

**Career Pathways and Academy Experiences: A Study of High School College and Career
Readiness**

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of the requirements for the degree of
Doctor of Education

University of Pittsburgh

2019

UNIVERSITY OF PITTSBURGH
SCHOOL OF EDUCATION

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The purpose of this study was to evaluate the degree to which Fairview High School was meeting the goals of its Career Pathways and Academies program. In addition, the study establishes next steps and recommendations for the Career Pathways and Academies program based on the findings. The study was guided by three research questions addressing factors influencing students' Pathway selection, the Pathway/career connections that they are experiencing in their courses, and the degree to which the school's Curriculum Planning Guide influenced with Pathway course selection.

The Fairview School District superintendent granted the surveyor permission to survey the students at Fairview High School. The survey was shared with all students at the high school, and it contained thirty-eight items, which collected identifying data (gender, grade level, and Pathway enrollment), and it took approximately ten minutes to complete. Three hundred seventy-nine students responded (69.4% response rate). The results of the study indicate that students are selecting their Pathways for appropriate reasons (abilities, interests, passions). However, they are experiencing few Pathway/career connections in their high school classes, and the Curriculum Planning Guide has little influence on their course selections. The study proposes plans for increasing the frequency and relevancy of classroom connections and use of the Guide. The study also identifies differences in the female/male Pathway experiences and makes recommendations

to assure equal opportunity and experiences that reinforce college and career readiness skills as students prepare for their post-secondary experiences.

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Preface

All of the experiences that were a part of my journey through this dissertation process were rooted in my professional commitment to help students grow as young adults and develop the skills that they will need for post-secondary success while becoming life-long learners. Although it was a professional and personal challenge, the dissertation and its problem of practice was a continual source of motivation and inspiration because it was rooted in my place of practice and impacted the lives of students with whom I shared conversations and experiences each day.

I am more than appreciative and grateful for the support and advice provided by my dissertation committee. Dr. Galla and Dr. Pushchak helped me craft a survey that would provide a true measure of students' experiences while asking me thoughtful questions that allowed me to see connections in my research. I am extremely thankful for my advisor, Dr. Longo, and his patience, professionalism, and expertise throughout this process. He continually challenged me to reflect about what I really wanted to know and what I would do truly learn about my problem of practice. I thank all three of you for the ways in which you both challenged and encouraged me to grow as a scholar and professional through my research and analysis that, at its core, is rooted in a student learning and growth.

I am most grateful for the love and support from my family. I want to thank my parents for their unconditional love and guidance through all of my journeys. Most importantly, none of this is possible without the patience, love, and inspiration from the three people who make my world turn and sun rise: Becky, Lydia, and Nora. Thanks for steering the ship while I played school.

1.0 Introduction

Stories and narratives that dominate the news cycle represent topics ranging from economic indicators, such as employment statistics and degrees of income inequality, to social issues like substance abuse or the stability of the family structure. Despite the economic improvement since the Great Recession, the spectrum of challenges facing both members of the workforce and recent high school graduates is wide and comprehensive in its reach (Davis, 2015). Although seemingly different and unrelated, these topics share a common thread: jobs and the contemporary workplace environment.

The connections between these life and career challenges are readily evident in my professional practice as a secondary school principal because high school is the last obligatory stop on students' educational journey. A community has a shared and vested interest in the experiences that their schools provide for students and the quality of its schools. Public schools are evaluated and assessed by a myriad of ever-changing external measures that change with the financial and philosophical preferences of the current state and national political leaders. This constantly changing landscape of expectations has left schools potentially rudderless and without a compelling or shared focus (Ravitch, 2016, pp. 17–18). Rather than fixating on the school's most recent performance on the SAT or ever-changing state accountability measure, the connection between schools and the challenges we face as a community of citizens lies in our ability to establish and understand a purpose.

The idea of a shared purpose of and for education is somewhat elusive because schools, high schools in particular, have been the focus of the debate about a defined purpose for more than a century in the United States; however, all of the conclusions, solutions, and resolutions in some

way address how and why schools prepare students for life after high school (Labaree, 1997). If postsecondary life defines schools' purpose, it is the responsibility of schools to provide programs that meet the needs of all students. The most recent literature addressing how schools can meet students' college and career readiness needs focuses on career pathways and career academies (Bragg & Krismer, 2016; Castellano, Richardson, Sundell, & Stone, 2017; Hemelt, Lenard, & Paepflow, 2019; Kemple & Snipes, 2000; Meeder, 2016; Stern, Dayton, & Raby, 2010). This study will add to the existing literature through its analysis and evaluation of one school's college and career readiness program implementation; it also reviews the current program and its components to identify needs and assess opportunities for authentic career connections for all students and those participating in career academies.

1.1 Purpose of the Study

The current college and career readiness program at Fairview High School involves a system by which students informally identify career pathways based on their interests, abilities, and coursework selections; the program also offers a STEM Academy experience for a limited number of students, who have been selected as a result of an application and interview process (a more detailed description and program goal statements are addressed in section 3.2). The purpose of this study is to evaluate the Career Pathways program at Fairview High School, specifically the degree and manner by which the school is meeting its stated goals and providing the students with authentic career exploration experiences that enable them to analyze and make informed decisions related to career readiness. The study will seek to determine if FHS is preparing students for

postsecondary life while identifying the strengths and areas for improvement in the Career Pathways program. As a result, the following research topics and questions will guide the study:

1. Career Pathways Experiences: Are the current Career Pathway options meeting students' academic and interest needs?

RT1.1: What factors influence students' Pathway selection?

RT1.2: What types of Pathway connections are students experiencing in their courses?

RT1.3: In what ways does the Curriculum Planning Guide influence student course and Pathway selection?

1.2 Significance of the Study

The significance of the study is that by evaluating and improving the pathway and academy experiences, the school's career pathway and academy program will reflect research-based best practices as established by Bragg and Krismer (2016), Bragg and Taylor (2014), Castellano, Richardson, Sundell, and Stone (2017), Kemple and Snipes (2000), Meeder (2016), Schwartz (2016), and Stern et al. (2010) that support the development of college and career readiness and the most current and innovative program opportunities. The summative intent of pathways and academy programs is to change the mindset of students from that of simply planning to graduate to, instead, graduating with a plan. The Fairview High School Career Pathways and Career Pathways Academies were created to facilitate this change, and an evaluation of the program goals will identify the program needs and degree to which it is supporting students' college and career readiness.

1.3 Key Terms and Definitions

The most commonly referenced definitions of *career pathways* and *career and technical education* have their origins in the Perkins Career Technical Act of 2006; the most recent reauthorization of this bill (2018) uses those same definitions, which capture the intent of any reference to the terms in this study:

- Career Pathways are “a combination of rigorous and high quality education, training, and other services that . . . prepares an individual to be successful in any of a full range of secondary or postsecondary education options . . . [and] support an individual in achieving the individual’s education and career goals.”
 - In the context of the program at Fairview High School, Career Pathways are the five categories around which students may focus their studies and courses in preparation for college and/or career postsecondary experiences.
- Career and Technical Education is “organized educational activities that offer a sequence of courses that provide individuals with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions.”

Career academies, as defined by Meeder (2016), offer opportunities for students who have the skill and interest in a particular field or profession to pursue focused coursework, workplace experience, and authentic learning experiences. The Fairview High School program goal for Pathway Academies reflects these three traits and includes mentor-based project development as a component of an authentic learning experience.

College and career readiness (CCR) in the context of this study and the program at Fairview is based on the work and definition from Lombardi, Conley, Seburn, and Downs (2012)

that defines CCR as students' ability to leave high school with the skills and knowledge that are transferable to any postsecondary setting.

2.0 Literature Review

2.1 Introduction

National and state education policy from the past half century does not provide a clearly defined set of goals for high schools in the United States. Instead, schools have played the role of scapegoat for all that ails the country at a particular moment in time. Whether the concerns are social, political, economic, or philosophical, America's high schools have careened among policies and expectations that reflect competing aims for the educational system that have manifested themselves in charter schools, various routes to teacher certification, high-stakes assessments, skills-based learning, standards-based learning, privatization, and a myriad of other similar iterations. The unifying factors of these initiatives are their disjointed implementation, their short-term impact, and their inability to craft a unifying vision for school policy. Labaree (1997) summarizes these shortcomings by identifying three conflicting purposes for American schools: schools should focus on preparing citizens for democratic equality; schools should focus on training workers for social efficiency; and schools should focus on preparing individuals for social positions and social mobility (pp. 43–50).

The guiding purpose of high school education should bridge these approaches by focusing on what students need to succeed in any postsecondary setting. This mindset of college and career readiness (CCR) represents a fusion and blending of what had been competing visions regarding what students should be prepared to do when leaving high school. Lombardi et al. (2012) defines CCR as students having the “knowledge, skills, and learning strategies necessary to begin studies in a career pathway” (p. 164). These students have the skills and knowledge to be successful in

any postsecondary setting. This approach reinforces the importance of moving beyond grade point average and standardized test scores as postsecondary gatekeepers because they have proven unreliable and inaccurate predictors of what students need to succeed in college and careers.

Students should leave high school prepared for opportunities that match their needs and interests with those of the workplace and further education. Bragg and Taylor (2014) establish the need for postsecondary coursework while exploring the different career and college readiness models and the outcomes that schools produce for students. Schwartz (2016) addresses this growing need for alternatives for students by addressing the anxieties emanating from several corners: employers, parents, graduates, and postsecondary schools. Be it college graduates entering the workforce with skills not appropriate to their field of work or parents' and students' growing concerns about the returns on the investment of a four-year college education (Schwartz, 2016, p. 745), there is a need to revisit the traditional approach to both high school and preparation for life afterward. Schwartz acknowledges that an overwhelming majority of students do need educational opportunities after high school to find and enjoy successful careers, but that is not the same as saying that all students need a four-year college degree. As students and families revisit the college-for-all mentality and approach to education, it is imperative that high schools provide opportunities for students to explore their postsecondary interests so that they are making more informed decisions regarding their futures.

Conley and French (2014) establish the Four Keys of College and Career Readiness that require of students both cognitive and metacognitive skills in the form of content strategies, context knowledge, skills and techniques, and transition knowledge and skills (p. 1019). These hallmarks of learning establish a “multi-dimensional construct” that exceed the low bar of being merely “work ready” or “job trained,” descriptors that do not meet the needs of today’s postsecondary

environment (Lombardi et al., 2012, p. 164). Preparing students to be college and career ready when they leave high school means that they are more than just eligible for their next academic or professional progression; instead, they have the skills that are transferable and meet the needs of an ever-evolving landscape of life after high school.

A sizeable portion of the research in this area addresses the various success models of career pathway implementation that support the universal goal of college and career readiness for high school graduates. Career pathways provide an opportunity for students to explore different careers and areas of student interest through coordinated coursework progressions. Pathways do not lock students into a career decision—they allow for flexibility and mobility as students’ interests and abilities evolve throughout high school. Bragg and Krismer (2016) explain that pathways “provide guidance and support to enter, navigate, and complete college as the end goal of securing employment is always in sight” (p. 63). This flexibility mirrors a postsecondary life that is not linear and involves several career and academic movements during a lifetime of work and study.

Within career pathways, career academies offer opportunities for students who already have the skill and interest in a particular field or profession to pursue focused coursework, workplace experience, and authentic learning experiences (Meeder, 2016). In conjunction, pathways and academies create a universal purpose and goal for high schools built on a foundation of career and life readiness.

Creating career pathway and academy options for high school students is not a new idea; however, the methods of implementation, mindset, and scope have changed over the past two decades. What was once primarily an initiative that focused on retention strategies for at-risk students or purely vocational training has evolved into an educational approach that creates

opportunities for all students to leave high school with experiences that make them well-informed decision-makers who are prepared for postsecondary success.

2.2 Career Pathways and Career/Technical Education

Adopting a mindset of better-informed decision-making that defines the purpose of high school begins with meeting the needs of all students. Despite the traditional high school approach to college preparation, a large number of students would be well served in the current and future job market with a focus on career and technical education (CTE) opportunities. However, stand-alone CTE programs that function independently of other college and career readiness programs can discriminate against several groups of students. Kuo (2010) notes that the sole use of pull-out CTE programs can stigmatize disadvantaged students (p. 391). Hemelt et al. (2019) reinforce these findings and not the advantages of pathways systems that serve a wider swath of students and do not isolate CTE students in either their experiences or school placements. Career pathways and career pathway academies develop smaller learning communities that cater to the needs of different groups, regardless of their postsecondary plans. Career pathway academies provide opportunities for students with these interests while also serving the overall population of students with positive learning experiences.

Students who see connections between their education, interests, skills, and future have a vested interest in their learning. Christensen, Knezek, and Tyler-Wood (2015) study the specific impacts that science, technology, engineering, and math activities have on the disposition of students toward their studies and school. Their research notes that students who participate in the engaging STEM activities both in class and after school have a better disposition toward both

STEM content and school in general than do students in the control group (Christensen et al., 2015, p. 898). These engaging projects and learning opportunities translated into positive school dispositional effects for the mainstream student population as they saw more of these lessons emerge in their science and math coursework. This same study revealed that when students with STEM-specific interests were allowed to engage in authentic learning experiences, they adopted the dispositions and attitudes toward their work that mirrored those of professional STEM adults in the workplace (Christensen et al., 2015, p. 907). When students are engaged in their learning and the act of doing rather than consuming from a textbook, they adopt the attitudes of lifelong learners, and this is true for a building of students, not just those in the STEM-specific fields.

Creating pathways for career, technical, and educational opportunities for students can change the climate and tone of learning in a high school. Stipanovic, Stringfield, and Witherell (2017) found psychological effects similar to those noted in Christensen as they explored the connections between career pathways/programs and student engagement and self-efficacy. The importance of this study lies in its expanded analysis beyond students in STEM-related fields (Stipanovic et al., 2017, p. 210). Upcoming research in this document will address the impacts that career education and pathway programs have on graduation, grade point averages, and other high school measures, but it is this research that demonstrates the value of reaching all students through pathway opportunities in their career and educational areas of interest. In this study, the researchers utilize the social cognitive career theory (SCCT) to understand students' "career choices and career development [and] framework for career pathway programs" framed by self-efficacy beliefs, career expectations, and personal goals (Stipanovic et al., 2017, p. 211). The researchers found that when students have the support to match their skills with a career choice and career pathway program, they develop a desire to take more challenging coursework

throughout high school; believe that they are better prepared for either college, postsecondary education, or work; and reflect positive increases in all three of the social cognitive framework areas related to self-efficacy (Stipanovic et al., 2017). These studies provide quantitative rationale for creating pathway programs for students that allow them to develop understandings of how their skills and interests relate to their desired careers and their necessary challenges.

Students and schools adopting a mindset that models positive dispositions toward postsecondary options while also seeing value in students' social cognitive understanding of the relationship between their education and future options provides a strong foundation upon which students can explore career, technical, and education pathway options. It is important that the research also reflects positive impacts on student performance that mirrors students' readiness while they are in school and the years beyond their secondary school experiences. Castellano, Richardson, Sundell, and Stone (2017) studied the effects of career pathways and programs of study enrollment on students' grade point averages and graduation rates. Their research found that students in CTE pathway and programs of study did have higher graduation rates than their mainstream peers; however, they found no effect or difference between the groups' grade point averages. In addition to the grade point average and graduation findings, this study also identifies skills developed by the pathway students that exemplify career readiness: academic skills that allow them to enter their college studies without remediation coursework; employability skills (i.e., soft skills like ethics, critical thinking, professionalism, and teamwork); and technical skills related to their pathways and programs of interest (Castellano, Richardson, Sundell, & Stone, 2017, p. 48). The skill acquisition measures were encouraging, but the minimal or possibly negative academic effects of pathway involvement could be reason to pause.

However, in the year that followed, Castellano expanded her research to include a larger sample size of students and students who were enrolled in different types of pathway programs. Castellano, Sundell, and Richardson (2017) compared graduates who completed a specific program of study with those students taking general CTE courses. This research found that students enrolled in coordinated programs of study fared better in terms of grade point averages, higher grade point averages in POS and CTE courses, and the number of college credits that they earned (Castellano, Sundell, & Richardson, 2017, p. 270). This research suggests that “learning in context is more consistent with adolescents’ attention and motivational biases for learning through exploration, storytelling, and apprentice-like pedagogy” (Castellano, Sundell, & Richardson, 2017). When the curriculum and learning experiences coordinate with students’ learning styles and interests, the students see their coursework and learning as more than obligatory and boxes to check; instead, they build the connections between their time in school and their futures by seeing the connections between their skills, interests, and postsecondary preparation. Bragg and Krismer’s (2016) research also addresses the readiness factors inherent to a successful high school pathway program. Bragg and Taylor (2014) establish “four dimensions” of college readiness that can be blended with the previously mentioned CTE expectations to create meaningful measures by which programs can be compared and evaluated. It is important for students to have “key cognitive strategies” that enable them to engage in college-level thinking; they need “key content knowledge” from their core discipline experience in high school; students should develop “key learning skills and techniques” similar to Christensen’s (2015) traits of self-efficacy and motivation; and students need experiences to help them embody “key transition knowledge and skills” that will help them navigate the differences between high school and college (Bragg & Taylor, 2014, pp. 999–1000).

Bragg’s research continued to examine the hallmark traits of effective programs of study in the 2016 study, “Using Career Pathways to Guide Students through Programs of Study” (Bragg & Krismer, 2016). This analysis of the effective pathway programs at the community college level reveals six traits that should shape creation and evaluation of pathway systems: career-focused curriculum and instruction, competency-based core curriculum, stackable credentials (this is less important at the high school level, but there are some certifications and credentials specific to certain fields), intensive student supports, accelerated credit attainment, and contextualized developmental education (Bragg & Krismer, 2016, pp. 67–68). These traits are applicable in high schools’ career pathway and academy programs, as well. Yes, the Pennsylvania Department of Education has established five career pathways for students; however, schools must develop the hallmarks and traits of these programs of study in ways that they can evaluate and measure over time. The four dimensions of student readiness and the six habits of effective programs established in Bragg’s research (2014, 2016) should guide pathway program formation both in terms of the program traits and how schools measure students’ growth during their time in high school.

2.3 College and Career Readiness Program Variations

Two decades of research and practice reveals the advantage of various career-related programs of study for high school students. However, which version will be the most appropriate and best fit for a high school? The three most common iterations of programs of study manifest themselves in the form of stand-alone programs, career academies, and early-college high school. Regardless of the school system, many schools work in affiliation with some version of a career technical school, and the students accepted into the programs attend stand-alone programs on their

campus. These are valuable and meaningful programs, but they serve a small percentage of students in an off-campus setting. Early-college high schools are also effective; their most positive results, however, focus on low-income and first-generation college students (Castellano, Richardson, Sundell, & Stone., 2017). Schools will continue to meet the needs of both of these student populations, but they need to evaluate options that address the needs and interests of all students. The research overwhelmingly supports the value of career academies within a pathway system because of their combined ability to serve the purpose of college and career readiness for high school graduates.

Career academies can create smaller groups of students within each of the pathways who cater their coursework to focus their elective credits on pathway-specific learning. These students are able then to build connections between their traditional courses, their pathway courses, and their experiences beyond the classroom. Teaming with community employers and college partners fortifies these connections and enhances the academic experience for students as they develop career-specific research projects and spend time in the field accumulating internship hours (Stern et al., 2010). There are somewhat similar options available in vocational stand-alone programs and early-college high schools, but only career academy systems blend all of the characteristics of successful programs that would best prepare students for all of their postsecondary options. The earliest iteration of career academies nearly thirty years ago focused on vocational options and education. Today, the focus has evolved, and schools now create career academies that prepare students for work, college, and a wide variety of other postsecondary options.

Research by Kemple and Snipes (2000) in their landmark study “Career Academies: Impacts on Students’ Engagement and Performance in High School” supports this career academy framework and positive impacts for students. This research is unique because it tracked students

from eighth grade through the remainder of their high school experiences; it compared students who had access to academy programs and those who did not; and it created a rich database from survey information, performance indicators, standardized test scores, and seven years of qualitative information gathered from site visits (Kemple & Snipes, 2000, p. viii). Several important findings in this report further support schools' plans to create career pathway academies.

When students enroll in career academies, they develop more meaningful relationships and interpersonal support through their career counseling and relationships with mentors from their community. These connections, in turn, also increased their level of engagement with school. Career academy participation also improved student performance among those at risk of dropping out, while increasing the likelihood that they will graduate on time (Kemple & Snipes, 2000, p. ES-2). This research, like others referenced in this review, reiterates the importance of interpersonal supports that students need when navigating the requirements of traditional coursework and those of their academy program; in fact, this study found that when schools did not have the proper support structures in place for students, dropout rates increased, levels of school engagement decreased, and students did not utilize the valuable mentor relationships (Kemple & Snipes, 2000, p. 4).

Ashford, Lanehart, Kersaint, Lee, and Kromrey (2016) arrive at similar conclusions when comparing career academy students with students from traditional curriculum programs. Their research notes that STEM academy students in Florida who did not receive frequent and meaningful interpersonal supports from either their counselors or teachers had lower levels of persistence in challenging math and science courses (Ashford et al., 2016, p. 962). These findings are complicated by the fact that female students entered math courses with the same level of ability as their male peers; however, by the time they concluded their high school math experiences, their

persistence levels had decreased at higher rates than their male counterparts (Ashford et al., 2016, p. 976). This is especially troubling because it is precisely these rigorous mathematics and science courses, whether taken by male or female students, that form the foundational prerequisites for success in nearly all postsecondary STEM courses and careers. Although these findings are STEM-specific, schools should consider similar challenges when creating pathway and academy frameworks. All of these findings note the potential impact of not providing enough support structures and relationships for students taking on the challenges of career academies.

Another potential obstacle to successful implementation is program cost. Maxwell and Rubin (2002) note that “career academies may not be equally effective at increasing education for all demographic groups . . . and their increased cost over more traditional programs cautions universal adoption” (p. 138). Costs are always a factor in program consideration and adoption, but these conclusions from Maxwell and Rubin are limited in their implication because the study focuses on at-risk students in urban, public school settings. The most effective career pathway academies have students from across the demographic and academic spectrum. Smaller schools with fewer students at risk have the fortune of being able to focus on and target the needs of these students when they represent a smaller portion of the population.

Career academies remain the best high school career pathway choice for schools embracing the visionary purpose of preparing students for all of their postsecondary options. There are very real and tangible benefits to participation in career pathway academies. Page (2012) notes that students who participate in career academy settings earn on average \$588 more than their peers who only partially participate in an academy or do not participate in any focused coursework. Monetary benefits are real, but a life-long career and the personal satisfaction that comes with it requires matching students’ skills and interests with the appropriate career options. Achieving this

in four years of high school is possible yet challenging. Understanding the potential challenges and obstacles of inadequate support and costs will make it easier to anticipate areas for potential setbacks and focus schools' efforts on meeting students' needs while exploring responsible options that will be conscious of spending. This is balanced by the strong performance throughout the research by career academy students both in high school and during their postsecondary options, which outweighs drawbacks that can be accounted for or averted with purposeful and thoughtful planning.

2.4 Career Academies

Schools that create career academies then face the challenge of creating a system that best meets the needs of students who have identified and committed to a specific interest. As schools continue to look to prepare students for life after high school, career academy programs must fit within schools' dynamic career pathway scheduling system and provide meaningful opportunities for students. Schools should develop resources to guide students through conversations with school professionals (e.g., counselors, teachers, administrators) that help them select the most appropriate pathways. The resources help students select coursework that will both expose them to career options and prepare them for postsecondary experiences. Students who identify a passion and keen interest for certain fields have the opportunity to apply for membership in academy programs. Moving from planning stages to implementation requires a comprehensive framework that details the structure of the pathway and career academy organization. The most current and definitive resource for pathway and academy creation, Meeder's *The Power and Promise of Pathways: How To Prepare All American Students for Career and Life Success* (2016), profiles

eight high school pathway programs and how they each prepare students for career and life readiness. Despite their differences, each of these programs is structured around four themes that drive program creation: Program Structure, Program Leadership, Program Alignment, and Program Connections (Meeder, 2016, p. 91). These themes form the characteristics by which schools can measure the success of pathway academy implementation.

In terms of Program Structure, school size can determine the degree of effectiveness for cohort scheduling, but pathway academies can be open to all students and exist from tenth through twelfth grades after being exposed to career exploration in middle school and utilizing pathway and academy scheduling resources as they enter high school. Neubig (2006) provides insights on the challenges of scheduling career pathway academies in traditional high schools. He notes the advantages of utilizing a “flexible block schedule” in which classes can be extended for cross-curricular connections or extended project work (Neubig, 2006, p. 42). This research also highlights the importance of a teaching staff mindset that supports community learning, common planning time, and student support structures like those noted in previous research. Orr (2005) notes the importance of effective staff professional development in creating a shared vision of developing college and career readiness (p. 453). Sawchuk (2013) highlights the need to provide students with the flexibility to change pathways without falling behind in their core coursework. Students would ideally find themselves in pathways suited to their skill sets and interests; however, it is certainly possible that after spending some time with pathway courses or field experiences, some students may discover a dislike for some aspect of a profession or develop interests elsewhere. These are the challenges of working with students and their naturally evolving preferences, which reinforces the importance of schedule flexibility.

Another challenge lies in developing skills that are applicable in a variety of settings. Abdul-Alim (2017) notes the importance of allowing students to create schedules and take part in pathways that develop skills that are “transferable, stackable, and portable” (p. 20). It does not serve students’ needs to have pathways that have no real or natural progression or next step. Student schedules are at the heart of their learning experience, and pathway academies require personalized learning structures that allow students to thrive in a specialized setting while remaining part of a larger structure.

Program Leadership unifies the efforts of an advisory committee for each academy and the academic department heads to create elective course offerings. Talented teachers and effective class selection play important roles in assuring that all students are ready for future experiences. Leadership roles involve school counselors, as well, and their ability to match students with the appropriate pathway and academy options. Withington et al. (2012) specifies that schools in academy settings should have “student-to-guidance personnel ratios of 300 to 1 or less” (p. 148). As teachers craft appropriate and properly placed course offerings, counselors properly identify students’ skills and interests early in the process and monitor and measure their progress through the career pathway academy structure.

In Pennsylvania, schools’ courses naturally align with the Pennsylvania Department of Education standards, and the career academies achieve Program Alignment through “connections between required academic courses and career-themed electives” (Meeder, 2016, p. 92). Lombardi et al. (2012) establish the difference between readiness and eligibility as descriptors of high school graduates. Students may be eligible for college or certified in certain skills, but many students meet these eligibility requirements while also requiring academic or on-the-job remediation (Lombardi et al., 2012, p. 162). Career academy coursework should prepare students who are

college, career, and work ready, which means that they have the skills and knowledge required of postsecondary career studies or the basic expectations for entry-level workplace behavior (Lombardi et al., 2012, p. 165).

The most important trait of an academy system lies in its Program Connections to postsecondary institutions and the regional professional community where students pair with experts in their fields of interest, who serve as mentors to their academy internship and project development. Sawchuk's (2013) examination of career academy systems reflects the real-world experiences that establish career exposure for students. This research summarizes the importance of creating substantive relationships between professional communities and school that go beyond the traditional requests of financing or monetary support for schools. A career pathways academy system needs to involve professional members of the community in the creation of "problem-based learning experiences" and in the fostering of mutually beneficial apprenticeship and mentor relationships where students can develop the skills needed for postsecondary success (Sawchuk, 2013, p. 3). According to Schwartz (2014), the United States could learn a great deal from the career education programs in countries like Austria, Denmark, Finland, and Germany and their relationships with professional entities in their communities (p. 26). Employer involvement in these settings involves them having a hand in both designing curriculum and creating standards that match the needs of the labor market. Our political structure may not allow for something this nimble, and our economic workforce needs vary by region, but there is still an important role for community professionals to play in helping to ensure that our students will have the skills necessary to succeed in various postsecondary settings.

2.5 Conclusion

Schools have an expectation to prepare students to leave high school with the knowledge and skills required in postsecondary life. Meeder (2016) posits that “the true aim of education is to develop individuals who are ready for postsecondary success, for career success, and for life success, a learner who is Career and Life Ready” (p. 105). This stated purpose of education and high school is reflected in the shared purpose of college and career readiness that take the form of career pathways and career academies. Creating career pathways and career pathway academies allows students to be assets to their community, employer, and school where they learn the skills and competencies necessary in constantly evolving postsecondary settings.

3.0 Methods

This chapter opens with a statement of purpose and the questions answered in the study. The section then establishes the context of the study and describes the participants. Following that, I provide a description of data collection procedures, along with the procedures by which I analyze the data.

3.1 Research Topics and Research Questions

Prior to the 2017-2018 school year, Fairview High School did not have a building-wide system in place to develop students' college and career readiness. In an attempt to meet the ever-changing needs of postsecondary life while also providing students with authentic career experiences, Fairview High School began the process of creating a Career Pathway and Career Academy system that utilizes the following goals as its foundation:

1. To provide opportunity for all students to utilize a coherent program of studies structured by career pathways that will prepare students for postsecondary education and meaningful careers.
2. To provide students with experiences that encourage better informed decisions about postsecondary plans.
3. To create structures that encourage students to explore pathways based on their abilities and interests.

4. To provide Career Academies that utilize specified coursework, professional mentors, and project development for students who are passionate about pursuing a specific career and/or pathway.

The first stage of the program began in the second semester of the 2017-2018 school year as students selected their courses for the 2018-2019 school year through the lens of Career Pathway coursework progressions and the opportunity to apply for membership in a STEM Academy. A sizeable portion of the research in this area addresses the various success models of career pathway implementation for high schools. Bragg and Taylor (2014) establish the need for students leaving high school to be prepared for postsecondary coursework while exploring the different career and college readiness models and the outcomes that schools produce for students.

The purpose of this study is to evaluate the Fairview High School Career Pathways and Career Academy program and its goals, specifically the degree and manner by which the school provides all students with authentic career exploration experiences that enable them to analyze and make informed decisions related to career readiness. The study also seeks to determine the degree to which Fairview is providing career-connected learning experiences for students while identifying the strengths and areas for improvement in the Career Pathways and Career Academy programs.

Research Topic and Questions

1. Career Pathway Experiences: Are the current Career Pathway options meeting students' academic and interest needs?

RT1.1: What factors influence students' Pathway selection?

RT1.2: What types of Pathway connections are students experiencing in their courses?

RT1.3: How does the Curriculum Planning Guide influence student course selection?

If the purpose of the pathway system is to provide career programs of study in which students can enroll in courses and take part in field experiences that reflect their career areas of interest, this study determines the degree to which those are the results produced by the Pathway structure.

3.2 Context

Fairview High School is a suburban/rural district in Erie County in northwestern Pennsylvania. The school includes approximately 549 students in grades nine (9) through twelve (12). Fairview's students are 90% white, 5% Hispanic, 4% black/African-American, and 1% Asian. Approximately 19% of students receive free/reduced lunch; less than 1% of the student population is classified as English Learner, and 9% of the students receive special education services. In the last ten years, the percentage of economically disadvantaged students has doubled, and the percentage of special education students has increased by one third.

The Pathways program at Fairview High School mirrors established categories by the Pennsylvania Department of Education: Arts and Communication; Business, Finance, and Information Technology; STEM (Science, Technology, Engineering, and Math); Human Services; and Health and Science. Each curricular department at the high school contributes to the Pathway course progressions that organize for students the types of courses that they can explore during their time at Fairview High School to meet their career skills and interests. School counselors and students utilized this information in a Curriculum Planning Guide while scheduling for the 2018-2019 school year. Students who want a STEM experience that goes beyond mere exploration have the opportunity to apply for the STEM Academy. The school is considering expansion of the

Academy experience to the other Pathways while also exploring more non-traditional career learning experiences for students.

3.3 Participants

The study involves a survey of the student body (see Appendix B). The survey gathers data from the student body at Fairview High School, which includes approximately 549 students in grades nine through twelve. Students participating in the survey remain anonymous aside from information about their gender and grade level. With this relatively large sample size, these two pieces of information can provide insights into potential gender influences on the Pathway process while also noting how students at different grade levels respond to the survey questionnaire.

3.4 Data Collection Procedures

The instruments in this program evaluation gather information related to Research Topics 1 (Career Pathway Experiences) and 2 (Career Pathway Academy Experiences); the survey addresses RT1 and the interview RT2. Information from these instruments thus shape and determine next steps for refining students' experiences in the Career Pathway and Pathway Academy program at Fairview High School.

3.4.1 Survey

This quantitative study utilizes a cross-sectional survey, administered via Qualtrics, of the student body at Fairview High School. The best practice advice summarized by Krosnick and Presser (2010) shapes the questionnaire variables: use simple words, make response options exhaustive and exclusive, and address one topic at a time (p. 264). The same reference guides the order of questionnaire prompts: early questions should be easy and build rapport, and questions related to the same topic should move from general to more specific (p. 265). It is important that the survey is clear and concise given the large sample size and the group's wide range of cognitive abilities. As a result, nearly all of the variables are closed questions that allow students to select from a series of choices that best describe their experiences; likewise, the questions utilizing rating scales employ a simple and efficient 1-5 scale that covers the measurement continuum for each prompt (Krosnick & Presser, 2010, p. 268).

The purpose of the survey is to gather information about students' career pathway experiences that will shape next steps and directions for the program. As noted, this instrument addresses Research Topic 1 (RT1). The survey questionnaire, following the introductory elements, is organized according to the following Inquiry Questions:

RT1.1: What factors influence students' Pathway selection?

RT1.2: What types of Pathway connections are students experiencing in their courses?

RT1.3: How does the Curriculum Planning Guide influence student course selection?

These questions, because they address the actions of the entire student body, facilitate the need to sample all of the students. It is possible that after the data has been gathered, new inquiry questions evolve and influence a follow-up survey and/or the shape of the interview instrument variables. The first construct of the survey measures the factors that influence students' Pathway

interests and selections (RT1.1). In this context, *factors* are the circumstances that contribute to student attitudes and choice related to the various career options. The prompts related to this construct provide information about the things that influenced how students know what they know about the pathway options and how those same things impacted choices that they made for the 2018-2019 school year. The survey's second construct measures experiences that students are having in their courses related to careers pertinent to those classes (RT1.2). For this purpose, *experiences* are the ways in which students are exposed to or interact with pathway careers. This information influences what we can do to support teachers and identify how and where to strengthen classroom connections to the relative career pathways. The role of the Curriculum Planning Guide is the third and final construct. The Guide is an important part of the Career Pathways Program goals, and this evaluation determines its effectiveness as a resource and the ways in which it can be improved.

The cross-sectional, whole-school survey was administered one time during the second marking period of the first semester. This timing affords students the opportunity to have had a full nine weeks in their courses while also remaining relatively close to the previous Spring when they created this year's schedule. Because of the large sample size, the survey was administered one time during the school year. Students took the survey at the beginning of their fourth period class to assure the maximum number of student participants because at earlier times of the day, there are students participating in courses outside of the school (e.g., Erie County Technical Center, dual enrollment). The survey should not take more than fifteen minutes; in all likelihood, most students can finish in ten minutes or less. The survey introduction ensures student anonymity in their responses and notes that the only identifying factors are grade level and gender. The survey has a high level of trustworthiness because all of the prompts reference local contexts and

experiences related to Fairview High School and individual student experiences. The goal of the program evaluation is to identify areas for improvement and next steps. As a result, the survey has confirmability in my ability to remain objective in the absence of response or outcome preferences—the findings determine what comes next and exist without subjective judgement.

The survey does have some inherent shortcomings. First, the survey is administered during the first semester, prior to any experiences students have with the second half of their courses in the second semester. Second, the large sample size could challenge the survey to account for all of the possible factors influencing students' selections. Because of this, several survey prompts allow for another response that allows for individualized responses.

3.5 Data Analysis Procedures

To conduct an analysis of the quantitative, cross-sectional survey, I maintain a master file of raw data in SPSS while I work to identify errors in my data sets and then revise the flawed data. For each construct in the survey (i.e., factors, role, guide), I use Cronbach's Alpha tests in SPSS to measure for the internal consistency of items. Items utilizing the same scale are analyzed to determine the reliability each construct's measure. A threshold of .70 notes item consistency and reliability, and, as necessary, this data analysis examines correlations to remove items as needed after creating a correlation matrix to identify inadequate items. Finally, I created construct scores to utilize in analysis and draw conclusions related to the research topics.

4.0 Results

The purpose of the study is to determine the degree to which the school's Career Pathways and Career Academies program is meeting its stated goals and to establish the next steps in program development. Specifically, a survey provides feedback on the influencers that shape students' Pathway selection, Pathway connections in high school courses, and the role that the Curriculum Planning Guide plays in the Pathway program. The results of the survey have led to the conclusions and recommendations to follow.

The survey was made available to 546 students in grades nine through twelve at Fairview High School in Fairview, Pennsylvania, and it garnered 379 responses (69.4% response rate). All responses were anonymous and voluntary; responses were only identified by gender, grade level, and Pathway choice; these categories are used as grouping variables for several points of analysis. Of those responding, only two did not complete the survey in its entirety (n = 377).

4.1 Descriptive Statistics

Student participation represented all four grade levels: 9th grade (n = 111, 29.4%), 10th grade (n = 91, 24.1%), 11th grade (n = 25.2%), and 12th grade (n = 80, 21.2%). The respondents identified as three genders: male (n = 193, 51.2%), female (n = 179, 47.5%), and non-binary/third gender (n = 5, 1.3%). Table 1 represents the distribution of genders across grade levels, which is similar to the building-wide distribution percentages.

Table 1. Crosstabulation of Gender and Grade Level

		What is your gender?				Total
		Male	Female	Non-binary / third gender		
You are currently in which of the following grades?	9	n	62	47	2	111
		%	32.1%	26.3%	40.0%	29.4%
	10	n	45	45	1	91
		%	23.3%	25.1%	20.0%	24.1%
	11	n	49	45	1	95
		%	25.4%	25.1%	20.0%	25.2%
	12	n	37	42	1	80
		%	19.2%	23.5%	20.0%	21.2%
Total		n	193	179	5	377
		%	100.0%	100.0%	100.0%	100.0%

Respondents also noted the Pathway in which they were enrolled: Arts and Communication; Business, Finance, and Information Technology; STEM; Human Services; or Health and Science. Figure 1 shows that the STEM Pathway noted the most participants (n = 104), and the Human Services Pathway contained the fewest (n = 46). In grade levels 12 (n = 24), 11 (n = 27), and 10 (n = 23), the STEM Pathway had the most participants, whereas the Arts and Communication Pathway was the most popular among grade 9 (n = 35) students (see Figure 2).

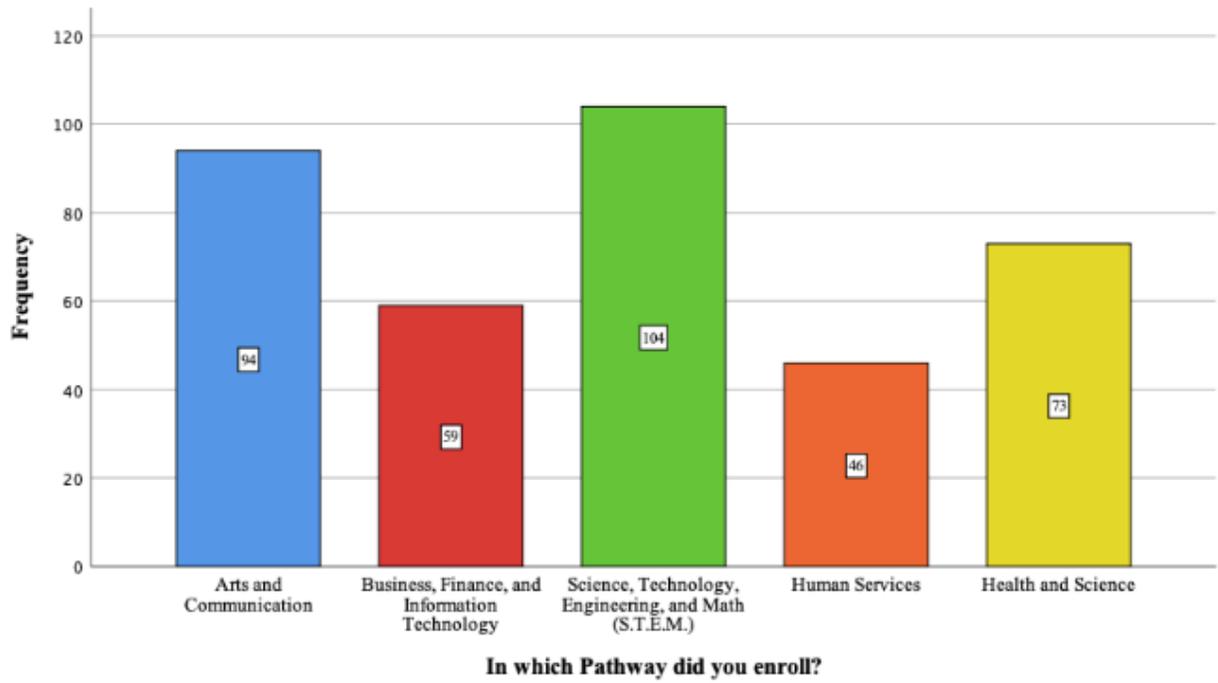


Figure 1. Pathway Enrollment

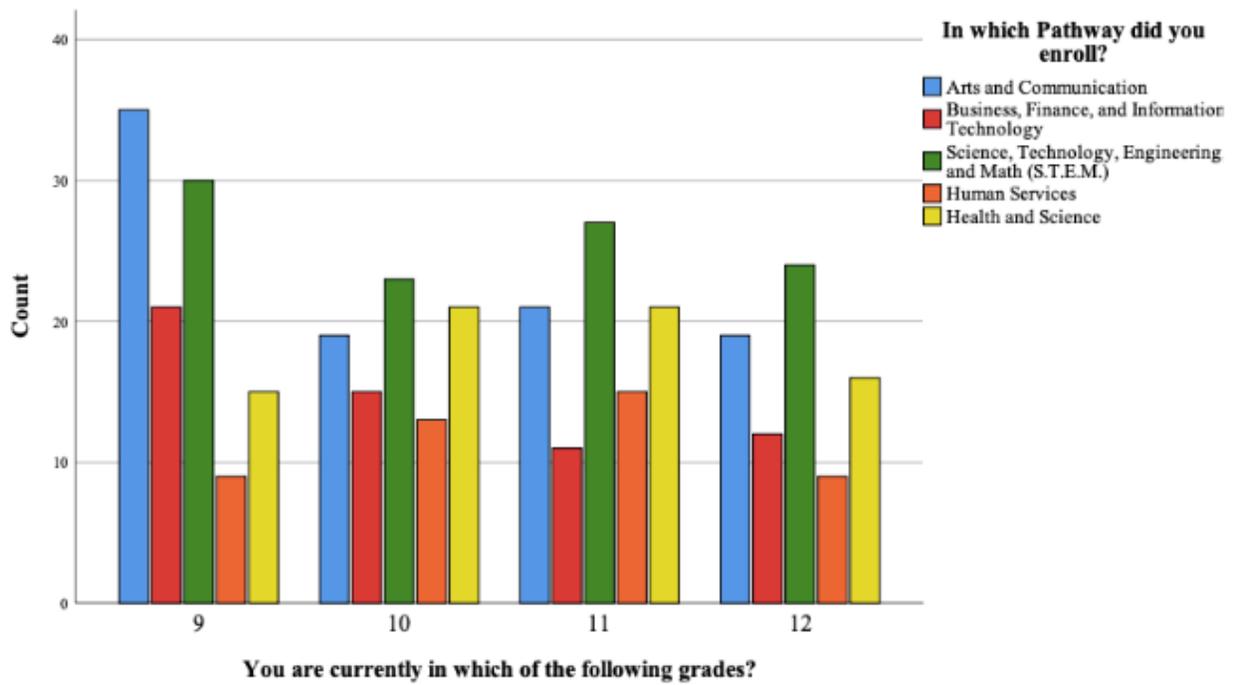


Figure 2. Grade-Level Pathway Participation

The Arts and Communication Pathway had the highest participation among females and non-binary students, and the STEM Pathway was most popular with males (see Figure 3 and Table 2).

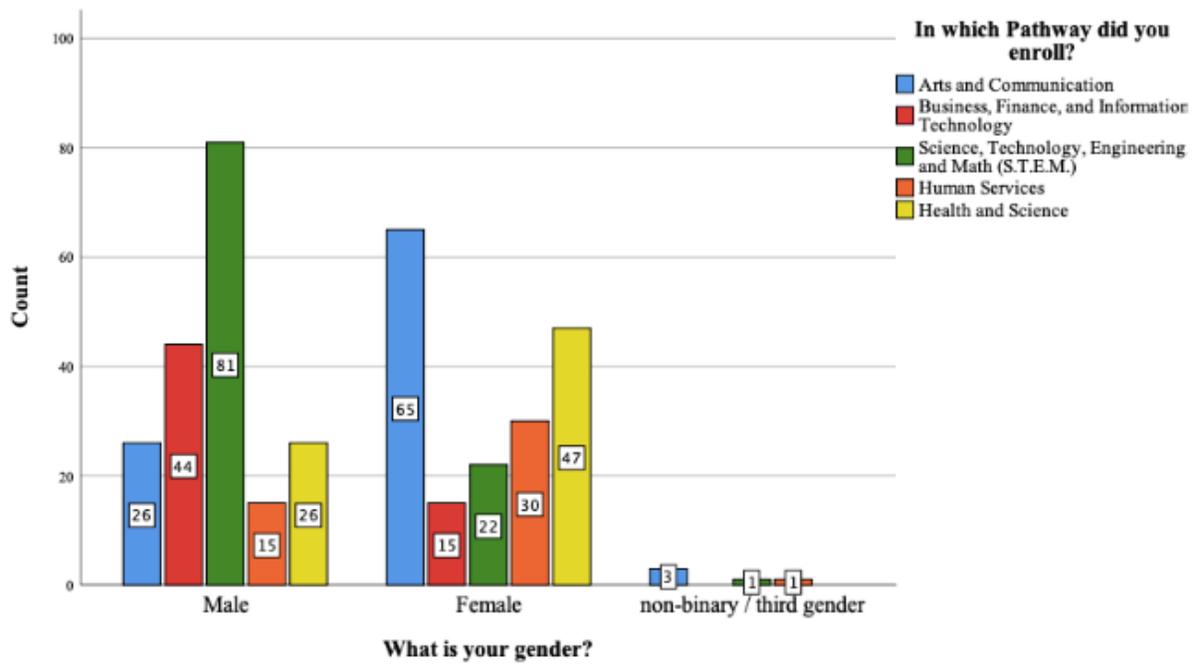


Figure 3. Pathway Participation by Gender

Table 2. Pathway Participation by Gender

		Arts and Communication	Business, Finance, and Information Technology	Science, Technology, Engineering, and Math (STEM)	Human Services	Health and Science	Total
Male	n	26	44	81	15	26	192
	%	27.7%	74.6%	77.9%	32.6%	35.6%	51.1%
Female	n	65	15	22	30	47	179
	%	69.1%	25.4%	21.2%	65.2%	64.4%	47.6%
Non- binary	n	3	0	1	1	0	5
	%	3.2%	0.0%	1.0%	2.2%	0.0%	1.3%
Total	n	94	59	104	46	73	376
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

4.2 Research Question 1.1: Factors Influencing Pathway Selection

All respondents were asked if their current Pathway reflected their general interest. A majority noted “yes” (n = 229, 60.6%) and fewer said “no” (n = 148, 39.3%). More male students (n = 139) than female students (n = 87, 38.2%) noted that their Pathway reflected their interests (see Figure 4).

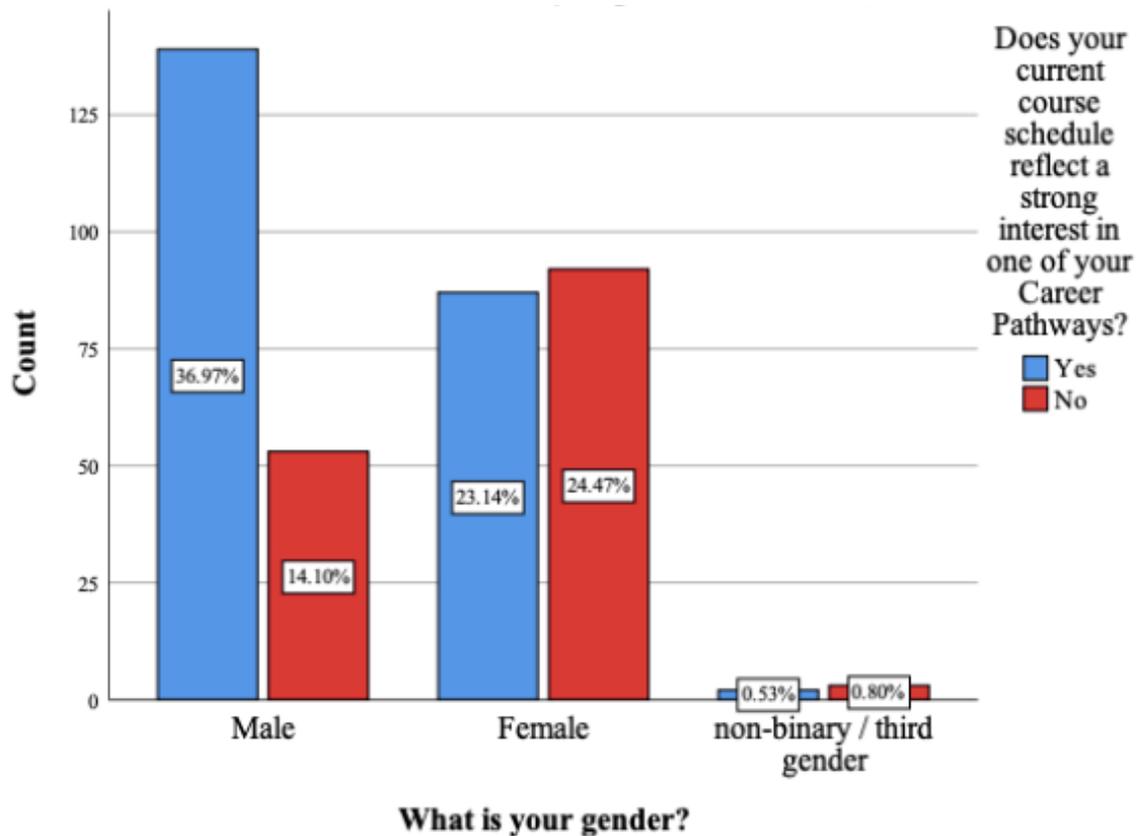


Figure 4. Pathway Represents Interests (Gender)

There were also differences among Pathways related to students' schedules representing their interests. The following Pathways had a majority of students note that their schedules reflected their interests: Arts and Communication (n = 60, 63.8%); Business, Finance, and Information Technology (n = 36, 61.0%), and STEM (n = 78, 75%). However, these Pathways recorded a majority of their students without schedules that reflected their interests: Human Services (n = 19, 41.3%) and Health and Science (n = 35, 47.9%). Both groups are represented in Figure 5.

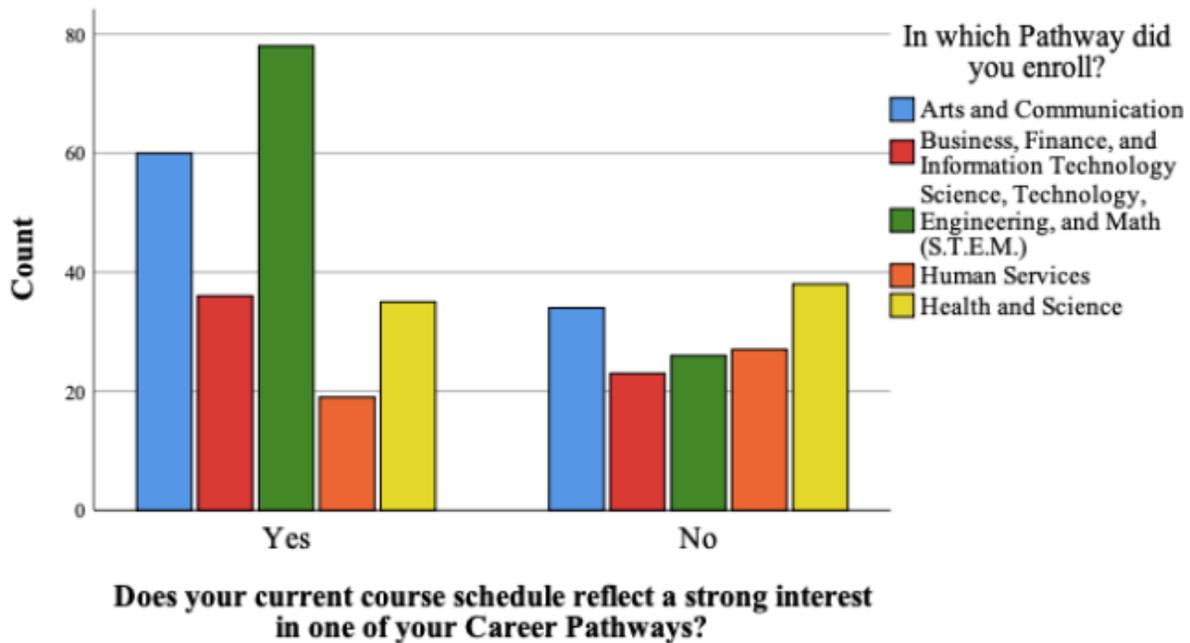


Figure 5. Course Schedule Interest by Pathway

Students were asked to rate the following influencers on their Pathway selection on a scale of No Influence, Little Influence, Neutral Influence, Some Influence, or Very Influential: academic ability/grades; passion; parents’/guardians’ preferences; parents’/guardians’ choice; advice from school counselors, classes with friends, previous course/teacher, future plans. Based on respondents’ choice of either Some Influence or Very Influential, the following factors are listed from most to least influential: future plans (n = 254, 76.7%); passion (243, 64.7%); academic ability/grades (n = 205, 54.5%); previous course/teacher (n = 102, 27.1%); parents’/guardians’ preferences (n = 87, 25.8%); classes with friends (n = 54, 14.3%); advice from school counselors (n = 49, 12.8%); and parents’/guardians’ choice (n = 26, 6.9%) (see Figure 6).

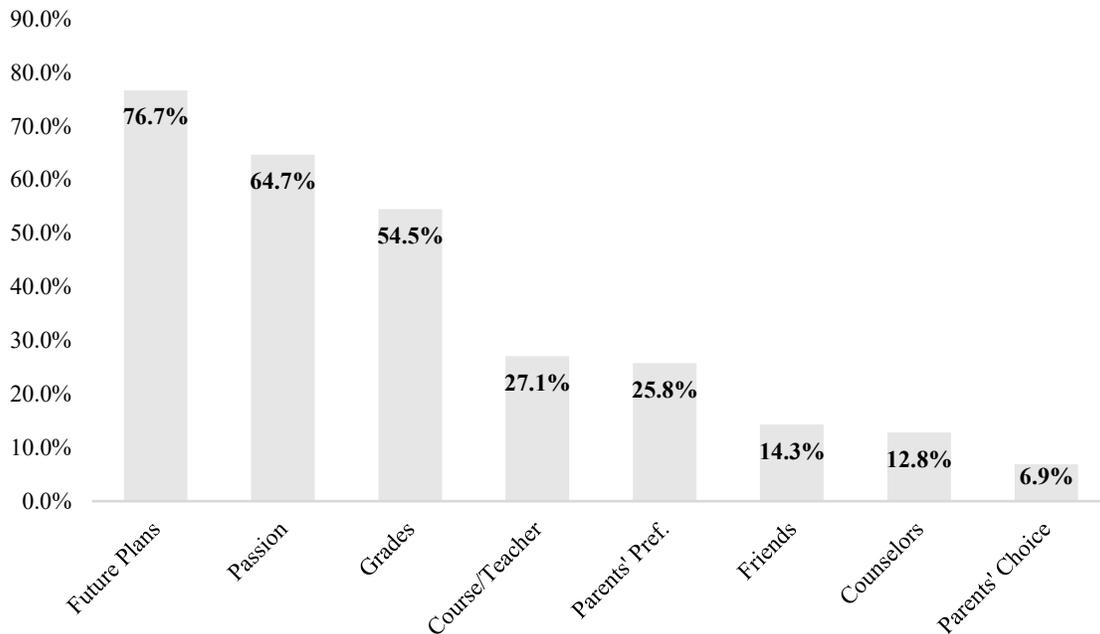


Figure 6. Pathway Influencers

These results varied little when sorted by gender and grade. Analysis of the influencers by Pathway did generate several items worthy of note. STEM students selected parents’/guardians’ preferences as their most significant influencer (33.0%), compared to 35.8% for all students. Only 12.8% of students identified school counselors as having positive influence, but 34.8% of Human Services students were positively influenced by their counselors. Whereas 27.1% of students rated previous courses/teachers as positive influencers, 43.3% of STEM students noted previous courses/teachers. Finally, the most significant influencer, future plans (76.7% of respondents), was only considered influential by 59.6% of the students in the Arts and Communication Pathway.

Students were also asked to determine the accuracy of three statements on a scale of Not accurate, Somewhat accurate, Accurate, Moderately accurate, or Very accurate; selections of Accurate, Moderately accurate, and Very accurate are considered positive perceptions by respondents (Tables 3, 4, and 5). Respondents agreed (65.1%) that teachers/administrators care

about students in their Pathway. Likewise, students noted that being in their Pathway gives them purpose (70.7% yes, 29.2% no). However, the same statement about purpose was only true for only 67.1% of female students. Nearly eight-five percent (84.9%) of students said that they did not feel stuck in their Pathway. When all three prompts were grouped by grade, gender, or Pathway, there was only a < 3% variation in positive perceptions.

Table 3. How Accurate is this Statement? - Teachers/Administrators Care about Students in my Pathway.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not accurate	29	7.7	7.7	7.7
	Somewhat accurate	65	17.2	17.2	24.9
	Accurate	115	30.5	30.5	55.4
	Moderately accurate	99	26.3	26.3	81.7
	Very accurate	69	18.3	18.3	100.0
Total		377	100.0	100.0	

Table 4. How Accurate is this Statement? - Being in my Chosen Pathway Gives Me Purpose.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not accurate	32	8.5	8.5	8.5
	Somewhat accurate	78	20.7	20.7	29.3
	Accurate	90	23.9	23.9	53.2
	Moderately accurate	102	27.1	27.1	80.3
	Very accurate	74	19.6	19.7	100.0
	Total		376	99.7	100.0
Missing	System	1	.3		
Total		377	100.0		

Table 5. How Accurate is this Statement? - I Feel Stuck in my Pathway.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not accurate	212	56.2	56.4	56.4
	Somewhat accurate	107	28.4	28.5	84.8
	Accurate	35	9.3	9.3	94.1
	Moderately accurate	21	5.6	5.6	99.7
	Very accurate	1	.3	.3	100.0
	Total		376	99.7	100.0

4.3 Research Question 1.2: Pathways Connections in Courses

The second survey construct addressed the following question: What types of Pathway connections are students experiencing in their courses? Students were asked if they experience connections between course content and their future careers in each of the following subject areas: science, math, English, social studies, Spanish/French, or electives. Respondents evaluated the statements with these choices: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree, or Not Currently taking course. Responses that were either Agree or Strongly agree were considered positive connections (see Figure 7). Only elective courses saw more than half of respondents ($n = 207$, 54.9%) note classroom connections to future careers. Every content area saw discrepancies between the experiences as perceived by female and male students. Male students experienced more connections in science (38.5% versus 33.6%), math (53.4% versus 45.8%), social studies (33.8% versus 26.9%), and electives (58.6% versus 51.4%); female students experienced more connections in English (46.7% versus 33.2%) and Spanish/French (39.1% versus 30.7%). There was little statistical difference when sorted for grade level or Pathway.

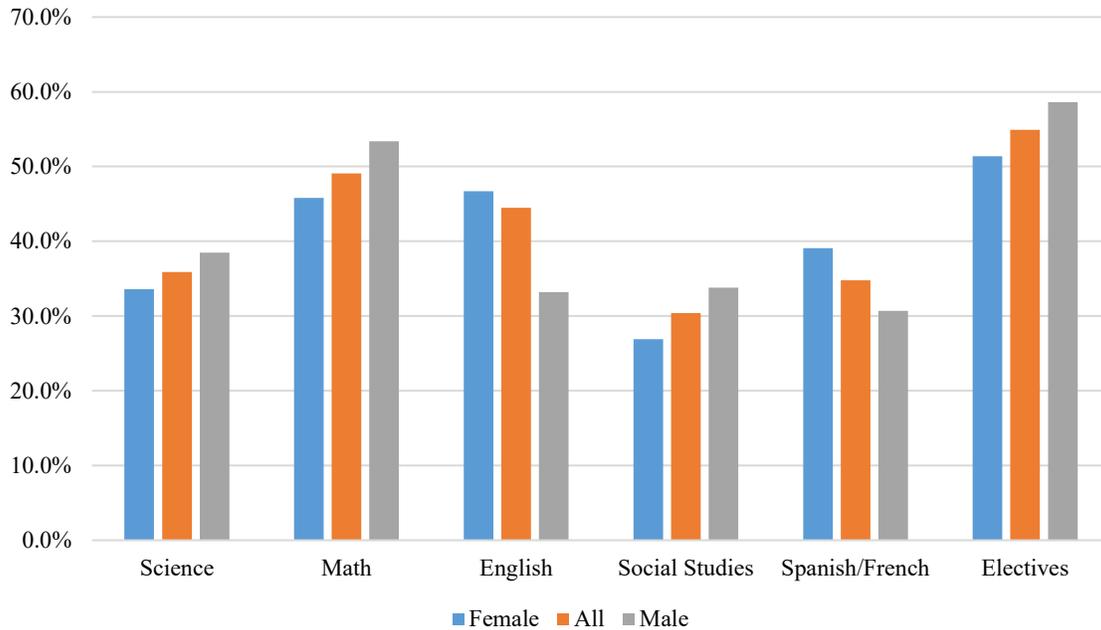


Figure 7. Career Connections in Courses

When asked the degree to which they agreed with the statement, “I want to know about possible careers related to my courses,” a large majority of students noted either Agree or Strongly Agree (n = 274, 72.6%). Slightly more males (75.1%) than females (69.9%) selected either Agree or Strongly Agree. Responses also varied based on Pathway participation (see Table 6). Only 67.1% (n = 63) of the Arts and Communication Pathway members said that they wanted to see connections between their courses and careers. There was little statistical difference when sorted for grade level.

Table 6. Crosstabulation of Pathways and Wanting to Know about Careers Related to Courses

			Arts and Communication	Business, Finance, and Information Technology	Science, Technology, Engineering, and Math (STEM)	Human Services	Health and Science	Total
How much do you agree with this statement? –	Strongly disagree	n	1	1	1	1	3	7
		%	1.1%	1.7%	1.0%	2.2%	4.1%	1.9%
I want to know about possible careers related to my courses.	Disagree	n	7	1	6	1	6	21
		%	7.4%	1.7%	5.8%	2.2%	8.2%	5.6%
	Neither agree nor disagree	n	23	17	16	8	10	74
		%	24.5%	28.8%	15.4%	17.4%	13.7%	19.7%
	Agree	n	29	21	45	17	28	140
		%	30.9%	35.6%	43.3%	37.0%	38.4%	37.2%
	Strongly agree	n	34	19	36	19	25	133
		%	36.2%	32.2%	34.6%	41.3%	34.2%	35.4%
Total		n	94	59	104	46	73	376
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Likewise, respondents were asked the degree to which they agreed with the statement, “My courses have influenced my career interests.” A slim majority of students either Agreed or Strongly agreed (51.2%); however, there was a twenty percentage-point difference between female (40.7%) and male (60.6%) students (see Table 7). There was little statistical difference when sorted for grade level or Pathway.

Table 7. Crosstabulation of Gender and Courses Influencing Career Interests

			Male	Female	Non-binary / third gender	Total
How much do you agree with this statement? – My courses have influenced my career interests.	Strongly disagree	n	8	15	2	25
		%	4.1%	8.4%	40.0%	6.6%
	Disagree	n	28	36	0	64
		%	14.5%	20.1%	0.0%	17.0%
	Neither agree nor disagree	n	39	55	0	94
		%	20.2%	30.7%	0.0%	24.9%
	Agree	n	84	55	2	141
		%	43.5%	30.7%	40.0%	37.4%
	Strongly agree	n	33	18	1	52
		%	17.1%	10.1%	20.0%	13.8%
	Not currently taking course	n	1	0	0	1
		%	0.5%	0.0%	0.0%	0.3%
Total		n	193	179	5	377
		%	100.0%	100.0%	100.0%	100.0%

4.4 Research Question 1.3: Curriculum Planning Guide

The final construct in the student survey addressed the only tool that Fairview High School provides related to Career Pathways and Academies, the Curriculum Planning Guide. Because it is the only school-provided resource, it is important to know if students are using it effectively. Students were asked to measure the validity of four statements related to the Curriculum Planning Guide’s influence (i.e., Less, Same, or More) on courses selected, understanding of career

interests, future courses, and future plans. In all four categories, respondents noted, by a wide margin, that their choices or understandings were the same: respectively, 72.1%, 70.9%, 63.1%, and 63.4%. There was little statistical difference when sorted for grade level, gender, or Pathway.

4.5 Limitations of the Study

The student survey had extensive but not total participation by the students at Fairview High School. Several factors influenced the participation rate. The relatively low response rate with the senior class is likely a result of the fact that there are 37 seniors out of the building at non-traditional placements (e.g., dual enrollment, Regional Choice Initiative courses, Erie County Technical School, district teachers' assistants) during the allotted time to complete the survey. A similar, but slightly fewer, number of juniors are affected by the same factors. Because respondents maintained anonymity other than their gender, grade level, and Pathway, it was not possible to follow through with students who had not completed the survey. When students returned to Fairview High School from the various non-traditional placements, they were reminded to complete the survey, but they did not benefit from the extended homeroom period to complete the survey; completing the survey would have required utilizing their own time, which some, but not all, did.

Another limitation of the study is Fairview High School's intensive block schedule, which has students taking four courses each semester. Because of the semester format, students had only four of the eight courses they would experience during their academic year. Sophomores, juniors, and seniors could draw upon their experiences from the previous year/years when they would have taken courses in the four core areas, along with at least one elective. Regardless, the survey is a

part of a program evaluation, which should be an annual or semi-annual part of evaluating the progress of the Pathways and Academies to maintain their fidelity.

5.0 Discussion

Fairview High School implemented a Career Pathways and Academies program to prepare students for postsecondary life and meaningful career choices. The goals for this program place a premium focus on creating experiences and opportunities that nurture a culture of college and career readiness for all students that bridges their secondary and postsecondary experiences. Students' interests and abilities manifest themselves in day-to-day high school life through their courses and their experiences inherent to those courses. The Career Pathways and Academies program exists within this academic course framework.

The focus of this study was to evaluate the Career Pathways and Academies program at Fairview High School to determine the degree to which it was meeting the stated goals and to determine next steps for improvement.

The student survey is the tool that I chose to guide this evaluation and address the overall guiding question: Are the current Career Pathways and Academies program options meeting students' academic interests and needs? The survey gathered data that answers and addresses three important questions: What factors influence Pathway selection? What types of Pathway connections are students experiencing in their courses? How does the Curriculum Planning Guide influence student course selection? In addition to answering these questions, the data provides a roadmap to areas of needed improvement and how to get to those solutions.

This chapter gathers and synthesizes the findings from the survey, addresses the research questions, and notes other areas of interest. Finally, it also makes recommendations for the Career Pathways and Academies program that will improve upon its ability to meet its defining goals.

5.1 Power of Purpose

A sizeable portion of the survey was devoted to determining what influenced students' Pathway/Academy decisions because having an understanding of student motivations may provide insight into how to improve the quality of those decisions. Three factors set themselves apart in terms of shaping students' choices: future plans, passion, and academic ability. Students have a powerful sense that it is important to explore their options for life beyond high school, and these explorations are based on their ability and interests about which they have strong vested interests. There are relatively few things that high school adolescents control during a time when they begin to developmentally yearn for little other than control; they have little say over graduation requirements, their socioeconomic status, or school district rules. The survey data, however, shows that students have understood the impact that the Pathways may have on their futures. By choosing their Pathway, a reflection of their ability and interests, they have the opportunity to grasp their futures and yield significant control over the trajectory of their formative high school years.

Students understand that the Pathways are exploratory and not binding—nearly all students noted that they do not feel stuck or bound in their Pathway. Moving from Pathway to Pathway is also another choice that empowers them to explore their interests.

The survey findings note some unique influencers. For example, STEM Pathway students placed, compared to their peers, significant importance on previous classes and teachers when it came to choosing their STEM pathway. Likewise, even something that was seemingly universally agreed upon as important, such as future plans, was only the third most important factor for students in the Arts and Communication Pathway.

When sorted by grade level, freshmen and juniors overwhelmingly noted their future plans as the most influential factor in their Pathway/Academy selections. Ninth grade students enter high school having just completed career exploration classes in eighth grade. These classes foster a future-ready mindset, while eleventh grade students begin to view life after high school most vividly as they turn the corner for the final stage of their secondary school experience. These findings highlight the powerful importance of purpose and explain why students chose their individual Pathways. They see the connections between the Pathways and what is potentially in store for their futures and make their career choices accordingly.

5.2 Minimal Course Connections

Even though students enter their courses at Fairview High School interested in and wanting to know about connections to Pathways and careers, the study finds that there are limited to few connections between academic courses and postsecondary careers. According to the survey, courses do not establish relationships between the course content and how it relates to or could be utilized in postsecondary life or career options for students. This is problematic given the importance of students' purpose and meaning established in the previous section. They want to know how what they are learning and how what they are being asked to do extends beyond the walls of the high school. Therefore, we are not meeting the students' academic interests and needs in this area. This is a fundamental shortcoming of the Pathways program at this point in its development. It is a tremendous disservice to students to reinforce from middle school through high school the importance of their Pathway choices on their current and future lives while not

providing them the opportunities to draw connections between their classroom experiences and their postsecondary futures.

These results varied by Pathway. For example, compared to other Pathways, STEM students noted the highest rate of connections in multiple content areas and courses. These students are part of a Pathway that naturally requires extended participation in several content areas and departments, which could account for the difference compared to other Pathways that may be more limited in scope and trans-departmental experiences. Another factor could be that STEM students also registered a strong interest to know about career connections in their courses, which correlates with the influence that future plans had on their Pathway selection. As a professional staff, teachers have also had consecutive years of professional development experiences involving trips to community business partners that addressed their product development and how it related to STEM coursework. Teachers have been primed to make these STEM connections, which makes it more likely that they will make these connections more frequently than for the other Pathways. Most significantly, the STEM topics have been a K-12 curricular focus across the district for much longer than any of the other Pathways or Pathway topics. In all of the district's buildings, STEM and STEM careers have benefited from cross-curricular integration, unlike the other Pathway topics, which have been primarily limited to content area silos.

Students have face-to-face experiences with their classroom teachers and school counselors when they discuss postsecondary experiences, but the only tool that they have to plan these course connections they hope to find in their Pathway experiences comes in the form of the Curriculum Planning Guide. The survey findings note, across a wide range of responses and groups, that this document does little to inform or influence students' choices, and the guide could be a more purposeful tool given its ability to frame the wide range of both Pathway overviews and day-to-

day specifics of how course selection correlate with Pathways. As both a reference and a guide, it could help to fill the gaps when courses are not making career connections, but students are not turning to it for that support. There are, however, several approaches that could help students better utilize this document for support. First, the document should be on hand and a part of the Pathway and scheduling sessions with students in the middle school, particularly the sessions in eighth grade. This will help students see specifically how their high school experience and coursework can reflect what they have been learning about themselves and their futures in their middle school career exploration classes. The guide pairs careers with interests and specific high school courses and course progressions that they can explore. Second, the guide will be a part of the students' individual meetings with their high school counselors each year. It is more meaningful for students to reference the guide as they weigh the relationship between their future interests and how they have been performing in their classes; the guide will help them see the different opportunities that they have to explore courses and progressions from ninth to twelfth grade. Finally, the guide can be an effective visual resource, as well. The interest and Pathway charts will be turned into posters for teachers' classrooms. It has already been established that students are not experiencing adequate career connections in their courses; these visuals can serve to remind both teachers and students of the relationship between what is happening in a classroom and postsecondary options and readiness.

The program should also support teachers through their professional development related to having a better understanding of postsecondary careers. In the past, many of these opportunities have been building-wide and not provided staff with the time and specifics that they need to enhance already crowded course content. Department areas will have the opportunity to experience and debrief with community Academy partners and collaboratively establish the

connections to their courses. These same collaborative opportunities will be a part of professional development time (e.g., faculty meetings, Act 80 days, professional learning communities) as we provide teachers time to work within and across content areas to build connections and crosswalk opportunities between and among departments. Integral to both of these processes is the creation of a place to house documents and resources that all teachers and classes can utilize as part of the Pathways program. This is something that can be developed collaboratively in our learner management system (i.e., Schoology).

In short, the survey demonstrates that students want to understand more and have experiences and connections to future careers within their courses, but that is not something that they are currently experiencing in a meaningful way. These career connections should be a regular part of a school that embraces a Pathways and Academies program and not something that is merely alluded to or referenced when it comes time to schedule each Spring semester.

5.3 Gender and Perceptions

More than any other variable, the lens of gender shaped students' experiences and their perceptions of those experiences related to the Pathways and Academies program. Students' interests, their Pathways, their abilities, and their grade levels all demonstrated occasional influence on how they responded to survey prompts; however, when sorted by gender, the data shows that female and male students do not always share the same experience in or beyond Fairview High School. Female students are exploring Pathways in the shadow of generations of women who were confined by a narrow and limiting set of predetermined career options. These societal expectations, although not directly examined in this study, may have exerted their

influence and left their footprints in the students' survey responses and choices. In Fairview High School during the 2018-2019 school year, 64.3% (n = 27) of the teachers are female, yet all of our computer science, engineering, and computer programming teachers are males, who make up only 35.7% (n = 15) of the high school teaching staff. This misrepresentation is also reflected in the English staff, which is 100% female.

Across content areas and Pathways, female students consistently experienced fewer connections to careers in their courses. This could be due to the fact that there may be more girls in the classes that made fewer career connections; it could also be a result of how girls are talked to about career and postsecondary expectations. The Literature Review did not note or yield this potential biasing; future studies should anticipate this possibility and include relevant research documenting those experiences unique to female students. The ripple effect of this lack of connection, however, reaches well beyond particular classes and their ability to make career connections. When asked whether the courses had influenced their career interests, 20% fewer female respondents agreed than did their male counterparts. Some of these discrepancies are a result of pipeline biases toward women and girls in the educational system, while there are other aspects over which Fairview High School has local control.

As an educational institution, what can we do to disrupt these biases? We need not look beyond our own walls to see the institutional biases that we play a part in perpetuating. Breaking this cycle requires us to adopt short- and long-term systemic changes that disrupt these gender biases. These short-term changes begin with the teaching faculty and school counselor staff.

In the immediate future, female students should be able to see women working and prospering across Pathway professions. Because we are limited in our ability to do this with our relatively small staff, the program will utilize its community partnerships to both bring

professional women into the building to share their experiences and provide opportunities for students to have on-site experiences, as well. We cannot change the gender of our male computer science, engineering, or computer programming teachers, but we can help them develop a mindset that is open to and encourages opportunities for female students in these fields through professional development and experiences and meaningful conversations with these community partners. School counselors should have a mindset that opens Pathway opportunities for all underrepresented genders—this would look like encouraging girls to explore STEM fields when they have the interest and ability while doing the same for male students with talents or interests in the humanities where the male faculty is equally underrepresented. These English and history courses face some of the same entrenched mindsets that steered males into stereotypical math or science fields.

In the long term, as a district and building we will focus our hiring and recruitment efforts on diversifying our staff. We will recommend crafting a district-wide policy that encourages hiring teams to consider current staffing ratios for underrepresented genders in each of the content area postings; hiring the best candidates and creating a diverse staff are not mutually exclusive concepts. Effectively finding these candidates will require looking beyond our traditional applicant pool and developing recruitment policies that expand our efforts beyond our normal geographic range by communicating with universities, targeting job fairs, and utilizing other approaches we had ignored in the past that may have contributed to current gender representation issues. With the proper mindset and focus on pipeline opportunities, we can play a part in disrupting the institutional gender bias in the Pathway program.

5.4 Recommendations for Future Studies

Given the limitations of the study noted above, there are several steps to take to improve future attempts to evaluate the program. The easiest and most impactful change would be to administer the survey toward the end of the school year. The data gathered from the survey that was part of this study were accurate, meaningful, and effective, but also incomplete because it did not address students' second semester courses. Likewise, it would be effective to establish a system by which the survey could gather feedback from all students. The response rate for this iteration was quite high, but there were insights and voices that were not recognized. Anonymity remains important, but universal administration time and follow-through with students out of the building are two things that would drive the response rate even higher.

Because the study was part of an evaluation of the Pathways and Academies program, future studies could include feedback from Academy students. As the program evolves at Fairview High School, there will be Academy options for Arts and Communication, Business, Health and Science, and Human Services students, but there is currently only a STEM Academy with two cohorts of students. Understanding the factors influencing Academy application and participation are equally as important as Pathway influencers. The Academy program will have its own layer of goals (within the building-wide goals addressed earlier) that will require regular evaluations for fidelity while also providing feedback on the Pathway feeder system of which it is a component.

A shortcoming of this survey is that it is limited to the perspective of the students. Future studies can gather feedback and insights from the teaching staff regarding their perceptions on the role that Pathways play in their instruction, planning, and pedagogical approaches with students. There is a lot to learn about how and why teachers make career connections in their content areas

while also understanding the inherent challenges in doing so. These findings can be used to improve experiences for students and guide areas of professional development for teachers.

Finally, this study should not stand alone as a one-time event. Students entering Fairview High School will be arriving with ever-evolving experiences from Fairview Middle School. These experiences will continue to expand beyond eighth grade and will become a part of students' vocabulary as they talk about their secondary and postsecondary lives. This year's freshman class was the only class to have experienced the Career Explorations class while in the middle school; although this did not prove an influential variable in this iteration of the study, improvements in that middle school class and the career classes preceding it will potentially have an impact on what influences students' Pathway choices. The effectiveness of the Pathways and Academies program will be determined by the evaluations that regularly check to determine if the program is meeting its stated goals.

5.5 Conclusions

This program study has referenced on several occasions the role that the Pathways and Academies program inherits as the bridge between students' secondary and postsecondary experiences. It is challenging for students to embrace a mindset that asks them to explore in the present what are, in reality, glimpses of their future. Those explorative choices drive the study's guiding question and its concern for the program's ability to meet students' needs. The study's findings allow me to say that Fairview High School's program is taking important steps toward meeting the program's goals, but there are also significant deficiencies in several areas critical to the program's long-term success. All of the data demonstrates that students are in the Pathways

of their choice, these Pathways reflect their interests, and students are passionate about their future plans. These are positive findings for a program in its early stages. However, like many programs, the Pathways and Academies program at Fairview High School has room for improvement in several areas.

I have the following four recommendations based on the study and its findings:

1. School leaders need to foster a building-wide understanding of the Career Pathways and Academies program and its role as a bridge between students' secondary and postsecondary lives. For the adults in the building, having a sense of ownership for the role that they play in shaping and creating career connections in their courses will increase the quality and likelihood of meaningful career connections as part of their natural course development. The same holds true for students. They know what the Pathways are and which one they enrolled in, but they lack an understanding of Pathways as a means for exploration and experimentation. Teachers may benefit from enhanced and regular in-house and external (e.g., Intermediate Unit, National Career Pathways Network) sponsored professional development addressing the role of Pathways. Grade-level-specific whole group presentations for students could provide a context for the Pathways as they pertain to each grade level every year. Combined with career connections in classes, students would have a better understanding of how their Pathways relate to their high school experiences.
2. Fairview High School must meet the needs of the gender gaps identified in the survey. Already this year, the high school has benefitted from recent changes in programming and staffing at the middle school that expanded the career exploration coursework to all students in two grade levels, while also placing two female teachers in the career

exploration and computer science teaching positions. This fall's applicants to the high School STEM academy had 75% more female students than previous cohorts in the applicant pool. This is not to say that only women can reach young women when discussing how students' interests and abilities match with certain careers, nor does it solely account for the increase in female applicants; however, having women in these positions allows female students to see women working in fields (e.g., computer science) and addressing topics about careers that had been previously only addressed by men. Given the limitations of staffing and content area certifications, the high school cannot shift teaching positions, but we can create more opportunities for students to see different genders representing a wide range of career fields with site visits and in-house guests from the community.

3. As we enhance our career connection opportunities in classroom courses, the school can build out to the community to provide formal and informal connections to Pathway experiences. Community partnerships are an essential part of Pathway and Academy programs because they open the doors for students to have authentic, first-hand experiences of what a career requires in terms of skills, abilities, and interests. It will be beneficial to improve upon the rate and quality of career connections in the classroom, but these experiences pale in value to spending time with someone visiting the school and having the opportunity to ask questions and talk about career or to visit a place of employment while learning more about workplace environment and expectations. The program will benefit from the creation of new Pathway Advisor positions for teachers who will lead Pathway exploration opportunities and Academy development. Pathway Advisors will be responsible for reaching out and building

partnerships with community entities that include school visits, site visits, and mentor opportunities. The Academy programs have a 1:1 relationship between mentors and students, and Pathway Advisors could replicate this on a broader scale as students create contacts with professional experiences not limited by the traditional high school parameters.

4. Finally, evaluations of the Pathways and Academy program must continue to ask “why” to understand the influencers that guide students’ Pathway selection and participation. Understanding these motivations and their evolutions will effectively maintain the foundation upon which the program achieves its worthwhile goals.

Moving forward, I have two wishes for the future at the conclusion of this process. First, the recommendations and conclusions are actionable and within the abilities of the school; therefore, they should be implemented to achieve the desired effects. I also hope that the discussion and findings in this evaluation and its study form a point from which future examinations can build to ensure program fidelity while also serving as a basis for further research.

Appendix A Survey Approval



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October 1, 2018

To Whom It May Concern:

Matt Lane has requested approval to conduct his research study and program evaluation as part of his doctoral work at the University of Pittsburgh in the Fairview School District at Fairview High School. He has indicated that his research involves the evaluation of the career pathways and career academy program at Fairview High School. Mr. Lane will seek anonymous feedback from the student body and from students currently in the STEM Academy in the form of a survey and interviews, respectively.

As superintendent of the district, I give permission for Matt Lane to complete his research at Fairview High School as requested. I understand that this research will take place during the 2018-2019 school year.

Sincerely,

Erik Kincade, Ph.D.
Fairview School District - Superintendent

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Appendix B Student Survey

Thank you for taking the time to participate in this survey regarding Career Pathways here at Fairview High School. We want students to have the opportunity to explore various career fields, and hope that as you consider career pathways and occupations for your present and future as you create your experience at Fairview High School. The Curriculum Planning Guide, that was part of your scheduling process, provides details on the following Pathways:

- **Arts and Communication**

- The Arts and Communication focus area is designed to cultivate students' awareness, interpretation, application, and production of visual, verbal, and written work.

- **Business, Finance, and Information Technology**

- The Business, Finance, and Information Technology focus area is designed to prepare students for experiences in the work of business, finance, and information services.

- **STEM**

- The STEM area is designed to cultivate students' interests, awareness, and application to careers related to science, technology, engineering, and math necessary to design, develop, install, and maintain physical systems and sciences.

- **Human Services**

- The Human Services focus area is designed to cultivate students' interests, skills, and experiences for careers related to family and human needs.

- **Health and Science**

- The Health and Science focus area is designed to cultivate students' interests in the life and behavioral sciences. In addition, it involves the planning, managing, and providing of therapeutic services, diagnostic services, and health information.

The goal of this study is to learn more about ways to improve how we provide those opportunities for you. As a result, there are not any incorrect answers to the following items, and now that your ability to be candid and honest is important and appreciated.

Eligibility

To participate in the survey, you must meet the following criteria:

- be currently enrolled as a student in Fairview High School
- are currently in grade 9, 10, 11, or 12

Consent

Your participation in the survey is not mandatory. Your grade and gender are the only factors that you will enter below. Know that all other identifying information will not be associated with you in any way in analysis of the findings—your responses will be confidential at all times. If you have questions, please contact Mr. Lane (lanem@fairviewschools.org).

○Yes, I consent.

○No, I do NOT consent.

Part 1: Your Information

You are currently in which of the following grades?

- 9
 - 10
 - 11
 - 12
-

What is your gender?

- Male
 - Female
 - Non-binary / Third gender
-

In which Pathway did you enroll?

- Arts and Communication
 - Business, Finance, and Information Technology
 - Science, Technology, Engineering, and Math (STEM)
 - Human Services
 - Health and Science
-

Does your current course schedule reflect a strong interest in one of your Career Pathways?

- Yes
- No

End of Block: Part 1: Your Information

Start of Block: Part 2: Career Pathway Influencers at Fairview High School

Why did you choose your pathway? Rate the following statements considering what influences/influenced your courses at FHS. (Feel free to reference the Pathways list and remember that your responses are anonymous.)

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your interest in your pathway	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your academic ability / grades	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your unwavering passion for pathway/career	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your parents' / guardians' preferences	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your parents / guardians choosing your path for you	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Advice from school counselors	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Taking classes to be with friends	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Previous course/teacher	<input type="radio"/>				

Why did you choose your pathway?

	No influence	Little influence	Neutral influence	Some influence	Very influential
Your future education or career plans	<input type="radio"/>				

End of Block: Part 2: Career Pathway Influencers at Fairview High School

Start of Block: Part 3: Perceptions

Rate the following statements based on their accuracy.

How accurate is this statement?

	Not accurate	Somewhat accurate	Accurate	Moderately accurate	Very accurate
Teachers / Administrators care about students in my Pathway.	<input type="radio"/>				

How accurate is this statement?

	Not accurate	Somewhat accurate	Accurate	Moderately accurate	Very accurate
Being in my chosen pathway gives me purpose.	<input type="radio"/>				

How accurate is this statement?

	Not accurate	Somewhat accurate	Accurate	Moderately accurate	Very accurate
I feel stuck in my pathway.	<input type="radio"/>				

End of Block: Part 3: Perceptions

Start of Block: Part 4: Connections

Consider your courses and how they connect to potential careers. Rate the following statements with respect to your classes.

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My science course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My math course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My English course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My social studies course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My Spanish/French course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My elective course makes connections between course content and future careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
I want to know about possible careers related to my courses.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree with this statement?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not currently taking course
My courses have influenced my career interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Part 4: Connections

Start of Block: Part 5: Curriculum Planning Guide

The Curriculum Planning Guide is the document that describes the career pathways and notes courses of study for core subjects and electives for each pathway. What role did the

Curriculum Planning Guide play in your course selection and scheduling process? Select the middle row to note that the Curriculum Planning Guide did not lead to either of the options.

Because of the Curriculum Planning Guide, I...

- selected FEWER courses that I was interested in.
 - selected the SAME number of courses that I was interested in.
 - selected MORE courses that I was interested in.
-

Because of the Curriculum Planning Guide, I...

- have LESS of an understanding of my career interests.
 - have the SAME understanding of my career interests.
 - have MORE of an understanding of my career interests.
-

Because of the Curriculum Planning Guide, I...

- have LESS of an understanding of what I want my future courses to be.
 - have the SAME understanding of what I want my future courses to be.
 - have MORE of an understanding of what I want my future courses to be.
-

Because of the Curriculum Planning Guide, I...

- have thought LESS about my future plans.
- have thought the SAME about my future plans.
- have thought MORE about my future plans.

End of Block: Part 5: Curriculum Planning Guide

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