam (1998) emphasized how case studies focus on a particular phenomenon and are helpful in increasing a reader’s understanding of the phenomena studied. The dominant goal of case study research is to produce a thick description of the subject while drawing relationships between elements to develop a rounder, richer account of the phenomenon (Cousin, 2005; Thomas, 2013). However and unfortunately, case studies can be too lengthy or detailed for policymakers to read and consider (Merriam, 1998). Additionally, case studies can, at times, oversimplify a phenomenon.

Focusing on a single case allows a researcher to work towards revealing the relationship between significant variables characteristic of the entity (Merriam, 1998). One of the key defining features of case study is that it is an analysis of a bounded unit or an integrated system. In other words, a case is a phenomenon with a limited amount of observations. If there is not an identifiable limit, it is probably not a case and the study cannot qualify as a case study. Examples of these entities with boundaries, or cases, include but are not limited to a community, a program, a group, and an individual (Merriam, 1998). Accordingly, considering a study’s unit of analysis requires defining and bounding the case (Yin, 2014). Yin (2014) described this process as a major step of the case study design process and must be done cautiously to make sure the case is relevant to the questions posed by the study.

Furthermore, a case study is an appropriate method when contextual conditions are important in gaining an in-depth understanding of a phenomenon (Merriam, 1998; Yin, 2014). Much of the value of a case study is rooted in its proximity to reality allowing the researcher to observe the complexity of its real-life habitat (Flyvbjerg, 2006; Thomas, 2013). Therefore, it is important that the case study research occurs in the natural setting of the participants to increase understanding of the subject matter (Cousin, 2005).
Subsequently, situations where it is impossible to separate the context and the variables of a phenomenon are well-suited for case study research (Merriam, 1998). Case studies are effective in explaining the “how” and “why” of a phenomenon, where controlled experiments usually are lacking (Yin, 2014). They can supply important insights that experiments with random samples are unable to provide (Yin, 2014). Yin (2014) explained that case studies cope “with the technically distinctive situation in which there will be many more variables of interest than data points” (p. 17). Yin (2014) explained that “a major strength of case study data collection is the opportunity to use many different sources of evidence…..the need to use multiple sources of evidence far exceed that in other research methods, such as experiments, surveys, or histories” (p. 119).

Moreover, the goal of thick descriptions does not always lend itself to strict sampling and representation (Cousin, 2005). The depth of access to a setting or people can override the practice of strict sampling (Cousin, 2005). As Thomas (2013) explained, when using a case-study model, the researcher must sacrifice the potential of the generalizability of a large sample for the deep descriptive power of narratives from few cases. So, as opposed to traditional random and stratified sampling methods, this study used the process that Flyvbjerg (2006) referred to as information-oriented selection in order to “maximize the utility of information from small samples and single cases” (p. 230). Cases must be chosen strategically with the objective of thick description in mind. According to information-oriented selection, cases are chosen based on the depth of the content the researcher expects to be available (Flyvbjerg, 2006). Flyvbjerg (2006) described how “random samples emphasizing representativeness will seldom be able to produce this kind of insight; it is more appropriate to select some few cases chosen for their validity” (p.
As a result, a case that is representative may not be rich enough in information to yield a thick description (Flyvbjerg, 2006).

Logically, vital to this study was the participants’ perspectives of the phenomenon. According to interpretivism, realities are constructed by individuals, which results in a variety of interpretations. This is in contrast to positivist approaches that assume reality is objective and quantifiable. As opposed to positivist or critical research, Merriam (1998) described how interpretive research assumes that “meaning is embedded in people’s experiences and that this meaning is mediated through the investigators own perceptions” (p. 6). Therefore, whereas positivist research might conduct experiments to test theory, much of interpretivist research applies qualitative methods to increase understanding of the meaning constructed by people to explore how the world is lived and felt by others.

In this type of research, the primary instrument of data collection and analysis is the researcher (Merriam, 1998). Due to this human instrument, every observation is influenced by the person’s values and perspective. According to Merriam,

Considering the interpretivist philosophy, there are multiple interpretations of reality, which means that that the human instrument is offering their individual interpretation of the data. The researcher thus brings a construction of reality to the research situation which interacts with other people’s constructions or interpretations of the phenomenon being studied. (p. 22)

Therefore, the researcher must be highly aware of how their inherent bias can affect their analysis and conclusions. To manage and monitor this inevitable bias, researchers must keep thorough documentation of thoughts and decisions during analysis for others to review and consider. Related to this human bias is the sensitivity required of researchers doing this type of
work. Scholars doing case study analysis must be perceptive of the subtle variables within the context of their case, such as individuals’ agendas, nonverbal behavior, and the physical spaces (Merriam, 1998).

The current project is a theory-building case study (Thomas, 2013) in that it helps build a framework of the choice process of certificate students. Flyvbjerg (2006) referred to this as a paradigmatic case, or a case that emphasizes general characteristics of the phenomenon. A paradigmatic case operates “as a reference point and may function as a focus for the founding of schools of thought” (Flyvbjerg, 2006, p. 232).

The unit of analysis of this study was a group of students enrolled in the college programs of interest. While the study was centered on the millennial students who had made the decision to pursue certificates in industrial skilled trades at the chosen college, it also incorporated perspectives of individuals in a variety of roles in relation to the programs. During the analysis of data, I recognized these other useful units of analysis. For example, the individual students were an additional useful way to conceptualize units. Nevertheless, in order to address the research question, the group of students as a whole remained the primary unit of analysis.

This type of study was what Yin (2014) labeled an embedded case study, which is a single-case study that involves “units of analysis at more than one level... This occurs when, within a single case, attention is also given to a subunit or subunits” (p. 56). Additionally, according to Thomas’s (2013) outline of case study construction, the study at hand could also be considered retrospective in that the information collected related to a process that had already occurred. While the unit of analysis was a collective, the subunits within this case study were individual students, family members, and college employees. The subunits enriched the analysis and insights of the case. However, regardless of how valuable the data from the subunits seems
to be, it was vital to return to the larger unit of analysis after focusing on subunits. Otherwise, the
study’s unit of analysis would have changed and may not have addressed the research question
(Yin, 2014).

**Case selection.** This study focused on millennials pursuing certificates in industrial
skilled trade technologies at an urban community-based college in southeast Michigan. There are
28 community colleges spread geographically throughout the state with a concentration of
community colleges in the southeast corner (Bahr et al., 2015). In total, Michigan’s community
colleges offer over 350 associate degrees and 472 certificates (Bahr et al., 2015). Out of these,
eight certificate programs offered by the Michigan community college of focus were used for the
analysis. These certificates are in the areas of welding, mechatronics, computer-aided design, and
advanced manufacturing. During the process of choosing programs, I looked for programs that
were likely to be rich in information to allow for deep analysis and thick descriptions. These
specific programs were chosen as the source of students for this study due to their existence at
the intersection of place, skills, credential level, and access to student body. The following is the
rationale for choosing to study students in manufacturing-related programs at a community
college in southeast Michigan.

The significance of the relationship between skills demand, location, and education is
often left unacknowledged in the literature (Bahr et al., 2015; Carnevale et al., 2012; Matheny et
al., 2015; Sutton, et al., 2016; Xu & Trimble, 2014). For example, Tulikangas (2006) completed
a dissertation at the University of Minnesota titled *Changing Generations: Millennial-age
Students in Technical College Programs* where she questioned the motives, life goals, and
values of 18-to 22-year-old students who were pursuing applied credentials. The study explored
a phenomenon similar to this study’s focus. However, Tulikangas pulled students from a variety of fields and did not directly connect them to the needs of the local economy.

Fortunately, there recently has been a handful of scholars centered on earnings from certificates that demonstrate the importance of recognizing the diversity of outcomes in relation to industry and locale, such as Xu and Trimble (2014). Another example is Sutton et al.’s (2016) response to the critical lack of focus on gender and community in the discourse surrounding the college-for-all culture in their study “Manufacturing Gender Inequality in the New Economy: High School Training for Work in Blue-Collar Communities.” When considering aspects of applied credentials, it is now recognized that local industry plays an influential role. It is critical to match the local economy with appropriate certificates. Accordingly, location was a significant facet of this study.

Manufacturing and related skilled trades were chosen for the fields of focus due to their character as skilled trades and their role in Michigan’s economy, especially in southeastern portion of the state. According to Bahr et al.’s (2015) historical review of employment in manufacturing in Michigan, manufacturing was essential to economic growth and the formation of the middle class prior to the recession. However, in the 2000s, almost half of large factories shut down. Between 2001 and 2011, Michigan’s manufacturing jobs experienced a sharp decline of 43% for the Detroit area and 37.9% for the whole state. However, as discussed in a previous section, the manufacturing sector in Michigan is recovering, and its recovery may be stunted due to lack of qualified labor. In fact, Behr et al. (2015) compared earnings of graduates with technical credentials in Michigan and found that manufacturing is the dominating industry.

Recently, during the nation’s recovery, U.S. manufacturing bounced back and added over 900,000 new jobs since February 2010, which was “the longest period of sustained
manufacturing jobs growth in decades” (Office of the Press Secretary, 2015, para. 2). As a result, on October of 2016, President Obama marked the fifth National Manufacturing Day by reminding the nation that the industry is in need of young talent:

Each year, hundreds of thousands of people observe this day by attending open houses, public tours, and career workshops. As we mark 5 years since the first National Manufacturing Day, we must inspire the next generation of workers and innovators to seek careers in manufacturing. Let us continue working to strengthen and expand the manufacturing jobs of tomorrow and ensure that opportunity for all is something we can keep making in America for generations to come. (Office of the Press Secretary, 2016, para. 4)

Since the manufacturing industry is particularly interested in attracting youth to the industry (Gallagher, 2016; Giffi & McNelly, 2011; Workforce Development Agency, n.d.), the aim of this study was to gather data from young adults born between 1982 and 1998.

Furthermore, the college studied was located in an area of the country in particular need of laborers for advanced manufacturing. In fact, southeast Michigan is a community of the Investing in Manufacturing Communities Partnership program (U.S. Economic Development Administration, 2018). Out of the 70 communities around the nation that applied for program funds in 2014, Detroit and its surrounding area was one of 12 communities designated as a community of the IMCP (U.S. Department of Commerce, 2014). Through this program with a $177 million investment and the support of eleven federal agencies, there is commitment to “upgrade the region’s talent infrastructure, attract a pipeline of younger workers, and develop curriculum and training in the latest manufacturing technologies, including training to upgrade the skills of incumbent workers” (IMCP, 2016). Considering that over 70% of the nation’s auto
research and development funds are invested in southeast Michigan (IMCP, 2016) and the growing skills gap, students of skilled trade certificate programs at area community colleges are worthy of attention.

Certificates were chosen as the credential of focus because of their absence in education literature, their affordability and accessibility, and their potential to qualify students for well-paying occupations. Additionally, this credentialing level was selected due to, when compared to bachelor’s and associate degrees, the assumption that most students pursuing certificates are primarily interested in developing skills to work in the local economy (Matheny et al., 2015). Finally, within a college-for-all environment, certificates seem to be in sharp contrast to bachelor’s degrees and it was expected that this relationship would stimulate data-rich discussions.

The school selected was a comprehensive, community-based college founded in the mid-1900s with an open-door admissions policy for certificate and associate degree programs in over 70 majors. The school also offers one bachelor’s degree program. Courses were available in the day and evenings in 15-week, 12-week and seven-week formats. With one of the largest community college student population in the area (Michigan Association of Collegiate Registrars & Admissions Officers, fall 2017), it made sense to attempt to gain access and build a sample of participants there.

As reported by National Center for Education Statistics (2017), the student population during the 2016-2017 school year was 11,339 with a student-to-faculty ratio of 24 to 1. The school conferred 1,422 degrees and 370 certificates. Enrollment status was 28% full-time and 72% part-time with 99% of students considered in-state residents. During that same year, the student population was 66% White, 14% African American, 4% Hispanic, and 4% Asian. Of the
full-time, first-time students, 17% graduated and 34% transferred within 150% of “normal time” to completion. About 34% of the student body was over 24 years old and almost 60% received some form of financial aid. The sum of tuition and fees was approximately $3,800 for the year.

As for the specific fields that were the focus of this study, the college had approximately 131 students enrolled in the certificate programs and 219 students working towards the associate degrees.

**Research Design**

This case study consisted of four-phases of data collection. Following a pilot group, data was collected from three different types of participants in order to allow for data triangulation (Greene, Caracelli, & Graham, 1989; Lichtman, 2013). The first phase consisted of focus groups with students pursuing certificates in relevant fields to obtain first-hand accounts of the decision process and identify data-rich cases for further examination. The second phase consisted of focus groups with community college employees to gather information about the phenomenon from their perspectives. The third phase was comprised of individual interviews with family members of the certificate students to gain yet another view. During the fourth phase, selected students from the focus groups were interviewed once more to engage in more detailed discussions.

**Pilot group.** In order to test and practice interview protocol, a pilot focus group was conducted with six electrical technology students. The electrical technology program was chosen for the pilot because it is similar to the programs of the case study in that it is also training for a skilled trade career in a traditional field. Plus, by not doing a pilot with students from programs of the study’s focus, the participant pool was reserved for interviews of data collection for actual analysis.
The participants of the pilot group were gained through interactions with a very supportive and cooperative instructor at the college. He volunteered his students for the interview during a class after the students had finished a test. Therefore, the students may have differed from most of the study’s participants since they did not self-select for the study. However, it was made clear to the students that they were welcome to leave the interview at any point. Additionally, even though most of the students were millennials, this group contained multiple generations.

Through the pilot, a couple things were learned. A questionnaire that was presented after discussing consent took a significant amount of time for the students to complete plus they needed clarification about some of the questions. Therefore, for the following interviews, the questionnaire was slightly shortened by taking out a couple questions related to academic performance in high school. The final version relied completely on high school final grade point average to record academic performance. Additionally, some of the questions were rearranged to make more sense to participants. Students during the pilot also stressed a topic that was not explicitly posed in the original set of interview questions. As a result, questions related to the relationship between work satisfaction and education level were at times directly asked in following interviews.

As a side note, the questionnaire assumed that students had a mother and a father. It did not reflect the large variety of family models that could be represented in the groups. This was in effort to keep the list of questions short and simple in order to spend more time in discussion. Plus, the family structures of the students were not a focus of the study. At no point in any of the interviews did a student voice concern over the assumed family structure. If a student had, I would most definitely have modified the survey.
Phase 1: Focus groups with students. Krueger and Casey (2015) described focus groups as consisting of a small group of people who have something in common and engage in a focused conversation that provides qualitative data to help increase the understanding of the topic of interest. As Seidman (2013) stated, the “primary way a researcher can investigate an educational organization, institution, or process is through the experience of the individual people, the ‘others’ who make up the organization or carry out the process” (p. 9). A primary goal of the focus groups is to encourage self-disclosure among the individuals to gain in-depth understanding of the phenomenon of study. During a focus group session, participants engage in a collective activity such as discussing a specific issue, watching a video, or critiquing promotional material while the researcher observes group dynamics and collects the individuals’ thoughts and emotions (Kitzinger & Barbour, 1999; Massey, 2011). The gathering of participants and the moderator’s prompting can create dynamic discussions in ways other methods may not (Massey, 2011).

A focus group is an appropriate method for increasing understanding of influences on behavior since people tend to reveal more about themselves when in the company of those they perceive to have something in common with them (Krueger & Casey, 2015). Kitzinger and Barbour (1999) explained that when members of a focus group are already acquainted, the researcher gets to take advantage of a naturally occurring network of individuals and the context within which the phenomenon is experienced, constructed, and shared. For this study, most students seemed to be strangers or just acquaintances.

Furthermore, focus groups are especially good for capturing experiences, attitudes, perspectives, emotions, and thoughts about phenomena as they supply insights into behavior in addition to potentially revealing unspoken social norms and values of the group (Kitzinger &
Barbour, 1999; Krueger & Casey, 2015; Massey, 2011). Compared to individual interviews, this method provides a more natural environment and reflects reality better by allowing interaction between participants. Through this interaction in a social context, participants influence each other to the extent that, not just the individuals, but also the focus group itself can serve as unit worthy of analysis (Massey, 2011).

Importantly, representativeness and generalizability were not the goals of the interviews. According to Seidman (2013), rather than testing hypotheses and collecting answers to questions, interviews can be used to prompt participants to “reconstruct their experience and to explore their meaning” (p. 95). Although interviews are able to reveal an individual’s experiences, it is impossible for a researcher to understand them completely and perfectly. This would require entering their “stream of consciousness” and experiencing their life (Seidman, 2013). Nonetheless, interviews do provide a productive way to further understanding of the meaning people make of their educational experiences. Therefore, Krueger and Casey (2015) discussed, participants for focus groups should be information-rich cases, or individuals from whom the researcher can learn a great amount related to the study’s focus.

When the goal is to go in-depth, Krueger and Casey (2015) recommended smaller focus groups in order to increase understanding of an experience. Also, the small group sizes keep discussions manageable and allow for every participant to have a chance to be engaged. Therefore, the goal was to limit each focus group to consist of four to six participants to allow for deeper conversations. However, the count of members ranged from a low of one due to challenges in recruiting to a high of eight resulting from unexpected opportunities to conduct interviews with larger groups.
Also, according to Krueger and Casey (2015), in order to compare data across focus groups, a study requires at least three groups. Plus, the pool of participants must be large enough to represent the range of characteristics in the population. However, the size of the sample must additionally allow for saturation of information. Saturation refers to the point when a researcher begins hearing the same stories repeatedly and no longer learns anything new from interviews (Seidman, 2013).

**Recruitment.** The first phase focus groups consisted of students born between the years of 1982 and 1998 who were working on certificates in at least one of six certificate programs related to welding, manufacturing, and computer-aided design (CAD). The certificates’ requirements ranged from about 15 credit hours for the shorter programs to about 40 credit hours for the longest. Attempts were made to include students from two other programs but the programs were very small and lacked interested students.

Recruitment efforts included a variety of methods. Flyers about the opportunity were posted around campus. The flyer was also emailed to relevant instructors and they were asked to email the flyer to their students or pass it out in class. Additionally, I personally met with many of these instructors to discuss the study, give them printed flyers, and attempt to gain their cooperation. For several days, I also sat at a table with information about the study in a hallway near the classrooms used by most of the programs targeted. But by far the most powerful recruitment tactic was gaining access to classrooms and personally pitching the opportunity to students. While in the classrooms, I collected contact information from interested students who fit the study’s participant criteria. This information included name, birth year, program, phone number, email address, availability, and preferred method of contact. After visiting the majority of classes that included students working towards the certificates, I emailed and texted students
with links to online polls to match their availability with my focus group scheduling possibilities. Unfortunately, the vast majority of students who expressed interest by completing a contact information form did not respond to solicitations for scheduling focus groups.

According to Merriam (1998), although with great effort it is usually possible to find another participant to speak with, the decision to stop collecting data is ideally based on the exhaustion of sources, saturation of categories, emergence of regularities, and over-extension (the sense that new info would be far removed from the core of viable categories formed). Data collection also commonly ceases for practical reasons such as running out of time and money. For this phase, recruitment and data collection continued until participants began repeating each other and stopped contributing new information, which indicated that saturation could have been reached. Another factor that contributed to the end of phase one data collection was that, as the study continued, finding students willing to schedule an interview became increasingly difficult.

**Process.** Phase 1 focus group discussions ranged from approximately 30 to 90 minutes. Students were instructed to expect the focus groups to last about 90 minutes since the participants, of course, must be told how much time to expect the interview to take for the scheduling of their own lives. Seidman (2013) recommended 90-minute interviews because the sessions are not so long to seem intrusive or inconvenient. However, they are long enough to make the respondent feel as if the interview is important and worth taking time.

For the majority of focus groups, a conference room within the same building of most of the skilled trades programs was used and refreshments were available. Students completed the consent form and the questionnaire. Then, the discussion segments commenced with introductions of each student serving as an icebreaker. Interviews were recorded using two
laptop computers with cameras and microphones. Participants were offered $15 to show appreciation for their time and input. The possibility of interviewing family members and conducting follow-up interviews was also introduced. Recordings were later transcribed by a professional transcriptionist.

Within the first phase of data collection the following occurred: one focus group of two students, one focus group with three students, one focus group of five students, and one interview with one student, which was meant to have at least two students. Additionally, weeks following these first interviews, a student who unsuccessfully tried multiple times to participate was finally able to engage in an individual interview. The largest focus group interview transpired differently from the other phase one interviews. The focus group with five certificate students originated from a specific class. An instructor of one of the programs generously allowed their students to leave the classroom for interviews during time they had allotted for students to work on projects. Since these students did not respond to solicitations for interviews, these individuals may differ somehow from the students who responded to solicitations for interviews. However, multiple students within this large certificate student focus group had attempted to join previous focus groups without success due to scheduling complications.

Since experiences are transitory, interviewers can only obtain information after something has occurred. Therefore, I was dependent upon participants reconstructing their lived experiences and, thus, carefully guided participants through the process. As the moderator, I used an interview guide to help facilitate the discussions. Also, negative and positive comments from the group were welcomed. The goal was not consensus; it was to converse about the participants’ feelings and thoughts surrounding the phenomenon of study. Krueger and Casey (2015) stated,
The intent of focus groups is not to infer but to understand, not to generalize but to determine the range, and not to make statement about the population but to provide insights about how people in the groups perceive the situation. (p. 80)

To encourage candid sharing amongst the groups, I carefully phrased and sequenced questions, tried to include all students in the conversation, kept the discussions on track, and remained neutral by trying not to display judgment either verbally or through body language (Krueger & Casey, 2015). This neutrality was challenging to maintain during the first couple interviews, but I believe I improved with practice.

As prescribed by Kitzinger and Barbour (1999), I encouraged participants to have verbal exchanges with each other, instead of just responding to my questions. The goal was for the questions to inspire a discussion amongst group members. The ideal was for the conversation to seem natural and informal, not a structured question and answer session between each participant and me. The questions were open-ended, clear, short, and designed to guide participants into productive discussion.

Each discussion began with an ice-breaker introduction to get all participants to speak early in the process. Krueger and Casey (2015) explained that people in focus groups who have already spoken are more likely to speak again. Therefore, an opening question that promoted everyone in the group to say their name and program was used in order to increase participation throughout the rest of the conversation.

After each focus group session, I reflected upon the process to identify opportunities for improvement. Specifically, I considered the participants’ understandings of questions, my expressed reactions to answers, attendance of participants, and the ratio of speaking between the participants and myself. Effort was made to learn from each focus group and adjust the process
while maintaining as much consistency as possible to allow for comparison across groups and individuals.

**Phase 2: Focus groups with college employees.** Phase 2 of data collection consisted of interviews with employees of the college who worked in the programs of interest. Permission to recruit faculty and staff for focus groups was obtained from college administration. They were recruited through email and in-person conversations. Participation was completely voluntary, and I do not believe there was any pressure from their supervisors to get involved. Completed during this phase were two focus groups with two employees and one interview with another employee. This participant group included employees with variety of responsibilities related to the programs of the case study.

The interview protocol followed the same routine as the interviews of Phase 1. During the focus group discussions, faculty and staff were questioned about their perspectives on the educational decisions of millennials in certificate programs. I used an interview guide to direct the discussions with questions pertaining to matters such as the extent of students’ knowledge about certificate programs, their opinions about the college-for-all mentality and how it affects millennials, the reasons students choose to pursue certificates as opposed to other options, how students learn about certificates, and expected outcomes following certificate completion. As in Phase 1, since questions often stem from what participants say during discussions, I steered the direction of the discussion to gather the richest data possible and thoroughly explore answers to the research question of the study.

It was valuable to speak with community college faculty and staff who actively teach and advise certificate pursuers. Through their professional experience and access to students,
they had developed valuable perspectives of the phenomenon that supplemented the student lens.

**Phase 3: Individual interviews with family members.** Given the influence of parents on millennials and the college choice process (Bers & Galowich, 2002; Holland, 2015; Howe & Strauss, 2003), the third phase of the study consisted of individual interviews with family members of certificate students. Students from Phase 1 were asked if they had family members who might like to participate. The definition of a family member was broad to include anyone who had a close and/or long personal relationship with the student. So, participants could have been from the students’ given or chosen families. However, parents and guardians of the students were preferred.

Considering the phenomenon to be studied, some family members may have not felt comfortable sharing their experiences in a group setting. Therefore, individual phone interviews were conducted instead of focus groups. During the interviews, I used an interview guide to question family members about their perspectives on the educational decisions and outcomes of millennials in certificate programs in general and their student more specifically. Before beginning, participants were briefed on the study and gave verbal consent to be recorded. Following the interviews, family members were emailed consent forms and questionnaires. Gift cards for $20 were also sent through the mail.

Overall, five parents were interviewed via phone calls that ranged from about 20 to 45 minutes. All but one interview was captured through voice recording. The data from the one interview that was not recorded was collected through written notes. Following the interviews, the voice recordings were transcribed by a professional transcriptionist.
**Phase 4: Individual interviews with students.** The fourth phase centered on follow-up interviews with students from the first phase and catching students who attempted to participate in the first phase but were unable due to scheduling. Participants who seemed to not have a chance to tell their story during the interviews and those that inspired more questions were asked for second interviews. This effort resulted in two follow-up interviews for further questioning about the influences and timelines of their academic and professional journeys. Phase 4 interviews were conducted over the phone and lasted about 30 minutes. As in Phase 3, verbal consent was given, interviews were recorded and transcribed, consent forms were emailed, and $20 gift cards were sent.

**Data Analysis**

The discussions from each focus group and interview were transcribed and analyzed. In order to quickly create verbatim transcripts of all focus groups and individual interviews, I enlisted the help of a professional transcription service. I used a computer-assisted qualitative data analysis software program called MAXQDA to help organize and analyze the data. MAXQDA is an affordable, user-friendly application that was well-suited for my analytical needs. Microsoft Excel was also used to keep track of information about participants and to help organize findings.

The goal of the analysis was to transcend the details of each discussion and form higher-level constructs that could lead to a deeper understanding of the decision to pursue certificates (Saldaña, 2013). According to Saldaña (2013), “qualitative data demands meticulous attention to language and deep reflection on the emergent patterns and meanings of human experience” (p. 10). Miles, Huberman, and Saldaña (2014) said that data condensation “refers to the process of selecting, focusing, simplifying, abstracting, and/or transforming the data that appear in the
full corpus of written-up field notes, interview transcripts, documents, and other empirical materials” (p. 12). As a component of the data analysis process, data condensation makes data stronger by sharpening, discarding, and organizing data so that “conclusions can be drawn and verified” (Miles et al., 2014, p. 12). Accordingly, I progressively analyzed the transcripts using multiple coding methods to sort and categorize the responses of the participants as individuals and as groups while continuously creating analytic memos to record my reflections about the data and address the study’s reliability (Krathwohl, 2009; Lichtman, 2013). Then, with MAXQDA and Excel, I sorted and sifted through the data to identify and categorize relevant concepts, patterns, and themes. However, this was not a linear process. Both the collection and analysis of the qualitative data was cyclical (Lichtman, 2013; Saldaña, 2013).

Within the process of data condensation is the task of coding. Miles et al. (2014) defined codes as “labels that assign symbolic meaning to the descriptive or inferential information complied during a study” (p. 71). Codes can be applied to various sizes of data such as sentences, series of sentences, or whole pages (Merriam, 1998; Miles et al., 2014). Codes must be clearly defined and the definitions must be operational. Additionally, these definitions need to be refined and improved as the analysis proceeds (Miles et al., 2014). Therefore, the researcher must be open to adjusting codes and coding systems when needed and discarding with them when they do not seem useful. Additionally, as Weston, Gandell, Beauchamp, Mcalpine, Wiseman, and Beauchamp (2001) explained, there is a reciprocal relationship between the development of a coding system and the evolution of understanding a phenomenon… We liken the process to continually zooming in and out. One begins with the big picture, an overall conception of the phenomenon, moves in to focus on details through coding, and moves out again to see how the details might have
changed the way we interpret the larger picture. Thus, the development of a coding system is a critical analysis tool in that it leads to an ongoing evolution in understanding the phenomenon. (p. 397)

As such, scholars must be open to experimenting with different codes and changing directions if a new coding scheme seems more effective (Saldaña, 2013). Also, they must notice when a code seems to apply to a bulk of the data. At that point, it may be best to divide the code into subcodes (Miles et al., 2014). The key, as Miles et al. (2014) explained, is to loosely apply and hold codes while remaining ready to reshape them as the data dictates. Codes should be “subject to the most compelling themes to merciless cross-checking” (Miles et al., 2014, p. 87).

Scholars often divide their coding into first and second cycles (Miles et al., 2014; Saldaña, 2013). The first cycle of coding consists of assigning initial labels to chunks of data. The second cycle of coding usually scrutinizes the results of the first coding cycle and groups them into a smaller amount of categories that have more significance (Miles et al., 2014). From these categories, interrelationships and patterns may be identified to use in constructing higher level meaning.

Accordingly, my coding choices changed with better understanding of the data and repeated readings of the transcripts and development of potential models. The first step of analysis consisted of basic attribute coding where I labeled transcripts within MAXQDA with each participant’s demographics and other relevant information. Most of this data was obtained from the questionnaire while other details were gathered from interviews. Then, as this information grew, I converted it into an Excel file for easier manipulation.

I engaged an initial readings of each transcript from phase one and two while applying broad holistic codes to develop a global understanding of the material. Saldaña (2013) described
holistic coding as a preparatory approach that “applies a single code to a large unit of data in the
corpus, rather than line-by-line coding, to capture a sense of the overall contents and the
possible categories that may develop” (p. 264).

Because the interviews were semi-structured and most included multiple participants,
conversations traveled to relevant topics that did not directly answer the planned questions
within the interview protocol list. As Miles et al. (2014) noted, codes can develop inductively
by carefully listening to data and discovering concepts of potential interest. Therefore, to
explore the richness of the discussions and fully value the input of the participants, the first
cycle of coding consisted of the inductive procedure of holistic thematic coding (Saldaña, 2013;
Yin, 2014). While moving through each transcript and identifying bits of text to assign codes to,
a long list of codes accumulated. Merriam (1998) named this list a master list and described it as
a “primitive outline or classification system” to be used for further sorting and refinement (p.
181).

Second cycles of coding usually consist of summarizers based in categories or themes,
explanations or causes, relationships among people, or theoretical constructs (Miles et al.,
2014). During my second cycle, I narrowed the master list of ideas that had emerged from the
data to a limited set of essential concepts. The transcripts were reviewed several more times to
identify subthemes and to discard weakly supported themes. Possible relationships between
themes and subthemes were also considered. Additionally, during this process, in an effort to
honor the participants’ voices, I often incorporated Invivo coding by using the exact words of
the participants instead of my paraphrases. Similarly, I chose exemplary quotes for themes and
for verbatim use within this paper’s discussion chapter section. This is something worth noting
because, in order to preserve the integrity and character of the participants’ experiences, language that some individuals may consider inappropriate is referenced in the results section.

Through this coding, subcoding, and sometimes recoding of the discussions, the themes and concepts gradually became muddled and chaotic. In an attempt to simplify the organization of the data and clarify emerging relationships, I changed to a deductive method. Deductive coding occurs when a preconceived framework based on elements such as the study’s research questions, a conceptual model from the literature, hypotheses, or key variables are lightly applied to the data and then evaluated for usefulness and suitability (Miles et al., 2014). A matrix based on displays of data created by Miles and Huberman (1994) as presented in Miles et al.’s (2014) *Qualitative Data Analysis: A Methods Sourcebook*. Using Excel, each interviews’ inquiry list was used to categorize the participants’ characteristics and responses. Questions and responses were further generated and organized by case levels adapted from Yin’s (2014, p. 90) case study protocol. The answers to each question were then examined to understand the group as a whole and identify gaps in information. These gaps became the foci for the interviews of phases three and four.

What Merriam (1998) referred to as a third level of analysis was conducted to create inferences, develop models, and produce hypotheses. With the aforementioned themes in mind, I returned to community college choice and student development research to consider what roles the themes played while looking at the decision process as a whole. Finally, I attempted to integrate and synthesize the core concepts from my analysis to form a hypothesis of how millennials decide to pursue skilled trade certificates in a college-for-all environment.

Another important analytical method used was data display. Data display is an analytic activity in itself and is as much a part of the analysis process as other activities (Miles et al.,
As an “organized, compressed assembly of information that allows conclusion drawing and action” (Miles et al., 2014, p. 12-13), a visual depiction of data can facilitate more robust examination. For this research, Excel sheets were used to create structures for the data that were visually different from MAXQDA to stimulate fresh ways of considering the information. Additionally, many models were created, tested, and modified to accurately visually demonstrate the findings of the study. This consideration of multiple models was crucial to the development and refinement of the concepts, relationships, and timing involved in students’ decisions to pursue certificates in skilled trades.

**Credibility and Trustworthiness**

There is significant disagreement over what makes a qualitative study good. More specifically, there is a diversity of opinions about what should be criteria for acceptable qualitative research, who gets to define this criteria, and who judges the criteria (Lichtman, 2013; Morrow, 2005; Seidman, 2013). Some scholars subscribe to measures of rigor and credibility rooted in quantitative methods while others push for more diverse gauges that reflect the inevitable subjective nature of research. Scholars conforming to traditional measures of validity and reliability may see convention as a route to unquestioned legitimacy for qualitative research. Other qualitative scholars take the opposite stance and believe that trying to squeeze into the quantitative mold exacerbates the problem. Instead, they view the way to scholarly and scientific sufficiency is through refusal to be subjected to positivist rules and forming alternative measures that are more appropriate to the strengths of qualitative data. Trying to force qualitative work into the quantitative box may rob us of the richness qualitative data provides and may neglect the uniqueness of knowledge that can only come from qualitative methods.
Additionally, within qualitative research, measures of quality also differ by paradigm. Various terms and measures are utilized depending on the disciplinary, epistemological, and paradigmatic roots of scholars. For example postpositivist research may use more conservative values for standards of trustworthiness such as credibility, transferability, dependability, and confirmability (Morrow, 2005). Other paradigms may find more value in authenticity, researcher reflexivity, rich descriptions, and consequences in terms of catalyzing political change (Lichtman, 2013; Morrow, 2005).

As a dissertator who is fairly inexperienced in conducting qualitative research, I tried to error on the side of convention in relation to trustworthiness and attempted to adhere to standards that are more or less correlated to the ideals of quantitative methods. Accordingly, my research plan included incorporating feedback from colleagues and scanning for negative cases and discrepant evidence. I also engaged in member checking, which entailed asking participants to review summaries of interviews to ensure congruence between the interpretations of the participants and myself as the researcher. Furthermore, by studying data from participants with differing roles, I was better able to judge the validity and reliability of my findings (Hesse-Biber, 2010). Considering the possible contradictions, similarities, and complementarities of the different stake holders made my findings more robust.

Additionally, I informally recorded my thoughts, decisions, and concerns about the study in the form of analytic memos in MAXQDA and Excel. Memos assisted in describing and synthesizing the data in order to develop a higher understanding of the data. Miles et al., (2014) defined an analytic memo as “a brief or extended narrative that documents the researcher’s reflections and thinking processes about the data” and thought of them as the most useful analysis tools available (p. 95).
A codebook is an additional analytical tool that was used and stored in MAXQDA. Codebooks are primarily used to house detailed information about the development of coding schemes with descriptions and examples in addition to coding procedures with steps and rules for applying each code. With transcripts, memos, a codebook, and codes themselves to manage, it is important to keep all material well-organized not just for the investigator’s analysis but also for others to review (Merriam, 1998; Yin, 2014). Since a codebook can also be used as a tool for recording and sharing thoughts about the data (Weston, et al. 2001), my codebook served as a way for the research community to review and evaluate my thoughts, processes, and decisions in relation to the data.

While disagreement does exist over approaches and timing of data review, in case study research, the collection and analysis of data often occurs at the same time (Cousin, 2005; Lichtman, 2013; Merriam, 1998; Miles et al., 2014; Saldaña, 2013). Conclusion drawing and verification begins during data collection by the researcher noticing “patterns, explanations, causal flows, and propositions” (Miles et al., 2014). These ideas are noted while remaining open-minded and skeptical through the rest of the analysis process. The conclusions begin as vague connections and then become explicit, verified, and final as the analysis is completed (Miles et al., 2014). By engaging in preliminary coding in between interviews, researchers can learn from the data and adjust their process for future interviews if needed. In contrast, some scholars believe that analysis should wait until the completion of all interviews so that the data does not influence the researcher’s approach to the following interviews by imposing themes from previous interviews on them (Seidman, 2013). Since I am an inexperienced moderator and researcher, I engaged in preliminary analysis of the transcripts while focus groups and interviews were still being conducted in order to identify my faults and make corrections.
Similarly, there is a risk of researchers being so entrenched in the literature that they are tempted to force-fit data into theoretical frameworks they have become comfortable with. Consequently, Seidman (2013) recommended reviewing just enough literature before an interview to understand the context but still remain open to what is said during the exchange. Therefore, I did my best to not make premature judgments and assumptions in addition to returning to the literature following the focus groups and interviews to clarify my interpretations of the data. Notably, while collecting data, I did hear of major developments in state government related to my research topic from several sources. I chose to temporarily refrain from learning more about the situation to prevent the information from tainting my data collection and analysis. When finished with my analysis, I researched what had occurred, which was significant legislative progress made by an initiative called the Michigan Career Pathways Alliance. Within the discussion section, this matter is explored in relation to the findings of this study.

Moreover, case studies are rooted in interpretivism, which means that instead of asking the data to answer to a hypothesis, the researcher looks for what the data is telling them. Through this, the researcher’s subjective bias must be managed (Cousin, 2005). Weston, et al. (2001) described this balance:

On one hand, how researchers see data and the meaning attributed to it is what makes data useful, interesting, and a contribution to knowledge. On the other hand, our biases and perspectives influence interpretation throughout analysis-from how codes are developed to how results are interpreted. (p. 384)

As listed previously, ways I worked to minimize my bias included triangulating data, providing thick enough descriptions for readers to develop adequate understandings of my interpretations,
and sharing my analysis with participants and other scholars to collect comments and alternate interpretations (Cousin, 2005).

Possibly, of most importance to the credibility and trustworthiness of the study was my personal recognition of my role and biases in the data collection and analysis process (Seidman, 2013). For instance, it is important to be cognizant of the tensions that may have been present between the participants and myself. Social identities such as gender, age, class, and ethnicity were naturally at play within the relationships and could have affected the interaction. As Seidman (2013) acknowledged, “only by recognizing that interaction and affirming its possibilities can interviewers use their skills to minimize the distortion that can occur because of their role in the interview” (p. 26). To manage how my interaction with participants affected the meaning brought forth from their experience, I attempted to minimize the effect I had through every stage of the study. This included imagining how my previous experiences could shape my approach to the study and my analysis of the data. For example, having been raised in a blue-collar family and having served as a mechanic in the military, I have an appreciation for the talents demonstrated in skilled trades work. At the same time, I currently work as a student affairs practitioner at a large university. I regularly advise students who are actively pursuing bachelor’s degrees while simultaneously struggling to identify their career goals. Products of the college-for-all culture frequently materialize in my office in the forms of stress over questionable job prospects, confusion about the connection between majors and careers, and fear of impending student loan payments. Considering the unmet talent demands of employers and the stories I regularly hear from millennials, I feel that we, as higher education professionals, must do a better job of matching tertiary education paths with the abilities of students and the needs of the economy. So, this aspect of my life undoubtedly makes me critical
of the BA-centric college-for-all culture that seems to have developed in the U.S. and inspired my research question. Consequently, the challenge was to remain aware of and temper my predisposition while collecting and analyzing data so that it did not influence my results. As discussed in earlier sections, my research contained several measures to help manage this bias such as member checking, analytic memos, data triangulation, and consultation with colleagues.

**Limitations/Delimitations**

This study focused on the experiences of millennial students in skilled trade certificate programs at a Midwest community college, which is a very specific student population. I used purposeful sampling to find information-rich participants, or those who possessed intimate knowledge of the topic, be it through their personal experience, the experience of their family members, or the experience of their students. As a result, the conclusions drawn from the data of the focus groups and interviews were specific to the participants of the study and cannot be widely generalized to populations beyond the specific environment of this study.

Since this subgroup of students is neglected in the literature, the character of this study was exploratory, and I chose to use qualitative methods due to the nature of the research question. However, interviews are very labor and time-intensive. Discussions resulting interviews answered my questions better than surveys could have. Therefore, considering that this study was conducted by only one person (with the exception of professional transcription service), the number of interviews was limited partly due to restrictions on resources. Also due to resource constraints, I focused on one community college. For these reasons, the potential application of the study’s findings is further reduced.

While answering the research question, this study did not consider the variables of ethnicity, class, or gender. Since the majority of the participants were White males, there was
little opportunity to explore differences between differing demographic groups. Besides, these variables were not initially an area of the study’s focus. Consequently, this research did not examine if the identities, backgrounds, and communities of the students played an important role in their decisions to pursue certificates in skilled trades.

As explained earlier, within the interview questionnaire, I neglected the variety of family models that may have been present among participants. This is could be a weakness of the study because, considering the influence family members had on the decisions of student participants, family makeup might be a relevant variable. It is possible that my survey question which did not consider various household structures prevented the collection of salient data about the students’ lives. The decision to recognize the education of one mother and one father within the questionnaire was made based on time considerations, desire to focus on the discussion portion of the interviews, and the findings of past research, which did not point to family structure as a vital area to explore in order to answer the research question. If a student had voiced concern over the question while completing the paperwork, I would have been responsive, respectful, and accommodating to their situation. However, no participants did. Then again, if a student’s family did not fit the traditional model presented, they may not have felt comfortable saying something to that effect because of the presence of others and may have sensed my desire to quickly move onto the discussion portion. Considering the strength of influence of family members on students’ educational and occupational choices plus the growing number and acceptance of a differing family structures, this is a delimitation worth noting.
Chapter Four: Results

In this chapter, the results of the study’s analysis are presented. To start, summaries of the study’s participants are offered. Then, the process of how students chose to pursue a certificate in a skilled trade within the college-for-all culture is described. This chapter includes a preliminary description of a skilled trade decision model. The model emerges from participant’s insights and serves to guide the discussion in the following chapter.

Participants

Certificate students. Some of the following details of the student participant characteristics are summarized in Table 1. Data collection efforts resulted in data from 12 certificate students. There were two females and 10 males in the set of certificate students interviewed. Within the group, three students were working on credentials in manufacturing, and five students were studying computer aided design. There were also three welding students, and one student pursuing both welding and mechatronics certificates. Out of the 12 students, only three had no other previous postsecondary education experience. The most educated student had earned a certificate and a bachelor’s degree in a field very different from their current program. Three students had completed bachelor’s degrees and a two had associate degrees from other programs. Four students previously attended a university without completing a credential. There were no apprentices in this group. However, a couple students were considering beginning apprenticeships. Three students were open to continuing their education in their field beyond a certificate, five students had no current interest in continuing their education after certificate completion, and the rest were not sure about their futures. All of the certificate students said they either had not completed any remedial coursework or did not know if they had. In addition, the majority of participants had recently started their program when they participated in the study.
More specifically, five of the students began that fall semester, three had started the previous summer, and four started during the 2016’s fall semester. A few others began that summer or the previous fall semester. Five of the students expected to complete their certificates that following spring or summer, three students expected their graduation to occur the following year, and four of the participants were not sure about when they would complete. All students, with the exception of an international student, attended and graduated from high schools in southeast Michigan.

The students’ parents’ education levels ranged from GEDs and high school diplomas to advanced degrees. Three parents had advanced degrees while the majority stopped after high school graduation. Interestingly, out of those who reported parental education levels, five out of the 11 mothers earned associate degrees while only one father did. Fathers had more education on the extreme ends of the spread while mothers fell in the middle of the education spectrum. For instance, while there were two fathers with advanced degrees, only one mother had education beyond a bachelor’s degree. Also, one father possessed a GED, but all mothers with a known education level had at least a high school diploma. Of the mothers, students listed two unemployed, one retired, a couple nurses, a few accountants and secretaries, a beautician, and a teacher. Fathers’ occupations included a couple engineers, two men in sales, a steel worker, a truck driver, and a couple others with careers in maintenance. Also within the group were parents who owned a business together.

There were two full-time students and 10 part-time students. Students also described their employment status. Two were unemployed, seven had full-time positions, and three students held part-time jobs. The most common combination was part-time school attendance with full-time employment. Just over half of the students considered their jobs to be related to
their field of study. The students’ reported high school grade points averages ranged from 2.3 to 3.6, with an average GPA of 3.0. To protect the students’ identities and privacy, additional details will not be shared.

**College faculty and staff.** Data included transcripts of interviews with employees of the college. These five employees’ roles were directly connected to the programs of focus in this study. Their responsibilities at the school included teaching, advising, maintaining labs, managing grants, and/or leading programs. This group of participants included four men and one woman. Three out of the five had been serving students for over 15 years. Two were part-time employees and the other three had full-time positions. Their professional experience at the college ranged from a couple semesters to almost 20 years. Four out of the five interviewed actively performed work in a skilled trade in addition to their roles at the college. Of those employees who also worked in a skilled trade, their industry experience ranged from 15 to 45 years.

**Family members.** Data was also gathered from family members of the certificate students. One interview with two parents of one student, one interview with one mother of another student, and one interview with one father of a third student were completed. Each interview was conducted over the phone and ranged from 20 to 45 minutes.
Table 1

**Characteristics of Student Participants**

<table>
<thead>
<tr>
<th>Age ranges</th>
<th>Number of certificate students</th>
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<tbody>
<tr>
<td>35-40</td>
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</tr>
<tr>
<td>30-34</td>
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</tr>
<tr>
<td>25-29</td>
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<td>20-24</td>
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<tr>
<td>Manufacturing</td>
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</tr>
<tr>
<td>Mechatronics</td>
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<tr>
<td>Welding</td>
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<th>Full-time student</th>
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<td>Full-time employee</td>
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<tr>
<td>Not reported</td>
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</table>

*Note.* Total quantity of fields of study frequencies is greater than number of students due to students pursuing multiple credentials.
Skilled Trades Choice

**College choice theory.** The decision to engage in tertiary education is complex, involving a variety of influential variables and often starts years before registration (Henrickson, 2002; Workman, 2015). Family, friends, and mentors often heavily influence, or even dictate, the process and outcomes (Workman 2015). This phenomenon has been studied by many scholars from a variety of angles (Hendrickson, 2002). A common tool used to investigate the choice to attend college is human capital theory, where individuals see the benefits of college as primarily monetary and invest in education to maximize satisfaction until the marginal benefits equal the marginal costs (Becker, 1962). This economic approach expects that students’ decisions are rational, are made with complete information, and result from clear analysis (Becker, 1962; Oreopoulos & Petronjevic, 2013). Another model frequently used to examine the important decision of postsecondary education is status attainment where goals and constraints determine choices (Aldous, 2009; Jackson, 1982; Somers et al., 2006). This model considers the effects of high school curriculum, parents’ income and expectations, locations of schools, the behavior of peers, availability of financial aid, and academic performance. Yet, another way to address and understand the decision to attend college is through comprehensive college choice models. Comprehensive models, such as the phases developed by Hossler and Gallagher, take into consideration the timing of stages in the college decision process (Aldous, 2009; Henrickson, 2002; Jackson, 1982).

Although these models are helpful in serving our need to understand this vital step in attending college, they neglect students from diverse backgrounds and situations (Aldous, 2009; Henrickson, 2002). Much of the literature on college choice is based on students enrolled at universities and pursuing bachelor’s level credentials, which neglects community college
students (Aldous, 2009; Bahr et al., 2015; Bailey et al., 2004; Perna, 2000; Scott, & Leinbach, 2004; Somers et al., 2006). And too often when community college students are the focus of college choice studies, a four-year paradigm is imposed on them and differences in program types are not recognized (Bailey et al., 2004). Furthermore, it has been advised that the details of the process for different populations be revealed through more qualitative research (Aldous, 2009).

More specifically related to the current study, Workman (2015) and Much et al. (2014) brought attention to the need for more studies of what influences millennial college students and how the context of institution and program must be variables in this research. For example, community college students may have different motivators than university students. Likewise, nondegree pursuers at two-year schools may be not be influenced by the same factors as students looking to transfer. Furthermore, Holland (2015) specifically called for more in-depth study of how the college-for-all atmosphere influences students in different contexts, the stigmatization of nondegree credentials, and how teachers and counselors can effectively guide students to more appropriate and individualized paths.

Accordingly, this study focused on community college choice by targeting students of the millennial generation who were pursuing certificates in a skilled trade. At this point in history the youngest members of the millennial generation are graduating from high school and beginning postsecondary education. Of course, with this case study’s small sample it is inappropriate to make generalizations for applying to larger or other groups. Yet there is still much to be learned from the participants within this particular context in preparation for the newest generation of students entering college and the labor force.
Differing goals and shorter academic plans may affect the college choice process causing it to progress dissimilarly to other student populations. Generating a better understanding of how these students decide to pursue certificates could be valuable when considering postsecondary and economic policy (Aldous, 2009; Matheny et al., 2015). As such, it is beneficial to listen to the stories of students who have, despite growing up in a college-for-all culture, assessed their situations and found positive, alternate paths for their schooling and careers.

**Basic Skilled Trades Choice Model**

A common assumption about community college students is that they choose to attend two-year schools versus universities simply due to poor academic performance, lack of funds, or a need to remain close to home (Lowry, 2017; Somers et al., 2006). This assumption may appear reasonable and accurate in relation to certificate students. In fact, research has shown that individuals with certificates are more likely to have been raised by parents with less education, come from low socioeconomic status backgrounds, and performed poorly on the Armed Services Vocational Aptitude Battery (Carnevale et al., 2012). However, other studies have found that students are drawn to community colleges for a wider variety of reasons including flexible class schedules and smaller class sizes (Munsch & Kelsay, 2014; Nevarez & Wood, 2010). These reasons are indicative of how many community college students have complex lives and their needs may not be as simple as expected. Likewise, the current study found that the reasons and process for choosing to attend a community college and particularly to pursue a certificate in a skilled trade is far more intricate than it first appears.

To begin exploring this process, the aforementioned common myth that students attend community colleges because they are academically deficient must be further addressed. Contrary to the stereotype, the certificate students of the study were not academically deficient. Dissimilar
to the findings of Wood and Harrison (2014), not one student participant noted open enrollment as a factor in their decision. Each one had successfully graduated from high school and the group’s mean final high school grade point average was 3.0. Although a few students earned grades that kept them closer to 2.5, several students graduated from high school with a grade point averages around 3.5. Furthermore, no certificate students reported completing remedial coursework. Most telling was their previous school enrollment. Over half of the students started their postsecondary journeys at universities. This means that at least most of the student participants met the admissions standards of a four-year college. In fact, multiple students had successfully completed degrees before beginning their certificates. This access to other forms of postsecondary programs was a critical observation of the case study. The students did have educational opportunities available to them and had to somehow choose among multiple postsecondary options.

In an attempt to describe how the students made their decisions and summarize findings, a basic skilled trades choice model is presented (see Figure 1). This model was constructed considering participants’ narratives, providing a starting point to better understand the process of millennials’ decisions to pursue certificates in skilled trades. In the current chapter, this model provides a framework to organize findings and sets the foundation for further discussion in Chapter Five.
Within the college choice theory literature, it is common for individual and organizational factors to be conceived as having direct influence over choice, which interact to produce decision outcomes (Hassler & Gallagher, 1987; Kinzie, Palmer, Hayek, Hossler, Jacob, & Cummings, 2004; McDonough, 1997). In their classic three stage model of college choice, Hassler and Gallagher (1987) used the term predisposition to describe students’ considerations of whether or not to attend college. The predisposition stage occurs before the search and choice
phases, and it involves the development of a student’s aspirations and expectations in relation to college (Aldous, 2009).

This term predisposition comes close to being an appropriate term to label the point when students entered in a proper frame of mind to choose a skilled trades career. However, as the study’s findings demonstrated, when choosing programs that contradict society’s expectations, the process may be more complicated than the typical college choice model presents. For the participants of this case study, an inclination combined with other factors did not just lead to a school choice as many models portray. In fact, many influences that normally may seem to be supportive of a young adult’s future actually challenged some participants’ productive healthy development. Therefore, extra steps were needed to bring students to the point of skilled trades choice readiness. Within this study, the decision was not just about choosing if and where to attend. The decision also included negotiating with the expectations of college-for-all culture while choosing a professional field and credential level.

The term predisposition implies that the students were already inclined to choose. However, the choices of the students of the programs were not inherent as the term predisposition implies. Students were not predisposed to the choices. In fact, they had to make extra effort to reach the point of decision. Therefore, to answer the study’s question and describe the decision process more accurately, the more specific term of disposition is used. Within the model, disposition refers to the point of development when students were ready to decide to pursue a certificate in a skilled trade. This disposition formed under the competing challenges of the college-for-all culture and took effort.

Also, as a whole, participant narratives suggested that students’ decisions were strongly influenced by the formation of certain characteristics. Within the college-for-all system, certain
personal and environmental changes were key to shaping their orientations to skilled trades 
careers. These key developmental characteristics are referred to as qualities through this report. 
Growth in three crucial qualities led to a disposition that supported the important decision to 
pursue a skilled trade certificate. As students neared the development of the proper disposition, 
their levels of the three qualities rose (see Figure 1). The three key qualities were knowledge of 
education and career opportunities, appeal of their program and field, and self-determination to 
make decisions based in self-interest. I will refer to the qualities as knowledge, appeal, and self-
determination through the rest of the document:

- Knowledge represents the process of recognizing a career path, learning of its 
  demand, understanding its qualifications, and identifying ways to become qualified.

- Appeal refers to students’ recognition of their attraction to aspects of the profession, 
  training, or tasks.

- Self-determination describes a student’s ability to handle the classism that 
  accompanies college-for-all culture and pursue goals to satisfy personal needs, not societal 
  expectations.

The growth of each of these qualities is represented by arrows in Figure 1 pointing toward the 
center circle, which symbolizes the goal disposition.

Similar to the community college choice model of Somers et al. (2006), this model also 
contains factors that influenced the students’ decisions. Within each quality, various ways the 
students accomplished their progression toward their current disposition are described. Examples 
of these factors are family support, career and technical education, and new job responsibilities. 
These factors supported growing knowledge of the connections between education and 
occupations, recognition of the appeal of their profession, and growth of self-determination
leading to the rejection of imposed stigma. By way of this process, the student participants became ready to form a plan that suited their interests and talents. In the next section, these factors are discussed in relation to the growth of qualities.

Additionally, the challenges of college-for-all culture were recognized by all participants. For the student participants, it manifested in various forms and was learned from baby boomers and Generation Xers. Some of these influential adults seemed to be a major source of this pressure and actively stigmatized that which did not fit within college-for-all expectations. However, other members of older generations stressed the importance of learning a useful skill and taking pride in hard work. Regardless, all generations were subjected to the college-for-all mantra and individuals managed it in a variety of ways. This effect of college-for-all culture and older adults is represented by the outer rings. They encompass disposition development to represent their influence. Noticeably, the circles of college-for-all and older generations do not fully match. This misalignment reflects how some members of older generations did not actively support or transmit college-for-all beliefs.

**Themes**

Through the next sections, participants’ narratives are used to provide evidence that supports emerging themes from the data. The narrative is organized representing the components of the model including college-for-all culture and generations, the three qualities (appeal, knowledge, and self-determination), and dispositions. Each component serves as a section heading to organize the narrative. When referring to participants, pseudonyms are used to maintain their privacy.

**Knowledge.** Satisfying the need for knowledge is a vital step to building the model’s construct of disposition. Within the nation’s maze of schooling and education, students had to
learn about available opportunities and draw connections between them. With increasing knowledge, the students came closer to forming a disposition supportive of the decision to pursue certificates in their industries. Within this study, various factors helped students reach higher levels of knowledge (see Figure 1). For instance, a couple participants’ employers informed them of how completing certificate coursework could help them progress in their careers. Other students took the time and initiative to conduct their own research to discover their wide variety of postsecondary and career options. For a few students, becoming aware of their field as a career opportunity occurred relatively early during high school CTE classes. While a few students took as many CTE courses as possible, other students reported to not have had access to such opportunities at their schools. If exposure happened later in life, it took place through a friend, family member, employer, or recruitment event. For instance, a couple certificate pursuers found their way to their programs after being exposed through a new job responsibility. Another student recalled a moment at a recruitment event that opened his eyes to new career possibilities. Yet, another student had a similar life-changing realization while touring a work site. Overall, these later learning experiences happened after struggle and/or by chance.

The following paragraphs introduce knowledge-related themes that the data revealed. The first theme covered is the concern expressed over the present lack of young people entering trades and the value of certificates under these conditions. Then, the focus turns to conversations about returns on investment. Some students were so cognizant of the relationship between education and employment, they carefully managed their potential returns on investment by cautiously stacking credentials as needed. Lastly, another theme that emerged from the interviews was the state of CTE in today’s high schools and how it relates to the talent pipeline.

“I don’t see anybody younger than me working with me.” While conversing about the
need for young adults in traditional skilled trades, Walter, a part-time instructor with about 25 years of experience in his field, considered the ages of his coworkers at his place of full-time employment:

Well heck, at work I'm one of the younger guys. I think since the downturn there in 2009, I don't think as many younger people are going into it…. I’d say the youngest guys are around 40 … There's two people who are in their 60s, pushing 70. Then a handful in their 40s and a bunch in their 50s.

Cameron, a CAD student, shared a similar concern about the age distribution at his job:

I am a mechanical designer. I have been working in the industry for 14 years or so and like, I don’t see anybody younger than me working with me. Among all my co-workers, I am always the youngest in the office until just recently. And then all of my co-workers with my title are all like in their mid-50s. Nobody younger.

Later in the conversation, Cameron seemed to worryingly think out-loud about this topic:

No, there's no kids. There’s no like helper, like apprentice. Nobody is squeaky [clean] right off the street…There's no like "I really don’t know how to do this wrong"…So, there’s no training on the next few talents. So, kind of big deal actually.

As explained by manufacturing instructor Tim, many job postings do not usually list certificates in the qualifications. However, considering the lack of youth currently entering these fields, employers are so desperate for people that they are happy to take candidates without degrees. He explained how this came about:

Employers want the best at the cheapest package…But they can’t find that. So then they start lowering their requirements. They may ask that you have an associate degree - that was probably five years ago. Now they’re just, “Give us a student that has passion and
will show up and pass a drug test.” Those are the three requirements that they ask for and from there they’ll train them.

As a result, it is currently not unusual for students to be picked up by employers before even finishing their relatively short certificate programs. The instructor remarked on how he loses students before they complete: “I don't have a lot graduating…because they get jobs and then they’re so wrapped up in their job, they don't have time.” Below is how welding instructor Victor described employers’ current standards:

There are ones that work with us and say “Hey, give us ones that have been through a certificate level, that have been through intro, … blueprint reading, and basic fab. Send us those.” And that allows them to see students who have dabbled a little bit into it. They’re not claiming to be an expert. They're not claiming to be a hero. But they have exposure to a little bit and then the company can fine-tune them how they want them.

Another employee Yvonne took the topic a step further and commented on how employers sometimes prefer candidates with lower-level credentials versus degrees:

They want to keep those students and really develop them at that technician level. If they want to go onto engineering, they don't stop them. But they really want those young people that are interested at that technician level- the hands-on, the electronics, making stuff work, making it fit together.

Another example of this if how the brother of one of the CAD students interviewed recently landed a design position at a leading auto manufacturer without a completed credential. As the student’s mother proudly told the story,
A position came up and my son's boss came up to Jack and asked Jack if he was going to apply for the position and my son said, “No, I don't have my bachelor’s degree” and his boss said “I want you to apply for the position.”

As for the students, they are certainly feeling the change in hiring practices on their side, too. A few days before manufacturing student Rick’s follow-up interview for this study occurred, he had a job interview. He spoke of his job interview in relation to what it was like as a student who still has yet to finish their program:

I go in there just swallowing all of the anxiety I could. But as the interview starts, they gave me one question that my parents prepared me for, which was, “So what classes are you taking at (community college)?” And once I answered that, they spent the rest of the time … trying to sell to me more than I was trying to sell to them. And that just blew me away.

Within one of the focus groups, college faculty had an exchange about how the current demand has been shaped by the effects of the recession:

*Samuel:* But they also see about layoffs and… ma & pop shop going out of business because other people are moving in or jobs just aren’t being offered at one particular time. Then you also have, in my case with the automotive, there was a lot of buy-outs in 2009. So, that left a big hole in education for, “Why should I go in design if no one's looking for it?” Now they’re looking for them, but there's no one to be had because no one’s been trained.

*Interviewer:* So, maybe [there’s] some fear from the older generations about the field?

*Samuel:* Not only older. Younger also, because they just see it in the news- go on strike, the company is closing, moving to other locations.
Tim: Mexico.

Interviewer: But that happens to many industries.

Samuel: It did.

Tim: That's why I say that I don't think the parents are all that knowledgeable of what’s available.

Yvonne also voiced her take on how the recession affected the choices of parents and students:

Maybe when they had the downturn and all those people got laid off or whatever, people got shy. Like, “I don't want my kid to go into something where it is going to be that volatile.” You know, a you-can’t-make-living thing.

While the past recession was posed as a place for blame, the future was also suspect.

Yvonne touched on how increasing automation may affect the public’s perception of opportunities: “So, if the robots are coming, they are going to come! Then you need to learn the robotic programming and that's a program that we’ll start offering here next year.” Although this comment shows her confidence in a continued need for human labor in manufacturing, Yvonne also posed a fearful question:

I also go to seminars when they talk about autonomous robots that are going up and down in a warehouse picking orders. And so, if we stimulate the economy too much and we already don't have enough people now, are we going to bring in more technology to take away those entry level jobs?

Instructor Tim additionally commented on the future when questioned about how the college-for-all culture interacts with the current demand. He expressed a strong need for change in higher education, especially in relation to the promotion of community college credentials. Tim claimed that it is beginning to occur and he excitedly spoke of the catalyst for this change:
The only reason it’s come around is because there's such a skill gap that the businesses are screaming at the government to do something. And the government is saying, “Hey we're losing money. We're going to lose our people. We're going to lose tax dollars. We’re going to lose our revenue stream if we don't take care of this problem.” So, it's a major problem. They see it now, but it's taken a long time for them to react to it.

In other discussions related to the labor market, the complex nature of certificates was revealed. Many of the people interviewed understood that a certificate can land a job, but it can only take a person so far. The possible restrictions included potential for advancement and mobility. The following captures some participants’ concerns, challenges, and perceptions in relation of the professional boundaries of certificate holders.

During an interview with Cameron’s mother, Kimberly, she spoke about her son’s professional challenges in relation to not having completed a bachelor’s degree:

He's been through some tough times. He was trying pretty desperately when the economy was bad and he happened to fall into that time frame in 2008 when things were very rough. And he changed jobs two or three times, moved out of state twice, drove clear across the country to have a job in Texas or Arizona.

Cameron’s story exemplifies the need to examine the value of education carefully while taking the economic cycle and local industry into consideration.

Other students were questioned about the possibility of future relocation in terms of employment. As discussed throughout this paper, location is an important variable in the return on investment equation. The earning potential for nondegree credentials can depend heavily on the workforce demands of the region. Importantly, all of the students, with the exception of the international student, all graduated from high schools in the area and seemed likely to remain
living and employed in the area following certificate completion. But while plans to remain in Michigan seemed common in the group, Rick was open to the idea of moving and expressed confidence in the demand for his skills elsewhere:

*Rick:* I don't have any specific plans. But if there was a better paying job elsewhere, then I wouldn't hesitate to take it. So, I'm willing to relocate, but it's not the utmost priority.

*Interviewer:* Have you considered what kind of value your credential will have in other parts of the country?

*Rick:* … I'd still be pretty competent. I mean, walk into any shop or any factory where they're trying to create something, they're going to have a CNC machine. That's kind of how the world works... So, I'm not exactly worried about finding work in other places.

Unfortunately, as research has demonstrated, Rick’s belief in his ability to find work elsewhere may be incorrect. The student can be confident in his likelihood of employment in his area of his state right now. However, as Cameron would probably agree, it is very possible that it would be more challenging to find work in a different region of the country or during another recession.

Similarly, in order to advance, a certificate holder may need to achieve a higher level credential. A manufacturing teacher who participated in the study commented on this behavior:

That's what I’m starting to see now, “Hey... I want to move up a level and I can’t without my degree.” So, they’ll get a skill certificate or a one year certificate and go get a job. Then they’ll come back. Then they do the math and the English and the social studies and all that.

Multiple instructors referred to this common story of students returning to college to earn an associate degree to be eligible for promotion.
Likewise, although he is currently satisfied with his position and experience, Cameron acknowledged his fear of possibly regretting his lack of a degree in the future. He also recognized how not having a degree prevents him from obtaining positions with the major auto manufacturers in the area, which are highly desirable in Michigan. He reenacted a conversation with his mother, Kimberly, about how his career could be stunted by his lack of formal credentials:

*Cameron:* “The door is shut, huh?” That’s why my mom is like, “when are you going to go back and finish?” “I don’t need it” “What about that door? What if you need to go through that door?”…Right, and I can’t work at Ford. I can’t work with Chrysler or GM. Like everybody has a degree apparently. Like every designer has to have something and I don’t.

*Interviewer:* Okay. So, there’s some fear there maybe?

*Cameron:* Yes, and there’s smoking hot companies that I can’t work for.

During a different conversation with Cameron’s mother, she mirrored this worry over her son’s lack of a degree:

I think that he might come across opportunities that he might have [otherwise] been able to move forward on. But without the bachelor’s degree he can’t. And there's a lot of companies now that are strict with regards to having a bachelor’s in order to be hired. So, … if anything like that ever comes along, and he’s not qualified to apply for a position based on his education, he might feel a little bit of regret.

Evidently, Cameron’s life has certainly been and will continue to be shaped by his area of residence, field of work, and level of credential.

“I don’t want to take a crap ton of loans out.” As for affording their education, the
millennials of this study were paying for their current program through a variety of means. Some were paying with their own funds, others’ parents were footing the bill, one depended on the GI Bill, and some had employers who were helping with costs. They were quite knowledgeable of how their current training links to job prospects. However, the students also confidently and cautiously considered the potential costs and necessity of more education. With their minds centered on return on investment, they showed appreciation for the relatively short length of their programs, expectations of earnings, and opportunities for employers to cover tuition.

A conversation with Alice serves as an example of the participants’ concern over the cost of education in relation to expected income. Alice’s extended postsecondary journey included the completion of a bachelor’s degree at a university, a certificate at a for-profit vocational school, a detour at yet a different community college, and then the pursuit if a certificate in CAD. She noted that if she had known years ago that she could be earning the income she does now with only a certificate, she would have done things quite differently:

If I were to graduate high school now and do it over again, if I would have known there is such a demand for it, I would have surely loved a more fast-track, condensed course versus my time at (university alma mater)... I'm happy I spent all my time [at a university], but if I could have known that I’d be making the same amount of money I'm making now with this experience and the education I have, I would have definitely taken this path.

CAD student Alice stressed how her bank account fell victim to the college-for-all plan. She shared some of her anxiety due to the cost of her education:

If I [had not been] so certain about spending four or five years getting a bachelor degree, a two year certificate would be a good option for me. And especially somewhere like
(current community college)... where it's not as expensive. (University previously attended) is on the lower scale. But it's still pretty expensive, especially with room and board. Even [while] working through college, I somehow was able to still rack up a lot of debt. And I don't think I would be in that much [debt] if I would have just chosen a smaller program.

Later in the conversation, the student continued to reflect on the costs of her educational decisions: “So, I'm glad, I guess, [that] I got my four year degree. I just maybe wish I would have thought through what I really wanted to get my degree in before I spent all that money.” Similarly, Cameron negatively reflected on the costs of his time as an engineering student at a pricey, selective university: “Yeah, I did pay for school that I didn’t go to and I bought some school that I didn’t use…Yeah, so it’s awful.”

Considering the burden of tuition and student loans, cautiously navigating the maze of school and employment by staking credentials seems wise. Some students were aware of the connections between specific credentials and employment opportunities. As a result, they strategically planned to build their education one level at a time as needed in contrast to jumping into a longer, costly degree program to acquire education that may not be necessary for their field. The students stressed how they wanted just enough education to get started and some even looked forward to an employer covering the costs of their certificate and future education.

At Rick’s interview, this idea of possible employer sponsorship came up. The student again referred to his recent job interview:

Rick: They asked me if I had any objections to getting a degree and I said “I wouldn't mind it, but overall I just want to get my foot in the door to a company right now. But if I
could get a degree long term, that would be fantastic.” And they started saying like
“Well, we'd be willing to do that. We just need to know what you're worth to begin with.”

*Interviewer:* Willing to do what? As in they would be willing to pay for it? Is that what
they meant?

*Rick:* Yeah, as in they'd be willing to. As they explained to me, if I end up getting the job
and if I show that I have potential in the company, then they'd be happy to send me back
to, as they put it, “increase my own value”.

CAD student Dave, who was funding his own education, also expressed how he is taking it step
by step with finances, the labor market, and tuition assistance from an employer in mind:

I want to see if I can get a job first, get my foot in the door, and see if they're going to pay
for me to go back and get an associates or bachelor’s or something like that - to get a four
year degree… I don't want to take a crap ton of loans out. So, my plan is to at least go for
the certificate...If I get a place to welcome me there and try and pay for the schooling,
that would be great. But if I need an associates, I will come back and get an associates.

He continued later in the interview:

I've talked to my cousin's boss a little bit and he said that he's looking for people with any
sort of education. Walk in the door and he will pay for the rest of the schooling. .. I want
see if I can do something with the minimum. And if that's not accepted, then I will work
for more and see if they take me at that point. But, I don't want to go for a pointless two
years where I can finish something in one year and see if I can get a job. Because if I get
a job with a certificate and they offer to pay for the rest of school, that's great. I have no
debt. I have no loans. Because I have enough money to pay for entire certificate and if I
get my foot in the door and they offer to pay for the rest of school, awesome!
With these intentions to stack credentials, Dave dodged the common detour through a four-year program. He was fortunate to be informed about the value of certificates and understand the benefits of approaching college one step at a time. He recalled his mother’s experience as a degree noncompleter and wanted to avoid repeating her mistakes. He shared his parent’s story:

My mom went to a community college... But her problem was that she didn’t finish her associates. She changed programs …Then the classes got too difficult for her. She ended up dropping out. So, the problem is that she only went to school for about a year and a half. In that year and a half time, she could have finished her associates instead of going for the next [degree level] up. And that’s where she made a mistake. She was so irritated with herself. She could have just finished the associates instead of going for the higher-up degree.

It’s no coincidence that Yvonne uses this very same lesson as a selling point when promoting certificate programs to prospective students:

You don't know where life is going to take you. So, at least …you have that one-year certificate. Obviously you can keep going … but, if life happened in that last semester and you couldn’t complete, you’d at least have this to go on your resume.

Notably, according to the participants, this shorter time to completion is a definite perk of their programs. Students and college employees alike cited duration as an advantage of their programs, especially when considering that a quicker program can mean a cheaper program. Correspondingly, the challenges of managing school, work, finances, and family motivated veteran Adam to pursue the shorter welding credential:
Mostly for me, it’s time. As work gets a little more hectic and my daughter is getting older, finding time to try to balance everything- it’s kind of running out of time…and money. This is like the last semester for the GI Bill. So, now money is going to be even tighter than it was before.

The unique case of Isabel, an international student with a four-year engineering degree, is another example of intentionally choosing the quickest route to a credential. Isabel shared her story with the group:

I decided to take a certificate because I came to [the] United States two years ago. I have a bachelor’s from my country. When I applied for a job, nobody called me because I don't have a degree from [the] United States. So, [I chose] the shortest way. I decided to take a certificate, a one-year certificate to build my resume.

“They have no shops. None.” Some students credited their participation in CTE during high school for starting them on their path to their current program and career path. For example, Dave had the benefit of taking CTE courses at a career center as part of his high school experience. He proudly and confidently described the purpose of the career center he attended:

The career center was an open place where people who wanted to pursue careers, not just degrees but careers, would go. … There were like computer science classes and there was graphic design classes and architecture and CAD classes…. It was all those classes of people not just brainlessly going for a degree that they thought they wanted.

Another student who benefitted from industrial arts options in high school was Cameron. He recognized that early vocational training for helping him find direction at a young age:
Where did we get any sense of what we wanted to do when we were eighteen? Seriously. Where did it come from? … The design tools, the CAD program. I learned those in high school and got good at them and that became my career.

Cameron’s mother also proudly stated how her son’s high school CAD courses shaped his career trajectory:

Well, the reason he went into that field is because they offered a class in his high school. He took to it…and he did very well. [He] was recognized in a contest and he just felt that that was going to be his career path. So, I definitely believe that the class in high school that he took took him to where he is today.

Unfortunately, not all students had experiences like Cameron and Dave. Actually, access to high school vocational training varied greatly among the millennials. Some students eagerly took advantage of every industrial arts class available to them while others found them almost nonexistent. For instance, while student Hank enrolled in multiple CTE classes during high school, Greg only remembered his high school offering an introductory auto maintenance course. Other students such as Rick and Lauren referred to the red tape that surrounded their CTE offerings. Their schools required dealing with hassles such as extra paperwork, limited seats, transportation to other locations, and sacrificing opportunities to take college-preparatory courses. For instance, when asked if he had access to vocational training during high school, Rick described his experience with irritation:

Kind of, not really, though... They had like one class, but it was a very small. Like only twelve people and there was only one class. So, if you got in, it was because you actively sought it out…So, really in high school … I just took a bunch of bullshit because that's
what they told me to take… That’s what they always program you as, “You need these [college-preparatory] classes or else you’re going to be a failure in the real world.”

Sadly, this negative perception of CTE being for failures seemed to be supported by practices in high school. As previously discussed, historically, students who have not performed well academically in high school were often sorted into vocational programs. This pattern resulted in a strong representation of “bad” students in CTE programs. It does not require much imagination from of a student to reach the conclusion that shop class is for academic losers. Tim, an instructor, pointed out another sad consequence of this tendency:

Usually they get the students that are bad in regular high school. They ship them off to the vocational center. So, that creates a problem in the vocational center because now they’ve got a couple bad apples in the class and that ruins it for a lot of the students.

In this way, the distraction of misbehaving students makes industrial arts programs an even less desirable option because the classroom is spoiled by trouble makers for the “good” students who genuinely want to explore skilled trades. Obviously, treating CTE as a path of last resort further harms the reputation of skilled trades and makes it more difficult to expose people to the vocation.

Some of the older participants who lived through and witnessed the downfall of and attempts to revive CTE were very concerned about the current quality and quantity of this education. Retired mechanic Herman, the father of a certificate student, spoke strongly about the disappearance of shop class in high schools for the sake of college preparation:

Mike Rowe is right. Everybody was being pushed to college and the skilled trades were knocked off the sides. When I went to high school, we had a print shop. We had a weld shop or a metal shop. We had a wood shop. .. We had two automotive shops and of
course we had home economics…I've been back to my old high school. They have no shops. None. None whatsoever.

Moreover, instructor Walter spoke of CTE’s disappearance and reintroduction with mixed feelings:

There's a trend going the other way though. They gutted all of the shop classes of the 90s and early 2000s in the high schools. Totally gutted them. My buddy teaches CAD and engineering … and they sold all the shop supplies and then fifteen years later they're repurchasing them and they are not as good as the original ones. But I think they're putting it back in high schools because we need the skilled trade classes there to start [students] out.

Another college employee was even more cynical when questioned about the reintroduction of CTE education:

There are some [high school CTE programs]…They are not the best in the west. Partly because the instructors aren’t very good. They call them industrial rejects...They’re good at what they do and that’s all they know. They're not well-rounded type individuals and it creates problems. Some are good, some are very poor.

Yvonne shared a poignant story to demonstrate how tragic the consequences of absent or low-quality CTE programs can be.

Jackson prison has a vocational village where they’re teaching the trades for [prisoners who are about to be released]. Returning citizens we call them. They have a beautiful CNC lab, they had a carpentry lab, [the prisoners] had a truck-driving simulation, automotive. Nicer than our labs. Gorgeous. And I’m like, “It's a great program...and this is great for these people.” I think it’s wonderful. I would never begrudge them that. But,
you know what? Let's move all that type of equipment down over here before they get into the criminal justice system. If these [prisoners] could have had a clear path in career technical education when they were in high school, they wouldn't have gone over there. Maybe, if they had viable alternatives over here, maybe they wouldn’t have gotten into the trouble that got them there. You just need to move that downstream and make sure they're getting those populations that can really benefit from knowing [that] these great jobs are out there.

It’s doubtful that many would argue with Yvonne’s opinion. Although this lesson is not directly applicable to the particular student participants of this study, it underscores how CTE programs play an essential role in our education system.

**Appeal.** After considering all the attention given to bachelor’s degrees, one might wonder how anyone ever finds their way to skilled trades certificate programs. The students of this case study’s programs stated a variety of reasons for resisting college-for-all pressure and beginning their current paths. In the below paragraphs, the various appealing factors that attracted participants to their fields are explored (see Figure 1). While employment and income were identified as primary draws, there were other motivations that seemed to run much deeper, which will be discussed.

When speaking about what they liked about their trade, some participants spoke of how enjoyable the training for the occupation has been. These students stressed their appreciation for the relevance of the coursework in their programs. Additionally, the hands-on nature of the assignments worked well with the students’ strong preferences for applied work versus bookwork. About half of the case study’s students discovered how much they enjoyed their work during CTE classes in high school. Others began recognizing the pleasure of working with their
hands during childhood while designing, building, and fixing things. Yet, some students did not stumble upon opportunities to fully realize the appeal of the work until their late 20s or early 30s.

An additional factor that attracted students to their fields was how their new skills related to other disciplines that interested them. For example, several students discovered their trade while exploring architecture and engineering. Some participants also expressed excitement over the actual products of their labor and the precision of the tools they used to make them. Additionally, the participants repeatedly expressed pride and satisfaction in how their work had practical application in the real world. Yet another aspect of their industries that appealed to participants was the culture of their fields. For instance, multiple students imagined that their work provided more autonomy and active problem-solving than typical desk jobs. And, worth mentioned again, students looked very forward to the relatively high financial return on investment they expected after graduating from their programs.

The next sections present thematic areas related to the quality of appeal that emerged from the data. One theme was recruitment methods that expose students to the in-demand vocations. Employees of the school described current recruitment practices, students talked about their own introductions to their fields, and some participants even prescribed new ones. Next, the discussion turns to more in-depth descriptions of what attracts students to their fields such as the enjoyment of hands-on work and the culture of their fields. Finally, some participants’ comments about the relevance and the value of a liberal arts education is explored.

"Show them that you can build this cool stuff and you can get paid for it.” The programs of the study have multiple recruitment initiatives centered on exposing prospective students to careers through events such as competitions and open houses. One of their open
houses was attended by Rick and his parents. The student excitedly told his story of how the experience taught him about available programs and interesting careers:

So, we go to this open house and the first room that we’re shown into, this person is showing us this glowing plastic thing. He has like a laser pointer pointing at it and he’s carving his name into it and then it would glow in the dark. And I’m just like, “that is the most amazing thing ever. Please show me more...We went to the welding room …and the moment I think I fell in love was I walked into the room and this woman just looked at me and just comes up to me looking up and down says, “Hey, want to melt two pieces together?” And I said, “You are amazing.” …So, it was just like this really cool environment and it was literally like a world that I didn't even know existed of all these different things…We get to the CNC room and it's where I met Tim. Tim is…Well, I mean, you've met Tim.

Needless to say, Rick soon enrolled in Tim’s program. One cannot help but wonder how different Rick’s postsecondary path would have been if he had learned about the possibility of a career in manufacturing earlier in his life. In a similar manner, Fred described his thoughts when he learned about the mechatronics program:

I was sitting in class and [program representatives] came. They started talking about “Is anybody interested in joining the mechatronics program?” And I'm like, “That sounds like I get to like play with Transformers and that’s amazing!” I had to do that, you know. But I did some more research and I found out I was almost right. You get to work with robots!

One of the instructors described how he tries to sell welding to prospective students during these events. He tries to get them excited about familiar local landmarks that required welders to
construct. He explained, “So, we try to motivate them…Show them that you can build this cool stuff and you can get paid for it.”

Engineer and welding student Eddie supplied recommendations for filling the skills gap. Included in his recommendations were field trips for elementary school students to actual places of real work. Greg’s tale of his trip to a manufacturing plant with his grandfather supported Eddie’s suggestion. Greg reported,

I go through and the plant makes ring gears and commercial truck axle shafts and they do a lot of hot forging and cold extrusions…Seeing a small piece of metal get turned into kind of a work of art was really amazing to me. And the size and the scale that they do these things at was astonishing.

The student continued his excitement later in the conversation:

I like new experiences and [my grandfather] showed me a different world and really opened up my eyes. It’s not every day… you can go into one of these plants and really see how everyday things are made. I never knew anything about manufacturing until then.

Considering Greg’s swirling history, his maze of postsecondary experiences may have been avoided if he had been given that tour earlier in his life.

An additional way students discovered the appeal of skilled trades was through their interest in related disciplines and work. An example of this was one of Dave’s classes in high school. He discovered CAD while studying architectural drawing at the career center he attended:

During my senior year in high school, when I was taking the joint class with architecture and engineering because I saw that the architecture was fun and … I was enjoying the
drafting work. I was just full-on in love with what I was doing. But the engineering seem interesting as well. As they were doing projects that I never even thought of trying out and doing… I was really interested… I was finishing my work fast just so I could watch what the engineering students were doing.

Similarly, Cameron also found his way to CAD through engineering. Cameron began his postsecondary education at a university that specialized in engineering. However, the student enthusiastically expressed several times during his focus group interview how much he enjoys his current design career. He at one point announced, “And here I am, like it’s really good. I like what I do, love what I do. I do engineer things and I don’t have a degree and it’s alright.”

Another example is Greg’s journey from engineering to manufacturing. After graduation, Greg plans to begin working in manufacturing sales. When asked how his younger self would feel about his current educational path, Greg stressed that what he is now studying relates to his earlier interests:

I think he would be onboard with what I'm doing. Because business was a big thing and I always kind of figured sales would be a good route for me. And the engineering thing, it's along the same line- manufacturing and engineering…I only took a couple steps out of my way I guess… I almost stepped in between them and found manufacturing. So, I think they're kind of all related. So, yeah, I think younger Greg could accept what older Greg does today.

Likewise, Ben, a welding student, shared how his new skill complements work he does in furniture design: “I also own a small business, I do some furniture work-woodworking. I thought it dovetailed well into that.”
This lesson of exposure through related subjects and complementary work could be applied to students who are undecided about fields and credential levels. Undecided students could be very receptive to information about and exposure to skilled trade options. These individuals may not be considering skilled trades because they do not know the option exists. An employee spoke of how the college could take better advantage of this pool of students:

I have nothing against our front office [but] they’re used to that freshman who wants to go to a four-year school but they’re [making use of] more affordable options. But that’s only sixty percent of our students. The other forty percent are going into occupational programs where the end game is a job… Let’s not forget about these undecided kids who go into either path.

Although undecided, these students may still feel the college-for-all pressure and subsequently lean toward transfer plans. This group of prospective students could be given more individualized guidance that includes information on certificates and local labor market needs instead of led to transferable credits.

“As the problem, fix the problem, get a beer, every time. It’s amazing.” As expected, some of the attraction to the skilled trades was due to the strong availability of employment stemming from the current demand for this talent. For example, while discussing what attracts students to their fields, Tim pointed to employment opportunities by stating a goal of his program: “We promote jobs a lot in our occupational programs because that’s our job. It's to get them jobs. So, educate them and at the end of the trail is a job.” Reinforcing the jobs-based appeal, a welding instructor expressed the current opportunities with amazement: “And now we have students starting with no experience. None. Literally, after taking one class with us [they’re] starting at $19 an hour.”
And, although these employment and income prospects were definitely appealing to the students, there was certainly more attracting them to the skilled trades. To begin, Fred’s wise observation about the relationship between work and satisfaction demonstrated recognition of other desirable aspects:

Money is one of the least deciding factors in retaining a job. Advancement, general pleasure with your work, your colleagues, your relationship with your boss—these things matter infinitely more than dollars on a page. So, I really do believe it's what makes you happy in the long run that's going to keep you [in a career].

Ben also touched on matters other than money when he cited multiple facets that drew him to welding:

It was dovetailing into my other interests—the furniture. And I work with my hands; I like manual labor. Anything, you know, quick working, a lot of repetitive movements that you get good at. For some reason, that's just something that appeals to me. And then it’s also a skill that you could potentially turn into a business of your own.

Here Ben doesn’t just list potential jobs or income. Instead, he speaks of welding in relation to another field he enjoys, the physical nature of the skill required, and its practical use in his life.

Another intrinsic motivation was revealed when the participants spoke of their genuine love of learning. Though multiple students expressed how traditional classroom lessons were almost painful, most students clearly showed excitement about learning something new and improving their skills. They appeared to greatly appreciate the sort of learning that occurred in their programs. So, while some participants did express how they were tired of school, it seemed more likely that these students were actually just bored with typical teaching methods, not education in general.
Understandably, the instructors who participated in the study had quite a bit to say about the learning achieved in their classrooms. A welding instructor described what occurs in his classroom:

They come to my class for four hours. Yes, I'll lecture for maybe an hour on a little bit of the electricity. You can only talk so much on what happens with welding, the rest is all hands-on. And so the rest of the time, they're in a booth. I have the radio playing in the shop. They can go outside and take a break. They go back in, they weld metal. We're now going over Pythagorean Theorem, you know-understand it inside and out. They're putting stainless steel to stainless steel …They don't have to sit there and crunch numbers or make sure it’s right …I don’t like speaking for anybody, but it appears to me that they enjoy the shop atmosphere versus this (motioning to the conference room the focus group gathered in).

Another faculty member, Tim, referred to this strong preference for experiential learning:

“[These students] learn differently. It's not the same as they learn in liberal arts side... They don’t work in the theory side of things. They like being hands on, the applied part of it.” Later during the interview, the faculty member expanded:

In the manufacturing area, most of our classes are hands-on classes. So, they come in blind and I put them on a machine right away. They're all scared. I mean, they’re so scared, they don't have questions. It takes a couple of classes before they start loosening up. And then by mid-term, it's like, “Oh, this is easy.” So, that first seven weeks, there's such a transformation in them, because they accomplish things. We build their confidence...All of a sudden, you know, it's not scary thing. They can start figuring it out.
Considering Rick’s swirling history, it is not surprising that he spoke very positively of his first days in his current program:

It really felt good to know that a lot of my teachers don't really care about tests as much. It's all about the work you can produce or how well you can actually create things with your hands... That your output was the end-all, be-all determination of how well you're going to be graded… it was the first time since middle school that I'd done anything with a school where it actually made sense.

He expanded to relate how this type of learning led to his academic success,

I've never felt this confident about my future. I've never felt this positive about where I'm going. …I get a letter in the mail from (the community college) telling me that I'm on the Dean's List. ...I've never had that experience before in my life and it just feels amazing.

It was clear that hands-on learning methods were far more appealing and effective for the students.

But, it was not just the faculty’s style of teaching that appealed to the students. The hands-on nature of the work itself also seemed particularly alluring. Welding student Ben repeatedly spoke of how much he enjoyed working with his hands. Greg echoed this appeal when he explained how he did not like his original college major, which was engineering, because he finds pleasure in more creative, hands-on work. Fred also spoke about the hands-on factor. The student told of how the hands-on work of his grandfather shaped what he heard from his father about education and success while growing up: “He didn't care if I got a degree because he knew that that wasn't the only avenue to success.” Then, Fred’s father echoed this during his own interview: “[My son] understood that I made my living, I put food on the table
with my hands. And I didn't need a certificate on a wall. My certificate was my hands, my
skills.”

Another aspect that lured students into these industrial fields is occupational culture.
Both students and instructors spoke very positively of an environment that contrasted with the
typical corporate office. When asked about working atmosphere, welding student Ben didn’t
hold anything back:

I worked in an office job like a year and half. I wanted to kill myself after six months.
Being in a cubicle, it’s the worst. I don’t know how anyone does it. What a horrible
environment. I could not stand it.

A teacher voiced a similar sentiment in reference to his students:

I have the blue-collar guys, the ones who don't want to look forward to pushing into an
office somewhere, sitting behind a computer, answering to someone. They want to be
down there listening to music, working on an injection machine, setting a mold inside of
a machine, to be in the unions. They don't want to pursue that degree.

Interestingly, here the teacher equated “that degree” to deskwork with little autonomy. Similar
to this inference, Fred spoke of an ability to efficiently solve problems. He expressed
excitement about his freedom to address issues without wading through bureaucratic processes:

And there's nothing more fun for me than being able to like spot problems and fix them
immediately. I don’t have to go through the eight requisition forms and four different
bosses and talk to a guy in a room I've never met before about a subject that has nothing
to do with anything. I don't have to go through hoops. I see a problem and I fix the
problem and then I get a beer and that is my life and it is amazing. And that’s what I see
in these practical fields. I see people who are like, “That’s a problem. Let's fix the
problem. Let’s go get a beer.” And that's it. It’s in that order. Like, see the problem, fix the problem, get a beer, every time. It’s amazing.

Importantly, many student and instructor participants explicitly expressed enjoyment over the tasks they preform and objects they create while working. CAD student Alice was previously employed in media but now works in the construction industry. She expressed excitement about her current tasks and responsibilities:

They will build a whole house from the ground up and they’ll sub-contract out all the different trades. So, that’s what I do right now. And, so like plumbing, electrical—you have an architect working on design things with them. That's where the CAD kind of comes in... I'm pretty much just managing a project. Like right now, there's one going from the ground up and it's just managing, staying on top of the schedule and seeing how this building is really being built. It’s kind of cool.

Amusingly, Fred and Eddie had what seemed to be a bonding moment when they both expressed childhood dreams of becoming astronauts. They related it back to their current professional situation and how if they couldn’t personally make it into space, they could at least create something that would. Further into the same conversation, Fred contently spoke about his career goals: “I’d like to just kick around and take care of sick robots.”

“Joke degrees.” While considering the four-year plans at universities, many of the student participants praised their programs’ curricula for how they only require relevant and practical coursework. As one might expect, the older students were more appreciative of how their new skills interacted with their previous and current work. Likewise, the students who formerly attended four-year schools were especially verbal about the applicability of class content.
On the other hand, credentials requiring coursework they viewed as irrelevant were criticized. Welding student Ben who had previously attended a university complained, “I’ve taken liberal arts courses before and I don’t find very much value in them.” He expanded on his point later in the interview when asked why he was pursuing a certificate instead of an associate degree:

*Ben:* The difference between certificates and associate is, I believe, just some liberal arts courses. You know, take a speech class. And if they could prove to me that I’ll make 20% more on a job, then that’s okay.

*Interviewer:* How interesting. So, it really comes down to return on investment? If they can show you solidly that you’ll make more money with the associate?

*Ben:* I’ve taken liberal arts courses before and I don’t find very much value in them.

Greg, who also had experience at a four-year college and now studies manufacturing, reflected similar sentiment: “I chose to do a certificate because a degree had me taking classes that I didn’t think were really valuable to my profession.” Furthermore, while remembering his time at a university years before, Cameron complained of frustration over repeating coursework he completed in high school. He said,

The crappy part is the school that I paid for was a re-trial of my high school. My first few semesters was-you are doing physics and you are doing chemistry. But I already did these. This isn’t fun.

This disappointment was echoed by Rick. He stated, “I mean, I went to college and I’m just like this is way different than everyone told me it would be. ... I feel like I got screwed.” While at another community college following his university departure, the student felt that his classes lacked meaning and relevance, “I was still doing a bunch of classroom stuff that just felt like
more high school ... I was taking classes because I was told to take these classes… I was learning stuff but I didn't actually feel like it would actually apply to anything.”

Additionally, the knowledge and skills typical of education in the liberal arts were disparaged by some of the students interviewed. Not only was liberal arts content discounted as something people can “learn on their own,” but it was said to have already been learned in kindergarten. Moreover, majors in the liberal arts were viewed as not as challenging as fields such as engineering. Eddie, a student with an engineering background, was particularly critical of liberal arts majors:

And they’re going in and basically using what they were taught from kindergarten and receiving high As, Bs and just passing and going “What am I going to do with this degree?” And you saw the people with the science and engineering degrees basically going “With this degree, I can apply it to this field, to do this sort of job…I’m going to be immediately qualified for this job and have a basic standard of living that’s actually representative of how difficult this degree was.”

Moreover, degrees were discounted when they did not seem lead to occupations that directly related to majors. Within an exchange about the unrealistic career expectations of his millennial classmates from high school, Dave referenced college graduates not obtaining jobs related to their majors:

They're too confident in what they're going to do. I feel like a lot of them probably think [they] are going to make it out of high school and make it in whatever field of study they are interested in ... I hear about a lot of people going to four-year and then not going into the field of study for their career. They study for four years to do nothing with that
education. I've heard that a lot. ... They sit on the education that they've gotten. The job that they have doesn't include their education.

Fred was one of the more boisterous opponents of curriculum that appears to be less useful. He shared how his interactions unfold with some students:

“Oh, what are you going to school for?” “Oh, communications.” “Oh, general studies.” Things like that. You know him, they’ve just gotten their degree and now they can’t find work because they’ve gotten these basically joke degrees.

Here Fred referred to how he meets students who have fallen victim to the college-for-all challenges by pursuing a four-year degree without any concrete career goals and now seem to have degrees of little worth.

**Self-determination.** As discussed earlier in this report, the occupations related to this study suffer from an image problem. The participants were very aware of this fact and, consequently, a great deal of discussion was focused on society’s perception of their chosen vocations. It was apparent that, through the development of self-determination, the students’ value of their own satisfaction increased while the importance of others’ perceptions decreased. This quality could alternatively be labeled autonomy, independence, efficacy, agency, purpose, or another similar term. However, the word self-determination communicates how the students formed pride in and enjoyed their trade while discounting societal standards of prestige and status.

As with the other quality-building factors, the factors that led to increases in self-determination are noted in figure 1. Some of the students of the case study developed self-determination through encouragement from their parents and an allowance of freedom to consider their futures. These students benefitted from having parents who supported their
decisions and thus grew up in an environment where skilled, hands-on labor was valued. However, this wasn’t the situation for the majority of the student participants. The development of this important quality was much more often catalyzed by dissatisfaction with work or deep dissonance at school. Sometimes drastic changes in students’ lives, such as dropping out of school, contributed to an adjustment in or acknowledgment of their values that inspired them to begin a more satisfying path. In these instances, self-determination seemed to grow as a student’s level of satisfaction with school or work declined. With time and maturity, these students built the confidence, purpose, and pride needed to face adversity and embrace the type of work they enjoyed.

In relation to the quality of self-determination, a fair amount of discourse centered on how participants negotiated their attraction to their fields with their chosen occupation’s stigma. The themes that materialized in this area was the negative image of traditional skilled trades in comparison to other professions, the discounting of community college education, and the pride the students have in their work.

“So, those are the gold standard.” When asked about ways to help satisfy the demand for skilled labor, Fred recommended changing the image of professions in the industrial arts:

Well, the first most obvious method is destigmatize skill trades. That is the biggest thing we can do…Stop looking at them as the ditch digger. Like he’s a person and he’s doing a valuable skill and it’s a job you can't do, so why you’re looking down on him? So, you know, the big thing is destigmatize those jobs. The second thing is stop putting other jobs on a pedestal. Basically, if you aren’t a doctor or a lawyer, what are you? So, if you don’t have something that requires basically a master's degree, what are you?… So, those are the gold standard. And I think we need to get rid of the concept of the gold standard.
Likewise, some of the student participants referred to how the industrial trades are judged as jobs for academic failures. Rick, a manufacturing student who attended multiple colleges before finding satisfaction in his current program, described his reaction when hearing a report about the state’s most needed talent: “The most in-demand jobs were skilled trades, which is something that everyone always kind of thought of as like a do-that-if-you-have-no-other-option type of a job.” The student continued with more remarks about the bad reputation of his new career:

I mean that is what's kind of nailed in everyone's heads...If you're actually going to tell your parents like “Hey, I want to go get a job in a factory”, [their reaction] is like, “We failed our kid.” It's not exactly smiled upon.

Similarly, during a focus group, Greg commented on the combination of his field’s stigma and income potential. Greg said, “Oh, yeah. It’s still frowned upon to work with your hands. People don’t understand that you can make a lot more money just working with your hands than you can with a degree out of college.” Then, during his follow-up interview, Greg added,

My grandpa would tell me, back in the day you know, a tool and die maker was looked at [as] almost in the ranks of a doctor or a lawyer because you had to be so skilled in what you did. And they were respected in the manufacturing and engineering world for sure. I think now… a lot [of the image] has to do with your parents and what value they put into you…They always say “You're going to be a doctor. You're going to be a lawyer.” You know, it's the white-collar jobs that everyone wants.

Another take on the relationship between income and hands-on work was offered by Ben during a discussion about the level of awareness amongst the public about the demand for and earning potential of skilled trades. He said, “For me, it's just diffused and everyone knows. Just no one
wants to do manual labor.” This student believed that the public recognizes the demand (a point some participants did not agree with), but there are not enough people who are willing to do the work despite the relatively high earnings. Ben partly blamed a frequently mentioned aspect of the image problem, which was dirt. The welding student described the effect of dirt this way,

[When] you tell someone you're a welder, it doesn't get you culture brownie points. … You're not working in tech, which [does get] you culture brownie points. In welding, you're kind of blue-collar dirty. Dirty. So, it doesn't matter how much money you could make. You can make $250,000 welding [and] you're still going to be welding. You're still going to be blue-collar and a little dirty.

Adam, who was also learning to weld, offered his thoughts:

I think it’s the whole aspect of label…With the whole being dirty for a living, breaking a sweat for a living, that doesn’t really appeal to the millennial generation anymore. I guess, from my experience, they kind of frown upon it…It is not respected anymore.

Similar to the effect of dirt was the impression of sweat. Another student spoke of what he senses from people when they hear of his work: “That’s just the feeling I get. It’s like they kind of [turn their] nose up to you because you break a sweat for a living every day.” An instructor described how some tradespeople work in hot conditions without air conditioning to the point of filling their helmets with sweat:

Nobody wants to work anymore. Everyone wants AC. They don't want to sweat. They want AC and they want a whole lot of money. Nobody wants to work in a shop that gets to 105 degrees in the summertime when you've got to take your hood off and shake it because it's pouring sweat.
He believed that millennials expect the comfort of air conditioning and a more “proper” environment. Throughout the interview, the instructor referred repeatedly with a tone of resentment to proper space, attire, and behavior while motioning to the interview space, which was a small conference room. When asked to describe what he meant by proper, he said a space like an office or conference room was proper as opposed to a shop floor.

However, not all skilled trades work happens under these conditions. Certainly, work environments differ by field and organization. Moreover, some instructors felt the need to insist that manufacturing plants are not nearly as dirty as the stereotypical image many people hold. Samuel, a faculty member, commented on the discrepancy between the millennial perception of industrial skilled trades and reality:

They had heard from their grandparents [that] it’s a dirty place to work. It’s not so dirty anymore. …You still get, theoretically, your hands dirty because you’re working with them. But they are thinking a huge amount of dirt on the floor, black floors, black machines, coming out of the old days of working and being covered with soot or metal chips or whatever.

This quote points to what could be considered a missing generation. The instructor referred to students’ grandparents as if only the grandparents of today’s young adults are able to reference the atmosphere of a shop floor because the students’ parents’ generation have zero familiarity with industrial careers. Another instructor who participated in the study also spoke of this generational gap in awareness: “I don't believe the parents have any idea what goes on in the shop anymore because we've lost a whole generation… The number of people in manufacturing is down from twenty years ago. So, we lost a whole generation of people.”
However, in contrast to many of the parents the instructors referred to, Fred’s father was very familiar with these matters. As a retired mechanic, Herman elaborated on the bias against the working class. During his interview, Herman explained, “The architect building these big huge buildings, Trump Towers or whatever, doesn't really respect the welder that's making that building stand up.” Further into the interview, he continued to speak on the topic:

[People] look down at the guy that they called on Thanksgiving to come and snake out their sewer because it had backed up and they had guests coming. And they didn't want this man in their house… because that means your sewer is backed up. But they really thought little of this guy. He was undermentioned. You've heard this tale, “You know, if you don't go to school you're going to end up like that man over there-useless” or “You're going to end up in the military because there's nothing else for you to do” …. There is no respect for the people that make our society survivable.

The parent continued by referencing his own work at a major amusement park to provide an example of the dismissal of the “skilled” part of skilled labor. He said that he hired new engineers straight out college who struggled to understand the value of the mechanics on staff:

The first thing I told [the new engineers] was, when you come to an attraction that has a problem, the first person you talk to is the blue-collar [employee]. Not only will he totally explain the problem, he’ll tell you why it happened and the chances are real good he can tell you how to fix it. You listen to that man. He knows more than you do.

This lack of recognition for the expertise necessary to perform skilled trades work also poked its ugly head while Ben, Cameron, and Adam conversed about how they believed the knowledge within a liberal arts education can be self-taught.
Ben: You know, I’m just a laborer. I don’t mind being a laborer for the rest of my life. I don’t have any grand plans beyond that. I just want to work. I don’t need to know [liberal arts-related knowledge]. If I want to, I can now go online and find that out. I have learned that stuff on my own. So, I don’t know if that’s necessary.

Cameron: Still skilled labor.

Ben: Well...

Cameron: You are going to touch metal to metal.

Ben: Right.

Cameron: Yes, you are not just lifting bags of cement.

During this exchange, Cameron rescued Ben’s work from being relegated to the level of manual labor. He overtly corrected Ben’s characterization of his trade as just labor by reminding him of the skills and knowledge required to do the work. This dialogue is even more telling and powerful when considering that Ben is a furniture maker in addition to a welding student. Ben seemed to discount both of these skills in his statement. It appears that the social construction of traditional skilled trades as being synonymous with manual labor is so pervasive that it infiltrates even those performing the work.

A couple student participants took their interviews to a deeper level than expected. These students were Ben and Eddie. They introduced the dichotomy of the mental and the physical to their interviews. The two students were in two separate focus groups and verbalized their thoughts in slightly different ways. Ben spoke of mind versus body and how it is contributing to the stigma attached to his field:

Anything that has to do with the body is bad and everything to do with the mind is good.

You can kind of see it in culture a little bit—everything from our use of drugs, to our job,
you know the jobs we chose. Anything that has to do with manual labor is kind of looked down on.

Eddie lectured about how today’s teaching style could be affecting the skills gap in question:

To bring the skills trades back, you almost have to… bring back the field trips, bring back the labs, bring back the hands-on learning that is needed for skilled trades. Because if you don't, all these kids are going to think only in theoretical and only in whether they're good at theoretical or not. And it’s basically turning the skilled trades into “you are a failure at theoretical.” No one wants to feel that way...If everything is theoretical and you're not good at theoretical, what does that make you?

Both students pointed to a culture in and out of the classroom where theoretical is preferred over applied and cerebral effort is valued more than physical effort.

“*We’re a college, too!*” Employee Tim reported publicly fighting for his school’s recognition as a college. He spoke of community meetings where his college was discounted as just a place to get transferable credits and he had to defend the school by standing up and asserting “We’re a college, too!” But, amongst the students, there were mixed feelings about the reputation of community colleges. Some participants felt that two-year schools qualify as “college” while others did not think they were enough. Yet, even among students who stated that community colleges met the college standard, their speech did not reflect this belief. They would refer to “going to college” as if it did not include their current status.

Unfortunately, this mismatch between language and belief obscures the value of a community college education. During focus groups, students were questioned about what they heard about college in high school and if attending a community college counted as “going to college.” The following is an excerpt from an interview demonstrating the typical answer:
Interviewer: And you said something about how in high school you heard the message of “go to college”. That’s what you heard?

Hank: Yeah.

Greg: I did too.

Interviewer: Is this not a college?

Rick: This is college, but they meant university.

Greg: Yeah, your traditional [college].

Rick: Like, I was told it needs to be four years or it's not exactly real college. It's just kind of like an excuse college is how somebody put it to me.

This denigration of two-year schools seemed to be yet another byproduct of the college-for-all mentality. Focusing so much on bachelor’s degrees results in overlooking the value of community college credentials. For instance, in another interview, CAD student Dave discussed how his extended family did not approve of his educational plan. When questioned about how his family felt about him pursuing credentials in a skilled trade, Dave replied,

No, [my family doesn’t like] community college. They were fine with me going into the skilled trades because that's what my cousin does. He's like an engineer right now. So, he's in the skill trades kind of stuff. But he went to [a local university] and he went for four years. Me going to [community college] apparently isn't equivalent to that.

With continued discussion, it became obvious that his family placed great importance in the amount of time spent studying and the type of school he attended, not Dave’s resulting knowledge, skills, and career. Sadly, Dave had a similar experience at the career center he attended during high school. While he did receive guidance on careers and college enrollment,
teachers and staff actively promoted degrees while unfortunately neglecting certificates. Dave told his story:

[People at the career center] talked about associates very shortly but I didn't even know there were certificates… I didn't know anything about certificates at all until I started going through the programs for [the community college] after I'd gotten out of high school. And I'm like “There's a certificate in my field of study that I can finish in a year for $5,000 and get out of school, get my foot in a firm, and I can do well in life instead of sitting here for four years trying to get a bachelor’s or a master’s or whatever kind of degree that they wanted me to get and to waste my time and waste my money to get shot down.” So, I looked at it that way after I figured it out myself. …They said that we could go to community college if we didn't have the money. So, it's not that they pushed for the four-year. They made us aware that you could go to either and still be successful. But they only talked about the two and the four-year degree and never talked about the certificate.

When asked why he thought they neglected to inform him about certificates, Dave reasoned that the teachers and counselors didn’t “look at it the same… They think if you don't get an associates or a four-year, it's worthless or it's just not [a program] a person our age should be doing.”

A school employee even admitted that their school unfortunately helps promote this inferiority complex. They complained, “Sometimes, even here at community college, we’re like ‘Four-year, four-year, four-year.’” Additionally, according to another faculty member, this BA-centric mentality influences the courses students choose to enroll in. There is a tendency for students to only take classes that are sure to transfer to their goal four-year institution. With disappointment and frustration, they voiced concern about this:
Sometimes the worry is, if they come here, how many classes they can actually transfer over to a certain university they want to go to. So, they're more worried about transfer classes, transfer credits, instead of what we're trying to teach them. You know, they only take courses that will transfer and that’s it!

Yet, despite the general negative perceptions of community colleges and certificate programs, students expressed satisfaction with their particular school choice. Unlike many communities in the United States where there is one community college to choose from, the region of this case study is heavily populated with schools. In fact, within the geographic area of the specific college studied, there were multiple schools offering similar skilled trade programs. When comparing their programs to others, the students spoke very highly of their own. The reputation of the college and its programs was very attractive and important to the students. In fact, some students drove past other colleges during their commutes between home, work, and class.

“We are where the rubber hits the road.” There was a strong sentiment of pride and purpose found in the data. During the interviews conducted, different dimensions of this were demonstrated. The participants strongly spoke of how essential their work is, how valuable their skills are, and how their work is harder than others’.

Some conversations included points about how others cannot perform their work if skilled tradespersons were not performing theirs. For instance, while drawing a connection between engineering and manufacturing, Greg pointed to the often dismissed necessity of practical application:

Engineering is the start. And so engineering was kind of like a problem-solving class to me. “So, what's wrong? Design something to fix it.” And manufacturing kind of takes
the next step of “Okay, can we actually make this?” Because you can have a lot of great ideas but if you can't actually turn it into anything, it doesn't amount to anything.

Family member Herman also contributed to a conversation about how necessary the work is:

[If you] need your taxes done, you can outsource that to India for Christ sake. But when your plumbing fails, you can't rip up your plumbing and send it to India. You know, when there's a crack in the bridge, somebody has got to find the crack, and somebody has got to fix the crack. [You can’t] send the whole bridge the India to get it done. You know, when the car breaks down, there’s got to be a mechanic on site. That's the bottom line.

And yet another student colorfully illustrated the relevance of their skills in a story about a coworker:

One of the guys I work with…calls himself functionally illiterate. And honestly, he might honestly be functionally illiterate. But you know what? There’s not a damn thing that man can’t fix. I mean like anything, with anything. Like we work in a fabrication shop. We had a breakpress break down that was used in World War II. And the guy fixed it in three hours with c-clamps and a cordless drill and we were back to good. I’m like, “Well, fuck you. I’m sorry you’ll never be a doctor, but come on, look at what you are!”

Furthermore, instructors also stressed the respect their students’ work deserves. This is how Victor expressed this view,

We are where the rubber hits the road. You can design all day with all the great theories and engineer data. You can have all the investors with their millions over there and they have this great idea...This is going to make so much money and everyone's on board. And that's great… until that blueprint gets handed off to you and he says “There. I want you to
build this.” We are where the rubber hits the road. There’s no question about it; it's uncontested. That’s what the public needs to understand.

A quote from Dave, one of the youngest participants, summarizes many of the participants’ views about the relationship between the necessity of their and the stigma of their occupation. When disclosing the college plans of his high school peers, the student lectured:

They wanted to go to a 4-year. They wanted to do something. I think it's the parents, honestly. They look down on the skilled jobs and the low-end jobs … like being a foreman, carpenter, CAD programs, machining, the things that run the nation theoretically. …I feel like they look down upon that. So, they tell their kids … “You don't want to be that person. You don't want to be a plumber and you don't want to be a carpenter. You want to be the high-end person and not have to worry about that. Have someone else to do that problem.” But now, if everyone's thinking that … who's doing the low stuff? Not even low. I said low because that's what everyone thinks about it. But its equivalent in all areas because without the skilled trades you don't have the high-end jobs. You don't have people to make tools. You don't have people to help people. Like, doctors need tools. They need machines. They need everything. Without the skilled trades those machines don't exist.

With similar displays of dignity, during a bit of discourse about the reasons for the skills gap, a welding student subtly revealed a more extreme perspective about labor:

Student : They don't want to break a sweat. In all honesty, for lack of better terms, it takes effort so to speak.

Interviewer : Okay, but being a psychiatrist takes effort.

Student : It's the type of effort. It's the physical, manual labor.
While contributing to an exchange about how cultural shifts are shaping millennials, one CAD student also implied this definition of hard work:

I thought about that a little bit. I wonder if it’s … Facebook or the whole tech world where you can have even the dumbest idea and overnight you are supposedly a gazillionaire. But it’s easy to code or to write things and jam it onto your computer.

A student in the manufacturing program also compared types of work in relation to difficulty levels:

I think a lot of [the reason for the skills gap] might be [how] skilled trades [are] more hands-on. It's harder work than it is being an accountant maybe and sitting at a desk.

..Maybe it’s that kids are a little softer now. I hate to say that.

Despite this student’s expressed dislike for what he was saying, he went on: “I mean, kids don't want to get dirty ... They don't. They want to just have their desk job and, I think, keep their hands clean.”

College-for-all culture and older generations. Remarkably, the concern most strongly expressed by participants may have been the current college-for-all mentality within our culture. This portion of the text lays out what participants shared about college-for-all pressures, the influence of older generations, and the effect they both have on millennial students. When the conversations centered on how college-for-all hegemony affects millennials, a complex relationship between generations was revealed. Participants seemed to exhibit a variety of attitudes. Some of the older individuals were critical of today’s young adults but other participants seemed sympathetic. Interestingly, many of the students were defensive or tried to disassociate themselves from their peers. At other points, the discourse turned to other generations to place blame.
One of the themes that emerged in this area and is discussed below is how college-for-all culture forces many students to hurry into universities immediately after high school without goals, which creates distress for students who are better suited for other paths. Next, the infamous habits of hovering parents and the consequential sense of entitlement among millennials are covered. The last theme centers on how adults’ own conception of college and career can strongly influence students’ values, awareness, and timeline, which ultimately directs their future.

“And I’m 18, I barely know what I want to have for breakfast.” Most of the students interviewed began their journey in higher education at a university or a transfer program because that is where they were expected and told to go. For most of them, that plan did not progress well. They listened to the college-for-all message, rushed into college, and then left empty-handed after investing time, energy, and money. As told by the participants, their failure to complete was often due to not having clear goals.

Tim, one of the college employee participants, spends a significant amount of time and energy recruiting students and helping them find employment. Due to his recruiting efforts, he hears many of the students’ stories while speaking with them and their families. He emphasized that, “It's just what’s been drummed in their heads for years, that if you don’t go to college you’re not going to amount to anything.” Tim described a pattern he has noticed while working with millennials:

They have no idea where they want to be. They have no direction in life. They’ve never tried anything. They’ve never applied their knowledge anywhere. They just learn, took a test, moved on and they don’t know what direction they want to go.
With a mix of irritation and sympathy, the instructor emphasized the negative results of not persisting when describing the students of his program:

So, most of our students are working, except the younger ones that dual enroll. [There are] the high school students, the ones right out of high school. [There are also] the ones that are twenty-five and not sure what they want to do. We [also] have students [who have gone] to a four-year university, fail miserably, and lose all confidence in themselves.

In line with the instructor’s observations, student participants repeatedly described feeling aimless without clear career goals and their remedy was to leave school early. As one of the several students who entered a university following high school, Rick expressed the anxiety of choosing a major without career goals. He began by sharing what is was like to attend a very academically-focused high school:

So, it’s this massive, competitive environment where it was essentially a bunch of smart kids who were essentially being groomed to go to college. But it was just kind of ingrained into who I was-I need to go to college or else what am I going to be?

Rick continued with a story of choosing a major at the four-year school he attended after high school:

And how [local university attended] works, which I'm really pissed about-how this works is they won't accept you or they won’t let you pick your classes until you declare a major. And I’m eighteen…I barely know what I want to have for breakfast in the morning. How do I know what I’m going to do for the rest of my life?

Not surprisingly, attending class became a negative experience for him:
There was this massive disconnect. Like every time I went to class, I just kept asking myself, “Why am I even here?”, “What am I doing here?”, or “What's the point?” … I knew I was [attending college] because everyone else was doing it. It just didn't really make sense though and it just kind of felt like I was just getting a degree just to get to the next stage of my life and I didn't really think anything else about it. I just didn't know what to do and I first went to [local university] and they literally made me pick a major out of a hat. I didn't know what it was. I [was] eighteen. I [didn’t] know what I wanted to do with my life…So, needless to say, that didn't last long... It's a lot of commitment and it's like, you're putting a lot into that without any real guarantees and it just didn't make sense to me.

During an individual follow-up interview, Rick shared how he felt after leaving the four-year school he began at:

It was kind of a humbling experience because, after being raised with the mentality that I need to go to college, dropping out …is like what losers and like druggies do… or so I've been told. So, it was kind of hard… but I made peace with it eventually.

Similar to Rick, Ben related his lack of clear goals to his immaturity at the time he enrolled at a university. The welding student in his 30s asserted how bad it was when he left high school: “I came out confused. I was a punk. I didn’t know what the hell I was doing. I didn’t know what the hell I should be doing. I came out a monster.” He continued to speak about his time at a four-year college: “I did it for two years and I dropped out because I decided that I didn’t want to waste my parents’ money anymore…because I had no idea what the hell I wanted to do.” When asked if his parents knew about his lack of direction he forcefully replied, “I don’t
know. They should have. I was 18 and confused and a punk. Yeah, they should have known that.”

Mechatronics student Fred also told of how hastiness and obedience to college-for-all instructions led him to bad decisions after graduating from high school:

Oh, I totally shot off my toe. I blew that thing clean off by going to culinary school. Because that was my thing—I needed a degree. I like cooking. Culinary degree it is. I didn’t care if it is way more expensive than it should be. I didn’t care if I went out of state when I could have done it just as easily at home. I didn’t care about that stuff. I needed a degree and so I went and got myself a degree. I totally shot off my toe.

Although Fred did have a career goal in mind when he began his culinary training, he reported that he did not give it enough thought and rushed decisions. His choices resulted in an expensive credential that led to a financially unsatisfying job. The student expanded on the topic by sharing his strong opinions of college-for-all behavior:

I find that that's what basically happens when I see a lot of people going in for either these joke degrees that don't really matter or they go in with like “I’m going to go in for general studies and then find what I want to do.” I think the “find what you want to do” is the most dangerous avenue of going to college I’ve ever heard of. I would like to see a person not go to college until they’re 25 or 30 years old, basically as a rule. I’d like almost to force people to live in the real world for upwards of five years before they go to college. Because from there you may not learn what you want to do but you’re damn sure going to learn what you don't want to do. You’re going to learn it damn fast and gonna’ cut out a lot of crap.
Predicting how his college experience will affect how he parents in the future, Fred went on, “When I have kids, I definitely want to see them explore the world a little bit before they go to college. I think that would be a massive help for them.”

Another example of a student who followed college-for-all instructions was Alice. Alice was a CAD student who had swirled through several schools and completed multiple credentials along the way. During her interview, Alice described the consequences of rushing to a university without a purpose during her first try at a four-year degree:

Well, right after high school, I really had no idea what I wanted to do. So, I was going to go off to [a local university]. I was like bags-packed and everything and have my dorm. And then I was like, “Wow, I have no idea what I want to do when I grow up.” So, I ended up just scratching that and I went to [another local community college] for a year. Following her year at that community college, Alice completed a program at a for-profit media arts school and then earned a bachelor’s degree at yet another university. The student admitted, Seeing everyone who I graduated with at a four-year university, just like obviously seeing what everyone else is doing, you feel like you should be doing it as well...

Everyone kept telling me, “You have to get a four-year degree. You need to.” The career this bachelor’s degree resulted in did not provide the lifestyle Alice desired. The resulting dissatisfaction gave rise to new career goals, which included training in CAD.

To avoid following the rushed and aimless herd of grads to college, nineteen year old student Dave took a break before beginning his postsecondary education. He explained, I just needed to sit down and think about stuff for a year. And honestly that's what I did. I sat down and just thought about what I needed to do with my life instead of brainlessly going for a degree that I didn't want to go into or didn't need to go into. So, I sat down
and I thought to myself, “What do I need to do to make my life better and succeed in school?”

To describe the way his peers obeyed the college-for-all expectations of the system, he used the adverb “brainlessly” multiple times. “System” was another word Dave called upon repeatedly to describe education in the U.S. It is not difficult to imagine that scholars critical of the college-for-all mantra might agree with Dave’s choice of words to describe this common approach to higher education.

Also, consider the story of Kirk, a student in the manufacturing program who aspired to become a machinist. He spoke of his family members who worked for a major auto manufacturer in the area as a source of strong influence. Kirk enjoyed CTE courses as a high school student and, despite his good grade point average, did not immediately enter a university. Kirk instead took a break after graduation and then enrolled in a certificate program. Kirk told his story:

I graduated back in 2013 and didn't start college for like three years…Because, number one, I didn’t know what I wanted to do. Number two, I was caring for my grandpa who couldn’t be left alone, twice a week. So, [after his grandpa’s passing] I’m like, well… I might as well figure out what I want to do now. And I remembered that back in high school, I took a class on basic CNC stuff… I thought that's it’s really interesting and I really liked it. So, I was looking for different colleges in the area that had CNC program and [current college] was the closest one.

During Kirk’s break from school, he was able to ponder his career goals and research educational options. Even though the student’s break was for unfortunate reasons, it provided Kirk with time to think, which may have partly prevented him from becoming a victim of the “brainless” rush to immediately choose a school and major.
"I'm sure their parents said the same junk." When speaking of the educational and career patterns of the millennial generation, study participants criticized millennials for their sense of entitlement, addiction to social media, and required hand-holding. One focus group zeroed in on how today’s emerging adults have not been challenged and that parents may be at fault. Students of the group cited personal challenges they’ve had to manage and overcome such as attention deficit disorder and dyslexia. They conversed about how their challenges have made them more resilient than the typical Millennial and may be related to their decision to study a skilled trade. A student who fell on the older end of the millennial age span, contrasted his personal experience with learning disabilities to what he has witnessed among other members of his generation. With obvious irritation, he explained,

Fellow students, people of basically my generation and younger... I’m constantly surrounded by people who have never really been challenged and the moment they …are faced with a real challenge, they cry foul and demand this block be removed, regardless of who or what circumstances put that block there…The moments they’ve been faced with a challenge, their parents were right there demanding that road block be taken away.

In a separate interview with one of the youngest millennials, the student imagined how this lack of adversity may be related to his generation’s auto-drive approach to school.

I think it's installed by the parents that they can do anything they like because they're going to have [their parents] to back them up. So, even if they do fail [at a] university they can still like mooch off their parents until things smooth out. So, I feel like that's where it comes from. It’s overconfidence in thinking that you're going to succeed even though you're failing. I don't know where people get it. I don't have it. Because when I fail, I’m frustrated with myself. I'm not like “I'll get it next time.” I'm like “What the hell did I did do?” So I feel like the confidence has been installed through the previous
generation of parents of the kids. It’s just ruining it. They’re not teaching them anymore. They’re just giving it to them. So they’ve got the confidence … that everything is going to be given to them instead of working for it.

In a similar tone, a parent spoke about how today’s young adults have missed lessons on how to work hard:

We're not giving parents and grandparents and everybody a chance to teach our children how to work, how to do a job, how to go in and get up and get the job done and say “Yeah, it's raining and it's miserable but you still got to go and do that.”

While some of the stereotypical arrows were definitely thrown at millennials and their parents, there was also refreshing questioning of generational theory. Some students believed that younger millennials just need time to mature, citing how each older generation seems to have similar complaints about the younger generation. Cameron appeared to feel quite strongly about this:

Our parents, they had the baby boomers and I’m sure their parents said the same junk about them with their rock-n-roll, marijuana, and all the things they were doing and they suck…Now [our parents are] running it and they are saying that we suck. Right? Then, where are [the] kids in the next 20 years? They suck. They’ll do these things that are awful. I guess history just repeats itself.

Cameron also insightfully posed a question to his focus group: “I’m observing people talk about millennials…Are they actually entitled or is it just because everyone is saying they’re entitled?” The group’s conclusion seemed to be that it may just take some time for millennials to “come around” and “fall into place”.
“Parents always say ‘You have to go to college.’” It was very apparent that the generation with the most fingers pointing at them was not the millennial generation. Actually, it was the generations who raised millennials that were found guilty for the skills gap in skilled trades.

More specifically, according to participants, parents appeared to be most at fault since they seemed to be the strongest influence on students’ educational and career choices. As a parent of a couple millennials herself, college employee Yvonne defended her generation by giving a reason for her generation’s behavior: “For many years …we were told …kids are going to need that four-year degree.” Student Alice reviewed the push she felt from her mother and considered her mother’s motivations:

Go four years, do college, meet people that you’re going to be friends with forever and then get a job. But my dad from the get-go was like just make money and be happy, anything that you want to do. So, yeah, I think my mom [followed] social standards, wanted her daughter to go to college... Because she hears all the other moms say “Oh, you know my child is going here” and I think she then thinks it important to get your four year degree.

Another parent’s perspective was revealed when Cameron’s mother, Kimberly was asked what she told her son about education while raising him. Kimberly explained that she told Cameron when he was younger that obtaining an education is important in order to succeed in life. Cameron is a mechanical designer who enrolled in university courses following high school but left school without completing a degree. While he was challenged to find employment during the recession, he now loves his job, enjoys stable work, and has a comfortable income. As the
interview continued, the participant put significant stress on generational differences. The student’s mother looked back on her own upbringing:

I was told to make sure I finish school, but nothing was ever said about going to college or anything like that. It was a completely different time and it wasn’t important to go through school. Get married, have kids, and be a housewife.

She then compared this to how she reared her son:

Generations is the key word there. It’s a different generation and the world and technology is moving so fast...Corporate companies now are requiring a college education to get a job...I could see this change generation to generation and I knew that it would be important for him to have schooling.

While Kimberly expressed pride in her son’s career and acknowledged that he enjoys his work, she also showed strong concern over his lack of a bachelor’s degree:

I think he will regret [it] someday and be sorry he didn’t finish that particular thing in his life... It is something that he wanted and I think he just got side-tracked in other things that interested him. ...But again, he’s always done things to better himself and his career and to continue climbing the ladder. So, I don't think it'll be as much of a big regret, because he is successful.

While conversing, there was obvious tension between her recognition of Cameron’s successful career without a degree and the college-for-all belief system. The interview continued:

*Interviewer:* However, Cameron has built a career without a bachelor's degree.

*Kimberly:* Yes, he has. He’s been one of the fortunate ones because he’s very smart and he’s very good at what he does. He’s very fortunate... And I have another son who is
maybe fortunate as well because he doesn’t have his bachelor’s degree and is now also a design engineer.

*Interviewer:* Oh, he is? … So, you have two sons that work in design related to engineering and neither of them have bachelor's degrees?

*Kimberly:* That is correct.

Here the mother expressed her belief in how fortunate her sons are to have good jobs despite their lack of completed college credentials. But both of these men had interest and experience in their field while living in an area of the country with strong demand for their skills. Their positions were not gained through good fortune or luck. They were in the right place and the right time with the right interests and skills. Frustratingly, this fact is again overshadowed by the pervasive belief that the key to “good job” is a four-year degree.

Other parents in the study also struggled to reconcile their belief that young adults must earn four-year degrees to be successful with their own child’s real-life success and happiness. During an interview with Rick’s mother and father, they admitted to expecting their son to attend a university after high school graduation. This expectation was in contrast to their awareness of their son’s interests and strengths in addition to their own expert knowledge in the talent demands of local industry (due to having professions related to human resources). Their son attended a high school which was very focused on college preparation and lacked CTE options. Immediately following high school, Rick attended a university and was not successful. He dropped out of the university, began attending a different community college for general education credits, and then left school again out of dissatisfaction. Eventually, his parents, using their professional acumen, made the connection between their child’s strengths and the labor market. They then took him to recruitment events at the college and Rick finally found his fit.
Hank, a teenager in the CAD program, was also a victim of the older generation’s crime. He stated the popular opinion on the matter succinctly: “Parents always say ‘You have to go to college.’” When asked what CTE courses he took in high school, Hank excitedly answered, “Everything they offered. Like, as far as trades-wise, I did welding, woodwork, CAD, plastics…go-cart.” Although Hank eagerly took full advantage of the CTE offerings at his high school, he enrolled in a college as an education major after high school. This postsecondary detour was partly the result of the pressure he mentioned from his parents.

However, parents were not the only baby boomers and Gen Xers to be judged culpable. Teachers and counselors were also under fire. Many students told stories of the pressure they felt at their high schools to pursue bachelor’s degrees. Greg, a certificate student in manufacturing, blamed the skills gap on the lack of information available in high schools:

There's not enough information out there for high school students. I knew what a lawyer was. I knew what a doctor or pharmacist or a geologist … all these different [occupations were]… [But] I didn't know what CNC was. I think if more millennials understood and maybe had more information in front of them, they’d probably look into it. … A lot of people, they envision themselves at a desk [but] some people do like to work with their hands.

Likewise, despite having participated in a CTE program, Dave described how he still learned of opportunities later than he thinks he should have. Dave complained about needing to wait until the 12th grade to get access to CTE. He said, “In high school, no one talked to us about the skilled trades. It was all about going to college, going to four-years... It wasn't until my senior year that I found out about skilled trade jobs.” A mechatronics student named Fred claimed to hear similar but more threatening statements: “The message at school was the standard party
line. It’s like ‘you don’t want to be a ditch digger when you grow up, do you?’” Fred spoke more about how the college-for-all idea spreads through generations and has become pervasive and senseless:

Then you have like generation after generation of people who not only went to college themselves, but knocks on everyone’s doors like a Jehovah's Witness, demanding that college is the route. And then that person convinces a dozen people that college is the only real way to go. And then those dozen people, half of them starts stomping hard for college, regardless of how little sense it makes in the long run, regardless if it would truly make you happy and it just keeps going.

In contrast, instructor Tim, while still recognizing these destructive college-for-all approaches, had a lot to say in defense of teachers and counselors. Tim explained that counselors advise students to complete four-year degrees because high schools lack adequate staff and this understaffing does not allow counselors time to tailor guidance to specific students' needs or to become informed on current workforce demands of the community. So, they default to the efficient practice of just giving blanket pro-university advice to all students. Tim stressed this reality to his focus group: “Most college or high school counselors don't have the time. They don't know and they don’t have the time. They get seven hundred students they are responsible for; that's the ratio. They don't have time.”

Additionally, high school teachers and staff are all products of four-year degrees themselves and have little personal experience with other educational paths. Tim pointed to this truth also: “Think about it, where did they come from? Education. They went to a four-year college and got a degree. That’s all they know.” He also explained that the guidance offered in high schools is influenced by the goals of the government. Tim stated, “Well I don't think that
all kids are geared to a four-year university…and most of the counselors and the teachers know that. But it’s strung down from government that this is what has to be done to make our state better.” In other words, governmental bodies set education goals, such as increasing numbers of degree holders, and expect schools to support those goals.

Disposition. The students of the study followed various paths that were determined by the development of the three qualities of knowledge, self-determination, and appeal. The following is a comparison of students’ journeys to demonstrate differing routes toward disposition.

Within the study, only two students took direct paths to their certificate programs following high school. These individuals were Kirk and Dave. They were younger than the other students, but not by many years. These students studied their trades during high school through CTE and had parents who supported their interests. While Dave learned of the labor demand at school, he discovered certificate programs through his own research. Kirk benefitted from family sharing their knowledge and experience. Both of the students took time off between high school graduation and starting college, which gave them a chance to think and develop the necessary quality of self-determination. Overall, Dave and Kirk’s linear paths were the result of the combination of exposure and recognition of appeal through CTE in high school, early knowledge of the links between training and employment opportunities, and breaks after high school to build self-determination in order to resist college-for-all pressure.

In contrast, most of the student participants’ paths included detours through other postsecondary programs. They followed the college-for-all system and enrolled in degree programs following high school graduation. Some of the students quickly realized that they had made bad moves and left their programs. Then, while still lacking purpose, they either took some
time off from school to work or transferred to a community college. Others stuck it out and completed their programs but soon found dissatisfaction in their careers. At some point and in differing ways, their qualities of appeal, knowledge, and self-determination came together to form the proper disposition to allow them to seriously consider a skilled trade and begin their current training.

Worth repeating is the fact that, within this case study, there were only two instances of certificate students taking linear paths. Every other student took detours through other programs and/or careers. This is a problem. It results in a waste of resources and it hurts students. Useful examples of these expensive detours are the experiences of Rick and Greg. While growing up, both students were known for their talents for working with their hands. However, they both reported not realizing that these activities they enjoyed so much could become viable careers. As an unfortunate result, before discovering manufacturing during a recruitment event, Rick struggled with defining career goals and finding appropriate majors at multiple schools, including a university. Similarly, prior to joining his grandfather on an eye-opening tour of a plant, Greg took discouraging trips through multiple schools and programs attempting to fall in line with the engineers of his family. It is likely that Rick and Greg would have greatly benefitted from becoming more aware at a younger age of the demand in the marketplace for their interests and skills. Additionally, they both were raised in environments where four-year degrees were assumed goals. After spending time experiencing discouragement at multiple schools, both men were primed to plan their futures with more of self-interest.

Notably, there were a couple students who did not neatly follow the decision process. These students were Eddie and Isabel. They had both successfully completed engineering degrees and had begun careers as engineers. But, after being laid off by his previous employer,
Eddie considered welding as a way to add to his skillset. Fortunately, he quickly found new work and no longer was in such need. However, since Eddie enjoyed his new class and valued welding as a skill, he continued as a part-time welding student. On the other hand, international student Isabel experienced difficulties finding employment after moving to the United States. To improve her chances, she decided to earn a U.S. credential as quickly as possible by completing a certificate in a related field. In some ways, these two students did fit the model in that they had developed appeal and knowledge at points in their lives in addition to some level of dissatisfaction (interruptions) in their career. But, self-determination may not have been vital to their decision process. This is because they already completed bachelor’s degrees, held occupational identities as engineers, and were generally satisfied with their fields. Therefore, it is important to note how these two students did not perfectly fit the model presented. Nevertheless, Eddie and Isabel were still working toward providing a much-needed skill to their community.

As a final note on the creation of disposition, a couple participants referred to a new initiative in the state called the Michigan Career Pathways Alliance. With optimism, during her interview Yvonne and stressed how necessary the program is:

They did say the State of Michigan is putting together some new curriculum. So, the state does have goals… Hopefully, they are turning the corner on what they need to do, because you can’t have all these kids undecided.

Rick was also aware of what was occurring and excitedly brought up some of the outcomes of the initiative during his focus group:

There was something in Michigan’s legislation, I don't know the specifics on this. They just passed a law saying that they were going to take a week out of middle school
curriculum to inform them about the most in-demand jobs in Michigan and tell them to start pushing for those jobs.

He linked the program to the need to improve the public’s perception of skilled trade professions and thought that it could have real impact. They both were hopeful in the program’s potential for cultivating interest and awareness, which could ultimately help students form dispositions that lead to decisions to pursue careers in traditional skilled trades.
Chapter Five: Discussion

As summarized in this study’s literature review, organizations that rely on middle-skilled labor, such as manufacturing and construction, are not prepared to handle the vacancies caused by the “Silver Tsunami” (Aspen Institute, 2013; Matheny et al., 2015; Mills, 2016; Carnevale et al., 2010). More specifically, Gallagher (2016) argued how Michigan’s potential for economic growth may be stunted by the shortage in qualified skilled trade labor caused by workers retiring from their positions without enough new employees to fill vacancies. With this severe labor shortage, it is important to increase the number of young adults entering these in-demand vocations.

Making matters worse, as noted by academics and policymakers, are the widely-held expectations for emerging adults to attend college (Goyette, 2008). Moreover, the popular conception of college is defined as a bachelor’s degree program because a four-year degree is commonly believed to be the way to a “good job” (Ahearn et al., 2016; Collins, 1971; Holland, 2015; Mullin & Phillippe, 2013; Rosenbaum & Person, 2003; Rosenbaum & Rosenbaum, 2013). So, even though associate degrees and certificates can be earned quickly and lead to a relatively lucrative careers, they are often neglected when considering options (Ahearn et al., 2016). Sadly, this approach pushes bachelor’s degrees on students who are uninterested and not ready (Ahearn et al., 2016; Dwyer et al., 2012; Harrast, 2004; Roksa, 2010). These conditions result in many students leaving campus discouraged, with loans to pay back, and looking for employment without credentials. If these students had not been guided in such a narrow way toward a four-year degree, they may have completed a different college credential and enjoyed its accompanying career, possibly one in high-demand such as a skilled trade (Ahearn et al., 2016).
This study hoped to contribute to our understanding of how some students did just that. Considering how bachelor’s degrees dominate discourse about college, it is important to understand how community college students learned about sub-baccalaureate programs and the reasons why they enrolled in them (Aldous, 2009; Bailey et al., 2004; Holland, 2015; Matheny et al., 2015; Perna, 2000; Rosenbaum & Rosenbaum, 2013). To understand how the college-for-all approach affects students, this study examined the decision process of students of the millennial generation who chose to pursue certificates in skilled trades. Specifically, this research attempted to answer the following question:

How do millennials make the decision to pursue certificates in skilled trades at community colleges within the college-for-all culture?

The research question was approached using a case study approach to examine one skilled trade certificate program at a large community college in Michigan. Focus groups and individuals interviews were conducted with students, students’ family members, and college staff to collect data about the career decision process from various perspectives. Recordings of these interviews were transcribed and the resulting data was then analyzed. In Chapter Four, the characteristics of participants were presented and the themes were summarized through a basic skilled trades choice model.

In this chapter, the model is refined providing ground for further discussion. Terms from classic student development principles are used to further understanding of the role of factors in the decision to pursue skilled trade certificates. Additionally, the interaction between model components are explained and examples are offered. These findings are then considered in relation to recommendations for practice and policy to include recent changes in the state’s
education policy. The chapter ends with suggestions for future research and a conclusion to the study.

**Advanced Skilled Trades Choice Model**

As explained in Chapter Four, the qualities of appeal, knowledge, and self-determination together form a disposition within the student that supports the choice to pursue a certificate in a skilled trade. In this chapter, an advanced skilled trades choice model is presented (see Figure 2), seeking to capture and explain the process of deciding to pursue a skilled trade certificate. This model serves as the guiding foundation to discuss research findings.

![Diagram of Advanced Skilled Trades Choice Model](image)

*Figure 2. Advanced skilled trades choice model.*

There are multiple theories that could be helpful in examining the decision experience of students enrolled in the study’s programs. Potential approaches to this phenomenon could be informed by student and career development theories such as career construction theory
(Savickas, 2005), social cognitive career theory (Lent, Brown, & Hackett, 1994), identity theory (Navarro & Malvaso, 2016), Schlossberg’s transition theory (Evans, Forney, Guido, Patton, & Renn, 2010) or Holland’s (1996) vocational typology. Any of these frameworks may serve as a good foundation for exploring the decisions of this subgroup of students. However, I was most interested in the decision process and did not believe that theories of career choice or student development alone would allow for full exploration of how the college-for-all culture influences college choice. Accordingly, in addition to community college choice theory, the continued discussion of the decision incorporates elements of student development theory such as principles of challenge and support (Sanford, 1962; 1967), the students’ timing of development (Bronk, 2012; Strange, 2004), and the role of work values (Homer & Kahle, 1988; Johnson, Sage, & Mortimer, 2012; Shim, 1999).

**Supports and challenges.** A few elements of Sanford’s (1962, 1967) psychosocial theory of individual development emerged as relevant concepts to use while discussing the phenomenon. While Sanford’s theory as a whole is not applicable to the study’s findings, his concept of support and challenge is a useful tool for understanding the decision process (Evans et al., 2010; Sanford, 1962).

Sanford (1962) emphasized the need for sufficiency of challenge to stimulate the development of young adults. He proposed that according to the principle of challenge and response, “people do not change unless they encounter a situation to which they cannot adapt with the use of devices already present” (Sanford, 1967, p. 44). Stimulating growth toward greater mental health of college students requires that the environment “upset the existing equilibrium, produce instability, and set in motion activity leading to stabilization on a higher
level” (Sanford, 1967, p. 37). In other words, desirable developmental changes in students are produced by strains and instability.

Within the context of this study, the influence of college-for-all approach and older generations (as a common conduit and transmitter of the culture) are referred to as challenges. If postsecondary education is what Sanford referred to as a change-agency and the goal of college is to promote “the maximum development of the individual” (Sanford, 1967, p. 41), the challenges of college-for-all pressures actually inappropriately interfered with the development process for the students of the study. The students’ journeys may have helped them mature in some ways through effects such as learning about themselves and increasing their adaptive capacities. However, if the desired outcome was student success while increasing completion rates and satisfying the needs of the labor market, the college-for-all approach on its own was not an appropriate challenge and may actually abusively misuse resources.

The students’ first semesters at their previous institutions presented challenges for them that were likely also presented to other students who had adaptive responses that stimulated development. But, instead, some of the participants felt the need to do what Sanford would have called retreat due to being overwhelmed by a challenge (Foubert, 2014). Some students adapted to the challenging stimuli by leaving programs and changing jobs; this adaptation was not optimal. In fact, followers of the college-for-all paradigm might call this behavior maladaptive. Though, if considering the faults of the college-for-all approach, their responses might actually have been the best ways to cope with the dissonance they were experiencing.

In contrast, the model’s components of time, values, and awareness acted as supports and countered the challenges within a college-for-all environment (see Figure 2). The factors labeled in Figure 1 identify the means through which the students were provided with the
necessary support to eventually develop the needed disposition. The listed factors represent the
diversity of ways the students progressed to a disposition that supported enrollment in their
current programs. Naturally, no student’s experience was exactly like another, and thus, factors
differed by student. However, all factors seemed to be dependent on at least one support. In
turn, the presence of supports allowed the growth of the three qualities of appeal, knowledge,
and self-determination. Sanford considered a support to be a “stabilizing force that helps make
challenge manageable. It is support that upholds or sustains a student while new and
challenging behaviors or attitudes are initiated” (as cited in Foubert, 2014, p. 3).

This college-for-all challenge manifested in various forms, which included BA-centrism,
relegation of community colleges, stigmatization of skilled trades, cultural preferences for
cognitive work over physical labor, and the shift to using the educational system as university
preparation at the expense of workforce development. While growing up, most of the student
participants were not encouraged to take time, learn of their options, and value their natural
talents and interests. Instead, they were rushed into college to pursue bachelor’s degrees. But
eventually and in various ways, the supports of time, awareness, and values allowed for the
students to reach adequate levels of appeal, knowledge, and self-determination in order to
develop vocational goals with a suitable educational plans (see Figure 2).

In summary, the supports of values, awareness, and time were critical elements of the
experiences described by participants of the study (see Figure 2). Students depended on factors
rooted in these supports to counter college-for-all culture while increasing the qualities of
knowledge, appeal, and self-determination necessary to ultimately choose to enroll in skilled
trades certificate programs. The following paragraphs contain descriptions of each support
followed by discussions of how they relate to the growth of the three qualities, the challenge of the college-for-all system, and the formation of disposition.

**Values.** The first support covered is values. Although many definitions exist, values are generally considered to be enduring, evaluative beliefs about the desirability of methods and outcomes of action (Homer & Kahle, 1988; Johnson, 2001). Values have been studied in relation to many aspects of life including college majors, socioeconomic status, and employment (Johnson, Mortimer, Lee, & Stern, 2007). In the literature, values are divided into various types which include personal values, cultural values, organizational values, and work values (Shim, 1999).

It could be argued that attitude should be used to describe this support. But while attitude and value are similar concepts, values are the most abstract of cognitions, which makes them broader than attitudes (Homer & Kahle, 1988; Shim, 1999). Whereas as a value is consistently maintained across situations, an attitude is normally focused on a particular situation (Shim, 1999). Plus, it is hypothesized that attitudes and behavior stem from values and consequently, values influence behavior through attitudes (Homer & Kahle, 1988). Therefore, values is the term used in this study.

The alignment and misalignment of participants’ values were expressed in multiple ways in the data. For instance, applicable values were apparent when participants spoke of pride in practical labor or their enjoyment of shop floor culture versus deskwork in a cubicle. Values were also at play when participants recognized how the pressure to strive for “gold standard” goals did not serve their interests well. Also implied misalignment when they spoke of their cognitive dissonance while attending universities or discontent with their careers despite having
completed a degree. In contrast, there were suggestions of value alignment when students discussed their current fields of study.

In relation to the support of values, the assumptions of the college-for-all ideology directly contend with the demand for labor in skilled trades. For example, according to interviewees, teachers who rely on bookwork and neglect hands-on learning shape a certain definition of success for students. This typical approach to learning results in equating good performance in traditional classrooms with achievement, which correlates with participants’ reports of how theory is placed higher than practice, deskwork is elevated over manual labor, and white-collar jobs are more prestigious than blue-collar careers.

An example of how a student struggled with the tension between this challenge of college-for-all and his values was Dave’s experience in high school. The student spoke extensively about how he has always loved designing and drawing things. But, he felt that his interests and abilities were not appreciated and nurtured in the mainstream school system. According to Dave, only athletics and traditional bookwork were available. Fortunately, he finally found his way to CAD while engaging in CTE during his senior year at a career center. Furthermore, Dave demonstrated great pride in the role his work plays in the world. He fervently explained how the work of skilled tradespeople is necessary to the functioning of the world but is undervalued by society.

**Awareness.** According to Aldous’ (2009) review of college choice theory, access to information is often a key variable in the college choice process since the availability of material related to preparation, funding, and specific schools seems to increase access to postsecondary education. However, within the skilled trades choice model, the support of awareness does not just refer to the cognizance of facts such as a school’s application deadline. It also refers to a
student having a sense of what it feels like to perform a task of a welder, being familiar with the environment CAD design takes place in, recognizing of the length of a manufacturing program, and learning how much machinists are paid by a local employer.

Due to the limits of the college-for-all system, this sort of information is especially important for youth who are not interested in four-year degrees. But unfortunately, in our BA-centric environment, a large segment of postsecondary and occupational paths are often hidden from students. For students to become aware of the demand for middle-skilled labor, these opportunities cannot be overshadowed by “good jobs.” To serve the needs of the economy well, the worth of sub-baccalaureate credentials should not be drowned out by the push for bachelor’s degrees.

Much of the lack of awareness among today’s youth seems to be rooted in adults’ ignorance about the array of quality postsecondary and career options available. This is certainly true in relation to skilled trades (Giffi & McNelly, 2011; Manufacturing Institute & Deloitte, 2015). As discussed in the literature, adolescents depend on parents as a primary source of information about college and work (Beggs et al., 2008; Bers & Galowich, 2002; Somers et al., 2006). Similarly, a common belief among those interviewed was that baby boomers and Gen Xers grew up in an increasingly college-for-all environment and then passed this mentality to their children. In addition to this critique of parents, some interviewees knocked high school counselors and teachers for spreading the college-for-all message. And, the participants may have been right to. Rosenbaum and Person (2003) explained how counselors frequently reduce career advising to just the presentation of bachelor’s degrees as tickets to good jobs. This brand of guidance leaves out the many sub-baccalaureate programs that can lead to lucrative professions.
Fortunately, this study’s participants somehow became conscious of this vital information and profited from the support of awareness. Experiences from manufacturing student Greg’s development towards disposition served as a good example of how students made connections between their interests, training programs, and in-demand jobs. As a child, Greg enjoyed building and fixing things. Despite his love for working with his hands, he proceeded to become a business major after high school. It wasn’t until his grandfather took him on tour of a plant that he recognized the opportunities of the manufacturing industry. Soon afterwards, Greg learned of programs that would provide him with the skills needed to begin a manufacturing career. Even though information about the skills gap and community college programs had always been available to Greg, the choice to pursue a certificate in advanced manufacturing required more than access to related information. It was necessary for Greg to understand the information, identify relationships, and recognize how they related to his life.

**Time.** According to the data, the support of time played a very influential role in forming the disposition of the skilled trades choice process. Similarly, the importance of time was stressed in Bronk’s (2012) research on purpose. She described how commitment to vocation takes time to form, evolve, and escalate to action, which is why exploration should begin during childhood so that emerging adults have adequate time to develop informed goals. Accordingly within the study, the points at which students recognized appeal, became knowledgeable about opportunities, and grew self-determination greatly affected their educational and professional paths. Time to think about options, build confidence in their decisions, and develop purpose seemed especially vital for the younger students.

When considering the support of time, it is important to acknowledge how the common route from high school to college with career exploration occurring during young adulthood is
socially constructed (Strange, 2004). Seeing how multiple participants criticized American culture for this expectation of young adults to take expensive and future-defining actions immediately after high school, this traditional timing of career exploration and college enrollment is worth questioning (Beggs et al., 2008; Rosenbaum & Rosenbaum, 2013).

Participants criticized adults for assuming that millennials should aspire to careers that require four-year degrees and subsequently steering students toward college preparation tracks. Older generations commonly rush high school graduates to college without taking time to guide them through a period of intentional career exploration. As a result, youth often naively trust that a bachelor degree will bring them success without taking time to reflect on what success means to them. Alarmingly, these students accept tremendous risk with uncertain goals and rewards when entering college (Goyette, 2008; Oreopoulos & Petronijevic, 2013).

Tragically, the college-for-all system robs students of the time needed to explore the wide variety of education and vocational opportunities available to them. Adults assume academic tracks, in contrast to CTE options, are appropriate for students who perform well in school and then quickly shuffle them to college without allowing time for exposure to other paths. Consequently, some young adults who are a great fit for skilled trade careers instead quickly make life-changing commitments to postsecondary programs they are not interested in or prepared for.

Thankfully, the students of this study managed to find time to support their decision. Of all the participants, Kirk may have been the richest in this support. He benefitted from beginning his exposure to skilled trades years before college enrollment. This gave him time to learn about and experiment with different fields before high school graduation. Then due to family
circumstances, the adults around him did not rush him into postsecondary programs. Instead, he was able to benefit from more time to consider his future, research his options, and form goals.

**Interaction of Model Components.**

In her review of the evolution of college choice theory, Aldous (2009) spoke of the complicated intersection of variables that work together to develop an individual’s predisposition for college choice and how the decision process warrants further exploration. She recommended that qualitative methods be used to “dig into the individual processes of aspiration formation and explore patterns across and within various groups” (p. 32). As Aldous might have expected, this study’s analysis revealed how students’ decisions to pursue a certificate in a skilled trade were definitely the result of complex interactions between multiple factors.

A key point of the previous discussion about supports was that students’ dispositions were reached through development of qualities via factors rooted in awareness, time, and values. For instance, during an open house at his college, Rick gained awareness of in-demand career options and preparatory programs which increased his knowledge of opportunities. Another example is how Alice became aware of connections between education and careers when she learned how a relatively short CAD program would supply her with lucrative skills. In this way, levels of knowledge rose as participants became more aware of opportunities and the connections between training and employment.

However, this simple relationship between supports and qualities is complicated by each support’s capacity to simultaneously feed multiple qualities. Moreover, the boundaries of the supports were unclear resulting in overlapping interactions. Furthermore and importantly, overlap occurred among the qualities of knowledge, appeal, and self-determination as they often
seemed to interact, rely on each other, and grow simultaneously. Therefore, it is important to recognize how increasing one support such as providing more time for career exploration can affect multiple qualities.

An example of this is how the stigma of manual labor related to both appeal and self-determination. As societal preference for white-collar jobs discouraged students’ recognition of the appeal of hands-on work, it also detered the development of self-determination through fear of shame. This intersection of model components was also seen in how perceptions of the return on investment of programs related to the quality of knowledge but could also be considered an aspect of appeal. So, while the support of awareness could increase the quality of knowledge, there were cases when awareness also affected the quality of appeal. For instance, Fred learned that welding is an in-demand skill while spending time at the site of his friend’s new job, which made welding very appealing to him. Furthermore, Fred’s exposure to welding also involved his values. Given the chance to practice welding, he gained awareness of how enjoyable the hands-on work was and grew respect for the direct usefulness of the skill. So, as the student increasingly recognized how he valued aspects of the trade, welding’s appeal grew stronger.

Yet values were also tied to self-determination via how some students reached the proper disposition by finding pride in their work despite society’s perceptions and prioritizing their personal satisfaction over others’ judgments of status and prestige. Then again, factors that related to increasing self-determination were also found to be supported by time. For example, it took time for some students to build enough confidence to no longer feel the need to meet mainstream standards and instead define success on their own terms.

Another demonstration of this complex interaction is how the development of purpose linked to the quality of self-determination. In line with Bronk’s (2012) research, while purpose
was connected to a students’ values, it also took time to develop. Unfortunately, a common theme in the data was how rushed students felt to enter college. These students were not allowed the time necessary to establish goals aligned with their values, interests, and abilities. In contrast, a minority of students recognized their lack of direction and took time to consider their goals before beginning postsecondary programs.

While self-determination required the support of time, the quality of knowledge was also dependent on time. Within the college-for-all culture, it took time for students to become aware of training and careers in traditional skilled trades. For a large percentage of student participants, the bias toward four-year degrees hid the great diversity of postsecondary options and careers available to them. Luckily, students finally found appropriate paths through research, networking, and even trial and error. Considering the obstacles to knowledge set in place by the college-for-all structure, connecting education to employment opportunities can take significant time.

The next three sections contain further examination of the relationship between college-for-all culture and the talent deficit in skilled trades as it pertains to students’ decisions. More specifically, these sections offer a deeper analysis of the issue in relation to the qualities of knowledge, appeal, and self-determination.

**Knowledge.** In “Students’ Conceptions of Knowledge, Information, and Truth,” Alexander, Winters, Loughlin, and Grossnickle (2011) stressed how individuals living in post-industrial societies are currently inundated with information of many types at great speeds and through many methods. In other words, in the U.S. today, the vast majority of students can quickly search online for anything and be exposed to a massive amount of information. While this access is beneficial in that it can increase awareness, the information has varying levels of
credibility and usefulness. Plus, online sources do not allow for students and families to ask questions and acquire refined understandings of complex material on college and careers. Opportunities to get clarification on the complex landscape of education and employment are valuable, especially for first-generation students whose families are new to higher education (Aldous, 2009).

Considering this immense access, Alexander et al. (2011) argued that the terms information and knowledge are too frequently used interchangeably. Information may more properly be understood as content whereas knowledge could be considered interpretations of this content (Alexander et al., 2011). Correspondingly, it was not just access to and awareness of information that defined the participants’ choices. The formation of disposition also depended on how they judged, comprehended, and used the information. As a result, within the skilled trades choice process, it is beneficial to highlight the required processing and application of information, not just access. This is especially true when considering that information presented may be in direct contrast to hegemonic, college-for-all messages. Therefore, the term knowledge is used within the model to represent access to information while stressing students’ needs to also understand and use it.

So, in accordance with the study’s findings, student participants’ levels of knowledge increased as they invested time in gaining awareness of the demand for their fields, the qualifications for those jobs, and the education available. In other words, disposition development required participants to go beyond awareness of facts. They had to spend time building connections between their interests, occupations, and training opportunities. In this way, the quality of knowledge depended heavily on the supports of both awareness and time.
In relation to this quality, the college-for-all challenge manifested as a pervasive focus on bachelor’s degrees to the exclusion of other postsecondary options. This makes the building of knowledge excessively challenging because it necessitates navigating the labyrinth of the nation’s education and employment system while resisting pressure to complete a four-year degree. The belief that a four-year degree is required for a “good job” oversimplifies the very complex relationship between education and career. As a result, a large portion of postsecondary options available is hidden from students. Without considering other options, many students rush through the educational system without questioning the connections between school and work (Carnevale, 2015).

Adding to the challenge of demystifying the relationship between education and employment is the aforementioned jobbing-out presently occurring that disobeys the expected sheepskin effect of credentialism (Baker, 2011; Belfield & Bailey, 2011; Bills, 2003; Brown & Bills, 2011; Matheny et al., 2015). As discussed earlier, students are exiting certificate programs before graduating because they completed enough training to satisfy their field’s needs at that time. As multiple instructors of the study explained, this is causing some employers to decrease their standards for new hires, sometimes while simultaneously increasing pay. For example, for some organization’s entry-level positions, students can gain the least amount of familiarity required through just high school CTE classes or college introductory courses (Michigan Talent Investment Agency, 2017). So somehow credentialism does not seem to currently apply to some skilled trades in Michigan. The pain felt from the intense labor shortage in Michigan industry may be short-circuiting the typical sorting mechanism. Of course, this approach does not apply to every employer. Per commentary from Cameron, employers who are considered highly desirable by workers can naturally afford to be pickier when hiring. Therefore, while there are employers
who are now setting certificates or even less as their minimum qualification, other businesses are holding out for candidates with associate degrees. It is possible that if the labor shortage is relieved, certificates may no longer be deemed as valuable as they are today.

Nevertheless, this lowering of standards does not mean that the training that occurs in the classroom is no longer valued. It’s quite the opposite. Many employers are eager to fund coursework for job candidates who show promise of becoming good investments. This leads to education which can resemble apprenticeships in relation to how on-the-job training occurs alongside formal coursework. This nuance of the relationship between education and employment highlights how vital it is to consider existing labor market needs and the details of programs when offering guidance about college.

Appeal. In relation to the quality of appeal, college-for-all challenges seemed to manifest as cultural preference for theoretical thought over applied work. According to the data collected from the interviews, this preference translated to valuing cognitive effort over physical labor. In other words, the students felt that they grew up in a world where labor requiring blue-collar skills was inferior to tasks requiring more white-collar deskwork.

During various conversations about this topic, it was unanimously felt that professions are compared in this way and that the general public believes that skilled trade jobs do not measure up. In fact, according to participants, even when a skilled trade career provides higher income, it is not respected as much as an occupation that requires at least a bachelor's degree. Regrettably, according to the participants, American culture often places manual labor and skilled trades in the same category since work such as plumbing and carpentry are “not as cognitive” as vocations like medicine and law. Within this contrast, recognition of the significant skill and knowledge required in traditional skilled trade professions is lost. In an age when work
often depends on computers and sterile environments, its dirty reputation may further deter
young adults from considering the skilled trades as an area of suitable careers.

Evidently, this societal bias potentially suppresses students’ practice of their interests and
talents which delays their pursuit of fulfilling career goals. For example, from the sample of
certificate students interviewed, all who were not exposed to skilled trades through CTE in the
K-12 system began their postsecondary education at another school. In short, if a student did
not practice a skilled trade during high school, they enrolled in another program immediately
after graduation. These students who did not participate in CTE programs instead took classes
often considered college-preparation. But, considering the BA-centric nature of high schools
cited by the participants, the classes could more appropriately be labeled university-preparation.
Mainstream schooling puts students on tracks to universities and neglects other postsecondary
options that do not include university requirements such as sub-baccalaureate credentials
(Ahearn et al., 2016; Cantor, 1989; Goyette, 2008; Manley, 2012; Manufacturing Institute &

Additionally, possibly due to this bias against hands-on work, there were multiple
students who were annoyed by the fact that they had family members working in their field of
study but did not learn of this fact until after they began their certificate program. In other words,
it seemed that the students’ family members who were skilled tradespersons did not teach their
younger family members about their work. Again, this may be due to college-for-all challenges
causing adults to push children toward universities and not consider alternate careers that require
less schooling.

This white-collar preference does not allow for exposure to much of anything other than
university preparation. As told by the participants, anything else is judged as failure.
Consequently, students who may have interests in a skilled trade do not try it out and instead proceed to postsecondary programs in other disciplines. Sadly, even student participants who were recognized at a young age for having a gift for hands-on work were steered toward bachelor’s degrees in other areas. Consequently, this delay in consideration of skilled trade careers results in less awareness of suitable career options, suppression of recognition of work values, and later timing of career exploration.

However, while the importance of appeal in the process is clear, there were signs that a few study participants had possibly taken this quality too far. Their preference for directly relevant coursework and practical application transformed into disregard for liberal arts education. For these students, education was considered a waste if it did not lead to a career that explicitly related to an individual’s major. Their comments about relevant coursework, their pride in hands-on labor, and the dangers of lacking career goals, revealed a lack of understanding of the value of liberal arts classes, the highly useful knowledge and skillsets that can result from this coursework, and how liberal arts degrees can lead to a large variety of careers. This attitude is in-line with larger national discourse about the value and purpose of studying liberal arts (American Academy of Arts & Sciences [AAAS], 2018; Jaschik, 2018). It is unfortunate that this lack of respect for liberal arts education and careers was evident among some participants of the study.

**Self-determination.** In line with recent research about the labor deficit and the poor reputation of skilled trades (Aspen Institute, 2013; Gallagher, 2016; Giffi & McNelly, 2011; Manley, 2012; Manufacturing Institute & Deloitte, 2015), the participants acknowledged the outdated image of skilled trades and how it deters people from entering certain fields. Students and instructors contrasted this negative reputation with common goal occupations specifically
and frequently naming the occupations of doctor and lawyer as examples. Additionally, some participants critiqued how their generation was not taught about realistic and practical careers. Instead, they were encouraged to fantasize about becoming engineers and astronauts. One student repeatedly referred to these revered vocations as the “gold standard.”

With time, they had found purpose in the necessity of their work while confidently rejecting popular conceptions of “good jobs.” When the participants reached the point of pursuing a certificate in their trade, they had acknowledged the alignment of their values and their fields of study and careers. In addition, they had cultivated pride and purpose in preforming skilled, practical work and enough strength to withstand the classist stigma attached to blue-collar jobs. Instead of reaching for gold standard idolized professions, they dismissed the imposed shame associated with physical labor. Their appraisal of the worth of their careers was based on the real-world use of their services and products.

During interviews, it frequently seemed that this strong pride in practical, hard work acted as a protective measure in relation to not meeting the gold standard. Actually, several discussions included hints of superiority in terms of effort exerted. Some participants, to include family members and college staff, appeared to believe that those who do not engage in physical labor do not work hard compared to those who do. In other words, interviews unveiled an underlying notion that if a task does not include some sort of physical skill, it is easy. At times, there was even a tone of hostility toward professionals who do not work with their hands. This denigration of deskwork may be a way of relieving the tension felt from the contradictory nature between societal standards and their chosen professions.

However, bias against the working class was not the only stigma withstood by the participants. They also had to handle the public’s perception of community college.
Frustratingly, the narrow interpretation of college as the journey to a bachelor’s degree, disparages two-year schools in comparison to four-year schools (Watson & Brand, 2014). Subsequently, community colleges are frequently not perceived as a source of higher education in their own right. Consequently, as Somers et al. (2006) and Wood and Harrison (2014) found, when students decide to attend a community college, most do so with the expectation to transfer to a university to earn a four-year degree.

Likewise, when participants were questioned about this relegation of two-year colleges, they thought that most students only see community colleges as a cheaper path to earning a bachelor’s degree or as a good starting point for academically deficient students. Related conversations revealed beliefs that pressuring young adults to rush to universities while lacking career goals implies that possessing a degree is the ultimate goal. When the completion of a degree becomes the main objective, the learning behind the credential may matter far less. As a consequence, completing credits becomes the name of the game, not gaining knowledge through a crafted, thoughtful curriculum (Grubb, 2006). The result is students avoiding community college courses that do not easily transfer a university.

This exclusion of nontransferable coursework may also help widen and sustain the skills gap. Applied associate degrees and certificates are commonly considered terminal credentials. So, unlike classes from academic programs, much of the credits earned in applied programs often do not easily transfer to universities (Schurman & Soares, 2010). Of course, all students can attempt to pursue bachelor’s degrees at later points in their lives. But, if a student’s primary goal is to earn transferable credits, skilled trades training may be one of their least conducive options. In this way, the bias toward bachelor degrees within the college-for-all system actually makes satisfying the state’s workforce needs more difficult.
Recommendations

What often emerges from case studies are formerly unknown relationships and variables, which lead to reexamination of the subject matter (Merriam, 1998). In relation to case studies in education, findings help increase practitioners’ understanding of educational issues, programs, and processes (Merriam, 1998). And so, at this point in the paper, recommendations for practice and policy are offered to help remedy the state’s shortage in skilled trades labor. Additionally, the findings of this study are considered in relation to recent initiatives concerning the career readiness of Michigan’s youth. Then, some questions engendered from this research are introduced. Finally, the report ends with a conclusion.

**Practice and policy recommendations.** As advised by Barreno and Traut (2012) and Beggs et al. (2008), if aiming to increase enrollment and retention, schools should study their communities, campuses, and recruitment practices. Suitably, the leadership of the skilled trades programs of this case study seemed to put significant thought and energy into attracting and supporting students. Considering the strength and pervasiveness of the college-for-all message revealed in this research, they need to.

Fortunately, the findings of studies such as this can help improve skilled trade programs’ recruitment strategies. However, recruitment should be considered in very broad terms. To have real impact, recruitment cannot just be about career fairs and campus tours. Pipelines must be created while relieving existing blockages. Educators must create an environment where students feel empowered and comfortable making life-shaping decisions about their futures while involving their families in appropriate ways. As per the findings of this case study, students should be provided with ample time, given contextualized knowledge, and shown appreciation of
relevant values to develop the three qualities necessary to form a disposition favorable to the pursuit of sub-baccalaureate credentials in skilled trades.

**Knowledge.** Students of this study clearly expressed feeling rushed to make decisions about their choice of college, major, and career. In fact, some participants questioned during interviews if young adults are mature enough to make these big decisions. But, what if it isn’t youth and maturity levels that are the problem? Young adulthood actually might be a very appropriate time to make these decisions. Instead, what if the problem is due to the length of time that young people spend considering their future profession? While major exploration is often viewed as an exciting time in college, this endeavor was discouraging, stressful, and expensive for some of the student participants. It is reasonable to critically say that the tradition of spending a few semesters to explore options is based in the ideals and resources of the privileged few. Subsequently, making this phase of young adulthood the expected and mainstream norm is insensitive and inconsiderate to the needs of many youth.

Therefore, if a goal is to satisfy the needs of the labor market while preventing students from unnecessarily spending money, time, and effort on education they do not want or need, we must get better at providing time for young people to observe, learn about, and try out careers in in-demand fields. What may need to happen is an increase in the support of time by changing the point at which career exploration and broader educational options are introduced. Exposure and exploration could begin far earlier in a child’s life during a phase of education that is longer and free through the public school system. By starting the discussion sooner in students’ lives, they have more time to be exposed to vocation possibilities and deliberate about life-shaping decisions (Ahearn et al., 2016; Workman 2015). To ensure that this early exploration and exposure occurs, it would be wise to make this activity a mandatory component of the K-12
curriculum. It should be regarded as a necessary and priority element of education and not just something to do when there is time for it. Additionally, career exploration must consist of more than interest and aptitude assessments. Students should be required to actively explore through experiential learning activities such as job shadows, internships, informational interviews, and field trips to a wide variety of sites of education and work.

Additionally, while students may receive a tremendous amount of information through various means, they may need support in understanding it and considering how it applies to their lives. This is especially true if the information contradicts college-for-all messages. Students, such as Dave who complained of not learning about certificates in high school, are not ignorant of opportunities due to lack of access to information. Actually, with today’s technology, the information is available to almost all (Alexander et al., 2011). What could make a difference is the identification of relevant and credible material coupled with assistance in understanding and applying the information. In our information-overloaded society, youth need to be encouraged or even required to seek out and become aware of information pertinent to their futures. Then, adults must help them make sense of it while applying it to the student’s individual context.

In light of the findings of past research and the current study, providing all students with this sort of individualized guidance informed by current local workforce needs and the student’s talents is no longer an educational luxury, it is a necessity of the economy (Bahr et al., 2015; Matheny et al., 2015; Sutton et al., 2016; Xu & Trimble, 2014). Students must learn of the connections between school and work through individualized guidance that includes consideration of the labor needs of the surrounding community. Starting at an early age, children should be guided by knowledgeable adults who appreciate a diversity of skills and can provide exposure to a variety career options so that they can have more time and possess more accurate
information when making decisions about their futures. Again, this guidance must go beyond typical career interest assessments and result in personal interaction for meaningful discussions (Schneider, 2015). Furthermore, all who mentor students through college choice decisions should be sensitive to students’ financial capabilities and mindful of students’ likelihood of completion (Andruska et al., 2012; Fry, 2012; Harrast, 2004).

In addition, according to the findings of this study and previous research, it is especially important that families, teachers, and counselors are educated and encouraged to appreciate the variety of career options available and promote the full diversity of postsecondary educational options, especially community college programs (Bosworth, 2010; Holland, 2015; Lumina, 2016; Rosenbaum & Rosenbaum, 2013). Community colleges provide far more than just classes to be transferred to a university. In fact, limiting students to four-year plans blocks them from in-demand occupations. Therefore, the concept of college must be defined broadly to include sub-baccalaureate credentials.

Appeal. Just as more experiential learning would increase students’ knowledge of options, it would also allow students more opportunities to recognize what types of work appeal to them. Furthermore, children’s interests and natural talents should be noticed and nurtured regardless of the status of professions related to them (Ahearn et al., 2016; Cantor, 1989; Manley, 2012). Adults responsible for guiding students should appreciate the multiple types of intelligence that they may demonstrate. Therefore, it is critical to reward learning that occurs through a variety of methods, not just bookwork.

Taken a step further, it is important to recognize the extent of the impact of the cerebral versus physical dichotomy. The messages children hear about their abilities and their futures, the type of learning that is preferred in classrooms, and what professions are placed on pedestals
have substantial consequences for communities and individuals. Some of the skills that cannot be demonstrated through written word are some of the skills society depends on most. However, due to the culture of our educational system, students with these skills and related knowledge suffer demotion to failure when compared to individuals who excel in a classroom environment. As such, many students strive to perform well under conventional pedagogical methods and, by doing so, distance themselves from more experiential and hands-on learning which may serve their strengths best. Consequently, the value of hands-on work must be highlighted while refraining from elevating cognitive effort over physical work. In short, the curiosity of students who prefer hands-on work should be acknowledged and fed, not neglected.

To recognize and nurture this curiosity, it would be wise to invest in better quality, more accessible CTE options for high-demand industries in middle and high school. While CTE serves the quality of knowledge by increasing students’ awareness of opportunities, it also offers opportunities for students to recognize aspects of skilled trades that may appeal to them. However, as reviewed previously, vocational programs in high schools were under fire in the late 1900s due to many factors related to increasing college-for-all ideology, the costs of keeping up with rapidly improving technology, and difficulties in retaining instructors with adequate and current knowledge (Cantor, 1989; Manley, 2012). As focus and resources were reallocated to build college preparatory courses and raise standardized test scores at the expense of other valuable skills and interests, few shop classes survived. Only recently have some schools began rebuilding the CTE programs that exited high schools a couple decades ago. Making matters worse, high schools have historically moved under-performing students from conventional classes to vocational paths (Cantor, 1989; Vocational Education and National Center for Research in Vocational Education, 1985).
This pattern further supported the stigmatization of CTE as a track for failures, which may deter students from studying skilled trades. It is not difficult to imagine a good student with genuine curiosity about CAD taking college-prep courses then continuing onto a university without giving their interests a chance. This denigration of CTE is one of the unfortunate results of the college-for-all approach where anything that does not prepare a student for a four-year school lacks value (The National Commission on Secondary Vocational Education and National Center for Research in Vocational Education, 1985).

In contrast, youth must be guided to vocational training due to interest, not bad grades and misbehavior. To provide for the critical appeal quality of disposition formation, the learning that takes place in CTE classrooms must be valued by and accessible to more students (Ahearn et al., 2016; Cantor, 1989; Manley, 2012). Moreover, with improvements to the quality of and access to CTE courses in high school, the programs could become effective recruitment tools for the skilled trades. In contrast to the past where the bad apples were shooed into shop class, Michigan’s future CTE labs could actually become a destination for college-prep students. This, of course, would require that the next generation’s image of “college” includes all college credentials, not just bachelor’s degrees.

An additional recruitment method that capitalizes on appeal is tapping into pools of students who have shown interest in subjects related to industrial trades. Notably, multiple students in the study came to their trade through associated disciplines such as architecture. Therefore, teachers could become aware of students who show interest in related disciplines and expose them to occupations with stronger demands for talent. Routinely making the students aware of the possible high return on investment of a profession that they might enjoy just as much or more could help fill skill gaps (Ahearn et al., 2016; Rosenbaum & Rosenbaum, 2013).
For instance, engineering is a field that the study revealed to be especially attractive to the participants. While the students in the study understood that to be an actual engineer one usually needs to have at least a bachelor’s degree in engineering, they repeatedly referred to their ability to perform “engineering-type” tasks or how they work closely with engineers on projects. When factoring in their earning potential with less schooling and the possibility of returning to school later in life to continue their studies, they seemed quite satisfied with their paths. Therefore, it could be profitable to introduce skilled trades to classes of students in related disciplines while emphasizing potential income with less time in school and the option to return to college in the future to earn a bachelor’s degree if desired.

**Self-determination.** It is plausible that a student could be exposed to and enjoy a skilled trade while also being aware of the demand for associated skills and how to qualify for a position performing that work but *still* not consider it is an acceptable profession. Sadly, a student in this position may be dissuaded by the stigmas of attending a community college and working with their hands. And so, the student does not pursue their preferred career and instead enters a university headed for a vocation less desirable to them and possibly less needed by their community.

Consequently, it is key to relieve students of the need to develop such strong self-determination so that they can more easily realize their natural talents and follow their genuine interests (Schneider; 2015). Therefore, battling the negative perceptions of two-year colleges and skilled trade occupations must be a dominant element of any plan to relieve the talent shortage (Aspen Institute, 2013; Gallagher, 2016; Giffi & McNelly, 2011; Manley, 2012; Manufacturing Institute & Deloitte, 2015). Less negative bias may mean that students would need less self-determination to follow their interests and meet the state’s workforce needs. To do this, the value
of a wider variety of educational paths and professions must be emphasized in school while avoiding elevating certain professions over others.

By not defining certificate holders as college graduates, certificates are excluded in the college-for-all message, which shapes perceptions of the credential’s value and results in missed opportunities for student success (Bosworth, 2010; Lumina, 2016; Mullin & Phillippe, 2013). Notably and as previously discussed, several organizations have set ambitious goals of increasing the numbers of college graduates within the next decade (Lumina, n.d.; MCAN, 2016b; Oreopoulos & Petronijevic, 2013; Price & Tovar, 2014). By including certificates in these numbers, their goals are more attainable (Lumina, 2016; MCAN, n.d.). Unfortunately, certificates are usually not counted in college graduate statistics, which further discounts the perception of their value (Mullin & Phillippe, 2013).

**Michigan Career Pathways Alliance.** While the data of this study was collected during 2017 and as previously mentioned through participants’ interviews, Michigan took large strides toward addressing the state’s skills gap problem. These large strides resulted from an initiative based in the state’s Department of Talent and Economic Development [TED] called the Michigan Career Pathways Alliance. The alliance is comprised of state agencies, employers, and schools who are actively working to “improve access to multiple pathways to good jobs in Michigan” through changes to curriculum, improvement of student services, expansion of CTE, and marketing aimed at improving the image of skilled trades (TED, 2018).

Although some of the work done by the Alliance has already become policy (TED, 2018), as one of Michigan’s newest education efforts, the potential of the Alliance has yet to be seen. In fact, it should be quite a while before anyone can fairly judge its true impact. Though, at this point, the Michigan Career Pathways Alliance already does seem to address some of the
needs identified in this study by incorporating supports for increases in students’ qualities of knowledge, appeal, and self-determination (House Fiscal Agency, 2017; Senate Fiscal Agency, 2018; TED, 2018).

For example, in relation to the quality of knowledge, the Michigan Career Pathways Alliance proposes changes to the Michigan Merit Curriculum that include a requirement for schools to expose students to careers during kindergarten through high school, add career exploration courses, develop ways to integrate career training, and grant credit to students for engaging in experiential learning opportunities (House Fiscal Agency, 2017; Senate Fiscal Agency, 2018; TED, 2018). Knowing the power that the supports of time and awareness had on this case study’s students, it is excellent that the plan makes such strong effort to begin career exploration and exposure quite early in Michigan’s students’ education.

But, per the findings of this research, for significantly more students to develop dispositions that allow them to pursue credentials appropriate to careers that genuinely interest them, the public’s perceptions of education and profession must change. This requires uprooting deeply ingrained beliefs and attitudes of multiple generations (Ahearn et al., 2016). Change of this degree takes time, determination, and persistence. Hopefully, the alliance will be shown patience during this effort and allowed the time it needs to demonstrate success. As the initiative progresses, it could be beneficial to further examine the efforts of the Michigan Career Pathways Alliance in relation to the lessons learned from this case study.

**Future research.** For me, this study seemed to inspire more questions than it answered. At almost every turn, there was something that begged for more examination through more data, more time, and more energy. But, regardless of my curiosity and passion for this topic, this case
study and its research question required boundaries. Thus, the following paragraphs contain ideas for future research stemming from this study.

To begin, it would be helpful to increase our understanding of the formation of skilled trades students’ self-determination. Multiple facets of this quality could be examined. But in particular, it would be beneficial to develop a better appreciation of parents’ influence in order to harness and direct it to support more appropriate program and career choices. It would also be valuable to more deeply explore the details of how certificate and skilled trade students developed the purpose and strength to make decisions that fit their needs and interests instead of trying to satisfy societal expectations.

As for the quality of knowledge, there were interesting details found within the demographics of the parents in relation to their student’s choice of credential. Many of the certificate students interviewed had a mother who had earned an associate degree. It is possible that having a parent who successfully earned a credential from a community college may increase the likelihood of choosing to attend a community college without intentions of transferring to a university later on. In these families, students may have recognized that an applied sub-baccalaureate credential alone can lead to a successful career. To take this relationship a step further, the opposite may be true for academic associate degree students. These students may have strong intentions to transfer to a university to continue their education because their parents completed more or less education and thus may not recognize the potentially great returns on investment for sub-baccalaureate awards.

Moreover, there may be a great deal to be learned from students in other fields that can help identify potential ways to increase the appeal of skilled trades. Students who are not studying industrial trades could be surveyed about their perceptions of traditional skilled trades
in order to understand the images they hold, how those images formed, and if they are susceptible to change when presented with accurate information about skilled trade careers.

Finally, this study centered on students working toward certificates and resulted in a model representing their experiences. These experiences could be compared to that of other student populations. For instance, discussions during interviews would occasionally skim the topic of apprenticeships. The role of apprenticeships in closing the skills gap is especially worthy of exploration. In fact, the current remodeling of the nation’s apprenticeship program requires scholarly attention (Fain, May 11, 2018). Consequently, collecting data from students who are also apprentices would be valuable. Another group of students to study are skilled trade students who are pursuing associate degrees. There could be significant differences between certificate and associate degree pursuers in terms of challenges and supports. Furthermore, this comparison of populations could be extended to students who did not perform well in high school. Many of this study’s participants were good students and were accepted into universities following high school. Their journeys could be quite different from students who did not do as well academically. Therefore, exploration of skilled trade students who struggled in high school could also reveal important aspects of the skills gap.

Conclusion

Carnevale (2015) referred to the current mysterious and complex connections between education and work as the “Tower of Babel” and the “big black box.” After speaking to students, staff, and parents of this case study’s programs, Carnevale’s descriptions felt very appropriate. There is a large gap between school and the workplace, and it is full of misunderstandings and dangerous assumptions. Somehow the study’s students made it through the maze and now feel
confident in their paths. However, they were the lucky ones. In order to serve students and the economy more effectively, clearer connections must be drawn.

Painting tertiary education and careers with such a broad college-for-all brush has created a dysfunctional system where the critical details of programs and industries are lost. The messages from the employment Tower of Babel need to be deciphered and the black box of education needs to be broken open. Students must be able to more easily learn of the qualifications of their target vocations and identify the ways they can satisfy those qualifications. They must better understand how to connect their current point with where they want to be in the future.

Ideally, this knowledge grows from well-timed, unbiased, and contextualized guidance specific to students’ talents and interests. Considering the assumptions, mysteries, and myths that pervade the relationship between education and employment, to decrease the frequency of expensive detours and more effectively develop the state’s workforce, students must receive appropriate guidance from knowledgeable adults who appreciate the diversity of postsecondary and career options available to young people. It is vital for those in mentoring roles to sincerely communicate the value of sub-baccalaureate programs and middle-skilled careers in order to effectively encourage students to consider the full spectrum of postsecondary opportunities. In short, to be effective, those who guide students should also fight college-for-all hegemony.

Through the excitement, confidence, and satisfaction with their current career paths, the students of this study serve as lessons for us. Bowing to the pressure of their families, guidance counselors, and wider society, some of the participants played the matching game and attended the best universities they were accepted to while ignoring their individual talents and interests.
Fortunately, these particular students eventually found their way to community college programs which suited their needs, despite the so-called undermatch.

In a better world, the students of this study would not have needed such high levels of self-determination in order to enroll in programs that satisfied their interests. They would have grown up in an environment with less snobbery, where a diversity of skills and education was promoted and desired. If they had been exposed to and taught to appreciate a variety of vocational paths as children, the students may have found success at earlier points in their lives and had not wasted precious resources elsewhere.

Overall, our current practices result in harmful mismanagement of valuable talent (Holder, 2015; Oreopoulos & Petronijevic, 2013). We, as educators, parents, and members of the workforce, can longer afford to lazily apply the blanket get-a-bachelor’s degree advice to all high school graduates, cross our fingers, and hope it works out. It’s not working for many students or the economy. We must learn to appreciate a variety of skills and educational methods. We recognize the value of diversity in terms of ethnicity, religion, national origin, language, gender, etc. However, we cannot seem to appreciate differences in skills and educational experiences. Tragically, the college-for-all mentality robs communities of the diversity of skills and knowledge that a well-functioning society requires. Moreover, this necessary variety should not be differentiated by level. One type should not be considered higher or lower than the other. One should not be presented as the gold standard while the other is just dirty.
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APPENDICES
Appendix A: Student Recruitment Contact Collection Form

First name____________________________________________________________

Last name____________________________________________________________

Phone number__________________________________________________________

Email address_________________________________________________________

Program (Circle)

CAD    Plastic Tech    Welding    Manufacturing    Elect Tech    Mechatronics

Best way to contact you (Circle one)       Email      Phone call        Text

When are you most available? What are the best days/times for you?
Appendix B: Student Focus Group Interview Questions

Primary research question

Having grown up in a college-for-all culture, how do millennials make the decision to pursue skilled trade certificates at community colleges?

Possible open subquestions to frame discussion

1. Why are you pursuing a certificate? How do certificates compare to associate degrees in your field?
2. What and who influenced your decisions regarding school? Credential level? Career field?
3. How did you learn about your program? For instance, who told you about it? Where did you get information from?
4. What type of classes did you take in high school? College prep, CTE, general, AP, dual-enrollment?
5. While in high school, how did you feel about attending college?
6. While you were growing up, who talked to you about college and what did they say?
7. How much pressure did you feel to attend college after high school?
8. What do you believe most of the people in your high school did after graduation?
9. Have you felt pressured to pursue a bachelor’s degree? Describe this pressure- who pressures you, why do they pressure you, why do they think you should pursue a bachelor’s degree?
10. How did you select your current program or the program you intend to apply to?
11. At what points in your life did you make decisions about college? Describe the timeline.
12. What do you expect after graduation in relation to employment?

13. How do you feel about the belief that a person needs a bachelor’s degree to get a “good job”?

14. College is expensive. Do you think it is worth the cost? Why/why not?

15. What do you think about the relationship between education, job satisfaction, and life satisfaction?

16. What do you think of the college-for-all culture (I’ll describe CFA)? Does CFA exist? Did CFA affect you?

17. What is the relationship between CFA and your decision to attend a two-year college? How does CFA relate to your decision to pursue a certificate?

Depending on responses, ask follow-up questions that support the primary research question and are related to CFA, employment expectations, college choice process, perspectives of family and peers, influences on decision, etc. Ask for examples, stories, feelings, and opinions about findings from other interviews.
Appendix C: Employee Focus Group Interview Questions

Primary research question

How do millennials make the decision to pursue certificates at community colleges within the college-for-all culture?

Possible open subquestions to frame discussion

1. Who are your students? Describe them.
2. Why do students come to your program?
3. How do they learn about the program?
4. What do they expect after they graduate?
5. Why do they expect this?
6. Should they expect this? Are they correct?
7. Where do your students come from? Hometowns? What type of families?
8. Who are the millennials in your class? Why are they here? How did they learn about the program?
9. How do you feel about college-for-all culture (with brief description of CFA)?
10. What is the relationship between your millennial students and CFA?
11. What do you want people to know about your program? About certificates, CTE, skilled trades, etc?
Appendix D: Family Member Individual Interview Questions

Primary research question

How do millennials make the decision to pursue certificates at community colleges within the college-for-all culture?

Possible open subquestions to frame discussion

1. How do you feel about (student’s name) decision to pursue a certificate in (program)?
2. How was the decision made?
3. What was your role in this decision?
4. Can you describe the timeline of the decision process?
5. What influenced the decision?
6. Was your student pressured to pursue a bachelor’s degree? Who were they pressured by?
7. Was there pressure to attend a university instead of a community college?
8. How do you feel about employment prospects following graduation?
9. Is there anything else that you would like me to know?
10. Is there anything you would like for others to know?
Appendix E: Student Questionnaire

Please answer the following questions to the best of your ability.

What is your name?
________________________________________

During what year were you born?
________________________________________

Gender?
________________________________________

Race/ethnicity?
________________________________________

Are you currently pursuing or do you plan to pursue a certificate?

☐ No, I am not currently pursuing a certificate and do not plan to

☐ Yes, I am currently taking classes in pursuit of a certificate

☐ Yes, I plan to pursue a certificate but have not yet applied/been admitted to a certificate program

☐ I am not sure
Which certificate program are you enrolled in or plan to enroll in?

☐ Advanced Manufacturing Certificate

☐ Advanced Manufacturing Skills Certificate

☐ CAD: Drafting-Technical Certificate

☐ Electronic Technology Certificate

☐ Electronic Technology Skills Certificate

☐ Mechatronics Certificate

☐ Mechatronics Skills Certificate

☐ Plastic Technology Certificate

☐ Plastic Technology Skills Certificate

☐ Welding: Fabrication Certificate

☐ Other ________________________________

Have you previously been enrolled in another certificate/degree program?

☐ No

☐ Yes

If so, which program(s)?

________________________________________
Do you already possess a college degree or certificate?

☐ No
☐ Yes

If so, what degree(s) or certificate(s)?

(level/major)

______________________________

Have you reported or plan to report to your school that you are pursuing a certificate JUST for the sake of receiving financial aid and expect to leave the program before completing the certificate?

*As a reminder, you are an anonymous participant. Your responses will not be connected to your identity or reported to anyone. This information is purely for academic research purposes.

☐ No, my goal is to complete the certificate I am pursuing
☐ Yes, I have reported that I am pursuing a certificate for the sake of receiving financial aid
☐ At this time, I have not enrolled in nor plan to complete a full certificate program

Are you in an apprenticeship program?

☐ No, I am not participating in an apprenticeship
☐ Yes, I am participating in an apprenticeship
☐ I am not sure
Do you have any intentions to pursue an associate or bachelor’s degree within the next five years?

- No, I plan to earn a certificate and do not intend to pursue a degree within the next five years.
- Yes, I plan to complete a certificate and then continue to pursue an associate degree in the same or a related industry/major.
- Yes, I plan to complete a certificate and then continue to pursue a bachelor’s degree in the same or a related industry/major.
- Yes, I plan to leave my certificate program and work toward an associate degree in the same or a related industry/major.
- Yes, I plan to leave my certificate program and work toward a bachelor’s degree in the same or a related industry/major.
- Yes, I plan to complete a certificate and then continue to pursue an associate degree in a different industry/major.
- Yes, I plan to complete a certificate and then continue to pursue a bachelor’s degree in a different industry/major.
- Yes, I plan to leave my certificate program and work toward an associate degree in a different industry/major.
- Yes, I plan to leave my certificate program and work toward a bachelor’s degree in a different industry/major.
- I’m not sure.
Are you taking or have you taken coursework that is considered remedial or developmental by your college?

☐ No

☐ Yes

☐ I don’t know

Have you enrolled in a course at another college or university within the last two years?

☐ No, I have not enrolled in a course at another college or university within the last two years

☐ Yes, I have enrolled in a course at another college or university within the last two years

When did you first enroll in courses at [name of current college]?  
(Month, Year)  
_____________________________

When did you begin your current program?  
(Month, Year)  
_____________________________

When do you expect to complete your current program?  
(Month, Year)  
_____________________________
What is the city and state of the last high school you attended?

City of high school: ____________________________________

State of high school: _________________________________

Do you have a high school diploma?

☐ No, I do not have a high school diploma

☐ Yes, I have a high school diploma

Do you have a GED (General Education Development)?

☐ No, I do not have a GED

☐ Yes, I have a GED

Mother’s highest level of education?

☐ Less than high school diploma (no GED)

☐ GED

☐ High school diploma

☐ Postsecondary certificate

☐ Associate degree

☐ Bachelor’s degree

☐ Graduate/professional degree

☐ I do not know
Mother’s occupation?

____________________________________

☐ I do not know

Father’s highest level of education?

☐ Less than high school diploma (no GED)

☐ GED

☐ High school diploma

☐ Postsecondary certificate

☐ Associate degree

☐ Bachelor’s degree

☐ Graduate/professional degree

☐ I do not know

Father’s occupation?

____________________________________

☐ I do not know

What is your status?

☐ Part-time student

☐ Full-time student
What best describes your employment status over the last year?

- I worked full-time for 6 months or more last year
- I worked part-time for 6 months or more last year
- I was not employed for 6 months or more last year

If you are currently employed, is the work you do related to what you are studying?

- No
- Yes
- I am not sure

What was your grade point average when you left high school (regardless of the reason for departure – graduation, dropped out, etc.)? If you do not remember, give your best guess.

___________

- I have absolutely no idea
Appendix F: Employee Questionnaire

Please answer the following questions.

What is your name?

__________________________________________________________________________________

For about how many years have you been teaching/advising?

__________________________________________________________________________________

Is your role at [name of current college] considered part-time or full-time?

__________________________________________________________________________________

When did you begin working at [name of current college]?

(Month, Year)

__________________________________________________________________________________

How would you characterize your current professional responsibilities at [name of current college]?

(check all that apply)

☐ Teaching

☐ Advising

☐ Other

If other, please explain below.
Do you also currently work in the industry for which you teach/advise?

If you have industry experience, about how many years of experience do you have?
Appendix G: Family Member Questionnaire

In order to collect personal and demographic information which may be relevant to the study, please answer the following questions.

What is your name?
____________________________

What is the name of your child who is pursuing a certificate in manufacturing?
____________________________

Does your professional history include work in the skilled trades?
____________________________

For approximately how many years have you lived in Michigan?
____________________________

What is your highest level of education?

☐ Less than high school diploma

☐ Graduate Education Development (GED)

☐ High school diploma

☐ Postsecondary certificate

☐ Associate degree

☐ Bachelor’s degree

☐ Graduate/professional degree
Have you ever participated in an apprenticeship program?

☐ Yes

☐ No

☐ I am not sure

What was your family’s annual gross income last year?

☐ $0 - $20,000

☐ $20,000 - $75,000

☐ $75,000 - $150,000

☐ $150,000 - $250,000

☐ $250,000 - $400,000

☐ $400,000 or more
Appendix H: IRB Approval

RESEARCH @ EMU

UHSRC Determination: EXEMPT

DATE: April 18, 2017

TO: Amy Detrickson
Department of Leadership and Counseling
Eastern Michigan University

Re: UHSRC: # 1005348-1
Category: Exempt category 1
Approval Date: April 18, 2017

Title: College-For-All Meets Skills Gap: Millennials’ Decisions to Pursue Certificates

Your research project, entitled College-For-All Meets Skills Gap: Millennials’ Decisions to Pursue Certificates, has been determined Exempt in accordance with federal regulation 45 CFR 46.102. UHSRC policy states that you, as the Principal Investigator, are responsible for protecting the rights and welfare of your research subjects and conducting your research as described in your protocol.

Renewals: Exempt protocols do not need to be renewed. When the project is completed, please submit the Human Subjects Study Completion Form (access through IRBNet on the UHSRC website).

Modifications: You may make minor changes (e.g., study staff changes, sample size changes, contact Information changes, etc.) without submitting for review. However, if you plan to make changes that alter study design or any study Instruments, you must submit a Human Subjects Approval Request Form and obtain approval prior to implementation. The form is available through IRBNet on the UHSRC website.

Problems: All major deviations from the reviewed protocol, unanticipated problems, adverse events, subject complaints, or other problems that may increase the risk to human subjects or change the category of review must be reported to the UHSRC via an Event Report form, available through IRBNet on the UHSRC website.

Follow-up: If your Exempt project is not completed and closed after three years, the UHSRC office will contact you regarding the status of the project.

Please use the UHSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the UHSRC office.

Good luck in your research. If we can be of further assistance, please contact us at 734-487-3090 or via e-mail at human.subjects@emich.edu. Thank you for your cooperation.

Sincerely,

Beth Kubitskey
Chair
College of Education Human Subjects Review Committee
Appendix I: Definitions of Key Terms

Apprenticeship—Formal relationship between a worker and an employer sponsor consisting of on-the-job training and classroom instruction. The classroom portion is often provided by community colleges which may provide college credit to the apprentice.

Career and Technical Education (CTE)—Formally referred to as vocational education. CTE is high school coursework and postsecondary programs that focus on knowledge and skills in preparation for certain occupations. Currently, common CTE fields include but are not limited to information technology, healthcare, construction, manufacturing, maintenance and repair, and transportation.

Certificate—Credential that prepares students for positions in vocational fields that require less than a four-year degree and are primarily accomplished via classroom instruction in community colleges and private for-profit schools. Although certificate programs may contain some academically oriented courses, most certificates are predominantly vocational, associated with a limited set of occupations, and do not require academic abilities beyond a 10th grade level. Certificates are typically shorter than associate degree programs varying in length from less than a year to two years of full-time enrollment. Most certificates are more similar to degrees than certifications and licenses. Although there are certificates offered at the baccalaureate and graduate levels, they are a very small minority. These certificates are usually not included in references to certificates in general and are not part of this study or this review of literature.
College choice-Developmental process model capturing a variety of variables that influence and often dictate decisions regarding application to and enrollment in college that begins long before college entrance.

College-for-all-Belief that changes in the economy and subsequent demands on labor have made college critical to the future success of American youth and the U.S. as a whole. Consequently, there is now an expectation that every high school graduate should attempt to earn a college education. This education is often defined as a bachelor’s degree. This BA-centric college-for-all mantra has resulted in a significant increase in the number of emerging adults enrolling in college.

Community college penalty-Belief that students who begin their college career at a community college are less likely to graduate with a bachelor’s degree than students who start at a four-year college.

Credentialism-A conflict theory of educational stratification. According to credentialism, credentials are an arbitrary way of controlling access to resources via elite careers. College degrees are minimally related to skills and do not represent knowledge that can be directly applied to occupational responsibilities. School does not accomplish what most believe it is supposed to do which is teach useful skills to students. Instead, credentials signify status and their value lies in their ability to be traded for elite occupational positions.
Generational theory-Belief that individuals born during the same time period share experiences at similar stages of their lives. As history and pop culture help form their values, beliefs, attitudes, and views, these generational similarities predict the manner in which a cohort reacts to social and political events and issues. As a result, it is believed that generations are significantly different from each other.

Jobbing-out-Term used to describe the act of students in CTE leaving programs prior to completion because they received enough training to progress professionally.

Millennial generation-The cohort of today’s emerging adults often defined as being born roughly between the years 1982 and 2000.

Remedial/developmental education-Course some underprepared students must complete before beginning college-level coursework. The goal of the coursework is to increase students’ competencies in core academic areas such as literacy and mathematics.

Skilled trade-Occupational craft that requires specific training and skill.

Skills gap-Term used to describe the difference between the skills employers need and those that are available from job candidates.
Sub-baccalaureate-College credential awarded after the completion of a program below the level of a bachelor’s degree. Common examples of sub-baccalaureate credentials are postsecondary diplomas, certificates, and associate degrees.

Undermatching-When a student attends a less selective college than they are qualified for. At times, the term undermatching also includes the experience of high school graduates who do not proceed to college even though they are academically capable of doing so.