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Career Pathway Orientation Courses and Their Influences on Student Career Decision Making

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CAREER PATHWAY ORIENTATION COURSES AND THEIR INFLUENCES ON

STUDENT CAREER DECISION MAKING

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Educational Leadership Doctoral Program

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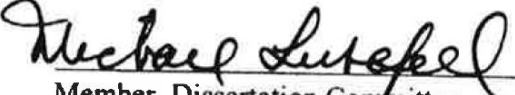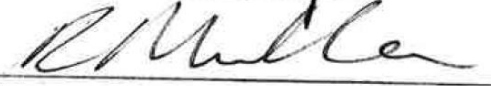
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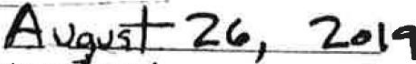
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ABSTRACT

High schools must create skill- and decision-making experiences to support student college and career readiness and effective transitions to careers. However, traditional career education models have lacked effectiveness. This study examines a career pathway model that includes career orientation courses focused on developing career awareness and advising, confirming and challenging student's career decision-making. Surveys and interviews were used to identify impacts these courses had on student career choice and the influence different aspects of the orientation course had on their decision-making. From this, best practices were identified, changes to the model were proposed and modifications to policy were developed to promote more effective career education.

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SECTION 1: INTRODUCTION

Given the complex demands that our 21st century economy and society place on today's

high school graduates, schools in America have increasing obligation to ensure their students

graduate college, career and life ready. To achieve this, schools must focus on creating

opportunities for student skill- and decision-making development that supports their transition to

careers and opportunities linked to this new environment. Individual student abilities can be

identified and leveraged to accelerate students' success, and the examination and valuation of

their passions can be used to ensure schools support the "right students" navigating to the "right

opportunities," both within the high school and once they graduate. Such an approach not only

promotes opportunities for success for individual students, but provides a real opportunity to

support the existing and emerging needs of our communities and industries.

The primary focus of my study is to examine how high schools can support student career

decision-making through career coursework early in a student's high school career. Specifically,

it will consider how career orientation courses within the career pathway model in CJ High

School District (CJHSD) influence such decision-making. These orientation courses, the first

course in each of the district's career pathways, aim to orient a student to the career area and

career pathway in an effort to advise, confirm, and/or challenge a student's state of career

decision-making.

Other career-oriented models, such as the more common career academy model (Brand,

2009, p. 3) exist, but unlike career academies, the CJHSD model does not have the pretense of

locking students into a specific path and forcing them to continue on that journey once they

begin their career coursework. Rather, orientation courses within CJHSD seek to serve as a

gauge for students to determine whether they are on the right path to discover their career area of

interest, and ultimately their future, or if alternative paths should be considered. If a student identifies that the career cluster aligned with the orientation course fits their needs and interests, he or she should leave with a very clear understanding of the opportunities and requirements which can be pursued in the future. If a student does not identify with the career cluster, they can redirect their exploration towards other career areas.

As the orientation courses in the CJHSD model generally serve as a student's first deep dive into a potential career area of interest, I want to determine their effectiveness in supporting student's career decision-making as well as identify best practices that can be leveraged for the improvement of existing courses and the development of new orientation courses. Using this information, career decision-making supports for students can be optimized, resulting in the development and expansion of opportunities to guide students to their best possible future career outcomes.

Overview of CJ High School District

CJHSD is a large suburban high school district in Illinois, comprising multiple high schools. Each high school enrolls students from its immediate community and has a student population close to 2,000 students, for a collective enrollment of more than 12,000 students.

CJHSD is committed to providing students with opportunities for postsecondary success, with its mission tied to helping students learn the skills, knowledge and behaviors necessary to be fully prepared as citizens and meet the challenges of a changing society.

In addition to its mission, one of two instructional goals established by the CJHSD Board of Education is designed around The American Association of School Administrators (AASA)'s *Redefining Ready* model. This model uses multiple research-based metrics to assess a student's college, career and life readiness rather than traditional methods that utilize one single

standardized test score (AASA, 2018a). If a student has a GPA of 2.8 or above and successfully completes an additional college readiness indicator or meets a standardized testing benchmark, he or she is designated college ready. College ready benchmarks include success in an Advanced Placement, college English and/or math, college developmental English and/or math, or Algebra II course; as well as successfully passing an Advanced Placement or International Baccalaureate exam (AASA, 2018c). If a student identifies a career cluster of interest and meets two behavioral or experiential benchmarks, they are designed as career ready. These benchmarks include exceeding 90 percent attendance, completing 25 hours of community service, completing a workplace learning experience, receiving an industry credential, completing a dual credit career pathway course or participating in two or more organized co-curricular activities (AASA, 2018b). Such a commitment to more broadly defining student success, providing multiple metrics to indicate college and career readiness, and placing equal importance on both college and career readiness is evidence of CJHSD's commitment behind supporting career development opportunities for its students.

CJHSD has a flat organizational structure that promotes staff innovativeness and risk-taking at all levels. Along with this, individual buildings and principals having significant autonomy and control in the design and implementation of their instructional programs within the context of the broader identified district mission, vision and goals. Such local control and development is evident in variations in the career pathway programming between high schools.

CJHSD schools exhibit significant variation in demographics and level of diversity between its schools and the level of diversity within its schools. Districtwide, 57 percent of students are white, 30 percent Hispanic, 7.3 percent Asian, and 5.7 percent carry other racial designations. Twenty-five percent of students are classified as low income, 5.5 percent as

English Language Learners, and 11.7 percent as having a disability. Individual school demographics range from Farside High School whose Hispanic student percentage is 58 percent and low income percentage is 42.9 percent to Davidson High School which has a much smaller minority and larger economically affluent populations, with 75 percent of students being white and 10.9 percent designated as low income. Across the district, varied building student demographics and needs along with an established district culture of strong site-based management result in six schools with unique practices. However, the actions of each of these individual schools are grounded in the clearly defined district goals and collective big-picture mission and vision of the district.

Economic Context of CJHSD

The context of the economy across the greater CJHSD region is of significance to curriculum development within CJHSD, as directly supporting and tying to local industry partners and needs has become central to the core development and operation of its career pathway efforts. During the midst of the Great Recession of 2008 and the period immediately following, CJHSD began taking much closer note of economic trends and workforce needs within its community and sought to address these needs, both as a value add to its community and tax base, as well as a direct effort to address the future employment needs of its students. The CJHSD administration created and utilizes a pathway development model that engages its industry and community partners in a five-stage system, starting with the conceptualization of the pathway and continuing through the formation of pathway advisory teams, pathway research and evaluation, pathway curriculum development, and pathway implementation and funding. Pathways are revisited and revised according to a similar process. Across all these stages, local

employment and industry data is used to maximize impact of teaching and learning on the local economy in preparation for students to be best prepared to work and live in their communities.

CJHSD leverages its partnerships with local workforce boards, employers and industry members, and state and federal organizations to identify priority industry sectors to develop career pathway programming. State efforts defined areas of agriculture, food and natural resources; architecture and construction; energy; finance; health science; information technology; manufacturing; research and development; and transportation, distribution, and logistics as areas of focus (Illinois Department of Commerce and Economic Opportunity, 2017). CJHSD further examines local and state-level industry input to ensure its efforts are aligned with the needs of its communities and students and works with its partners and considers wages and job outlooks within each area to guide student decision-making and district pathway development to support student access and opportunities to earn a future living wage.

Taking these employment and economic factors into account, CJHSD prioritized the development of a curricular model that seeks to both meet the economic needs of its industry community and support the graduation of students into high-wage and high-need careers to provide students access to middle class careers rather than entry-level, minimum wage jobs.

CJHSD's Career Pathways Instructional Framework and Curricular Model

While numerous career education models exist, CJHSD created its own pathway model with a unique design, format and goals that influence its development and implementation of its orientation courses -- the focus of this research. In the following section, a comprehensive description of the model will be provided as a context of this study.

CJHSD developed a theoretical career pathway framework and curricular model to support the learning needs of its students and economic success of its communities. The district's

philosophy behind this effort focused on restructuring academic programs along career pathways in an effort to elevate the rigor and relevance of its coursework and realign the academic experience of students around the needs of a technology-driven 21st century economy. This philosophical approach is the core of the theoretical career pathway framework and redefinition of teaching and learning in CJHSD.

CJHSD Theoretical Career Pathway Framework

CJHSD's career pathway framework seeks to ensure that every student self-identifies a career cluster of interest prior to leaving high school. A career cluster is a set of occupations and industries with a set of common foundational knowledge and skills. The career pathway framework is a multi-tiered system of support for career identification and readiness that acknowledges two primary facets of student career learning and development: skill development and career decision making. These experiences are designed to support student self-identification and preparation for their career path of interest, and each aims to address both the cognitive and developmental needs of its students.

The framework is based upon the premise that students have individual career skill development and decision-making assets and deficiencies, similar to other academic or social-emotional descriptors of students, and that it is the responsibility of the school to provide appropriate experiences to support development of its students in these areas. CJHSD's framework seeks to meet all students at their current level of career skill- and decision-making and provide them with the appropriate supports and experiences to prepare them for their self-identified, career-focused, postsecondary path.

It is important to note that unlike some other career pathway models such as career academy models, CJHSD's career pathway framework allows, and even encourages, students to

reidentify their career interests as their decision-making changes, and adjust their career pathway accordingly. Additionally, while CJHSD aims to provide a robust level of career skill preparation for its students in their identified field of interest, its primary goal is to have students graduate high school knowing what career they want to pursue, in addition to careers they do not, so they can continue their preparation when they leave high school with as few barriers and challenges as possible.

Two final key components of CJHSD's career pathway model are the district's offering of representative career pathways across all 16 nationally recognized career clusters and the design of each of these pathways as entry points, not end points, to a future career. By offering the full spectrum of opportunities across all 16 nationally recognized career clusters, students can be exposed to a range of postsecondary career choices and identify a path best connected to their strengths and interests. Additionally, while it would not be feasible for a high school to address every potential career in which a student may be interested, by focusing on representative opportunities within each of the 16 career clusters, students can be guaranteed the chance to leverage relevant decision-making and skill development experiences to advise their postsecondary choices and begin preparation in either their exact or closely related career.

CJHSD's Career Pathway Model

Within its career pathway model, CJHSD has 44 career programs of study across the nationally recognized clusters. A career program of study is a sequence of career-focused courses, experiences and supports. CJHSD developed each of its programs of study around three principles:

1. Each program of study includes of a sequence of courses that leads beyond high school and advances student learning along a career pathway within one of the 16 career clusters.

2. Each program of study includes workplace learning experiences supported by industry partners that provide students the opportunity to engage in authentic work and affirm or challenge student career decision-making.

3. Each program of study includes opportunities for students to earn a career certification and/or early college credit to ensure students leave high school with experiences that support them in their future steps along their career pathway.

Courses in CJHSD's career pathway model are designated as orientation, developmental, or capstone courses and are sequenced accordingly. Each course has associated requirements and roles within the career pathway model.

The initial course in a career program of study is designated as an orientation course. In addition to teaching subject-specific content, orientation courses include components supporting career exploration as well as the development of awareness of future steps and opportunities at the secondary and postsecondary levels. The primary objective of this course is to advise, confirm, and/or challenge a student's career decision-making. If within an orientation course a student identifies that the career cluster connects with his or her career decision-making, the goal is to allow him or her to complete the course with a very clear understanding of and preparation toward future opportunities and requirements for the career. If a student does not identify with the related career cluster, it is the goal that the student makes this realization as early as possible and redirects his or her efforts towards the exploration of a different area, in the interest of not wasting time and effort in a pathway that doesn't fit the student's interests. Orientation courses within CJHSD's career pathway model are the central focus of this study.

Following an orientation course is a sequence of courses designated as developmental courses. These courses focus on advancing a student's skill development and continued

enhancement and support of his or her career decision-making. They aim to develop the skill level of students to allow them to successfully participate in a capstone course or experience.

The final course of the sequence is designated as a capstone course. These courses frequently contain opportunities to earn early college credit and/or industry certifications or contain practicum experiences or authentic problem-based learning activities linked with industry partners and authentic work. Capstone courses that do not have embedded workplace learning experiences are designed to allow students to participate in aligned micro-internships or internships that occur outside of these capstone courses. These courses generally carry honors credit and are designed to mirror authentic college courses or career experiences.

History of CJHSD's Career Pathway Framework

The development of CJHSD's career pathway effort began during the 2007-2008 school year at Farside High School in an effort to redirect negative community perceptions of the school and elevate learning opportunities for students. Staff and administration began the initiative by examining the key competencies of the school and needs of the area industry and community. Over the following years, the school made critical connections with external partners and identified assets to support identified needs of both its students and partners.

The first years of this efforts resulted in the creation of a number of career pathways and development of the principles on which CJHSD's career pathway framework eventually was designed.

In 2013, the principal of Farside High School and I transitioned from our roles at Farside to our respective district roles as Associate Superintendent for Teaching and Learning and Director for Career and Technical Education. At the district level, we began developing plans to adapt Farside High School's initial pathway model, introduce the model to the other five district

high schools, and bring the framework to scale. Key initiatives that followed the new district focus included framing the entirety of CJHSD's academic offerings within 44 different career programs of study, developing CJHSD's Career Discovery Department to coordinate all workplace learning experiences and career exploration interventions across the district, and developing and expanding a large number of pathways aligned with the district's career pathway framework. Within a few years following the initial introduction of the model, each high school had adopted the career pathway framework, and while each site has some autonomy as to the framework's implementation, the practice of using career pathways to reframe students' academic experiences is evident at each site.

Relationship Between Career Pathway Framework and Student Learning

CJHSD's career pathway framework is relevant to student learning as it creates ties to students' interests, increasing the relevancy of learning experiences. Additionally, as the career pathway model creates links between student learning and careers in their community, students are provided with increased access to and preparation for postsecondary success.

While participation in orientation courses provides students a foundation of content knowledge and skill development that can be a basis for deeper learning and development, these courses most importantly are designed to provide students with career decision-making supports. Orientation courses can promote student understanding of and reflections upon their related career pathway. Without such opportunities, students risk aimlessly progressing through series of learning experiences without any true relevance or connections to their futures. Orientation courses provide opportunities to support students with experiences, knowledge, and decision-making that will allow them to discover and prepare for their futures.

Purpose and Intended Outcome of Study

By investigating the orientation course model within CJHSD's career pathway framework, the influence of the career orientation course can begin to be defined and measured. Such research outcomes may provide evidence to assess the impact of the model, justify or refute its use, and identify best practices for implementation. Such research could be a basis for further study, identification of best practices, and refinement of the entirety of the career pathway framework.

Additionally, such efforts to study and define CJHSD's career pathway framework allow it to be documented in preparation for consideration for statewide and national scaling and policy development. The need to prepare students for future careers is not just an issue within CJHSD. Addressing the disconnect between schools and the needs of the 21st century economy is an issue of national relevance, so efforts to address such needs are of utmost importance for development and study.

Rationale for Study

The study of orientation courses within CJHSD's career pathway model has impact at local, regional, and national levels. Locally, by defining the influences of these courses, the redevelopment of the academic experience and creation of career pathways at each of CJHSD's high schools can be supported. It is critical for CJHSD's schools, its students, and its community that teaching and learning efforts are thoughtfully developed and grounded to research.

At the state level, Illinois has recently focused on the development of legislation and policy around career preparation at the high school level. The recently passed Postsecondary & Workforce Readiness Act (PWR Act) is the most recent example. Signed into law in 2016, the PWR Act aims to make students "being equipped to attend college and obtain meaningful

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employment...a top priority in Illinois education, because many students are currently graduating unprepared" (Advance Illinois & Education Systems Center, 2017). The act includes legislation related to the creation of new postsecondary and career expectations and the development of college and career pathway endorsements. Providing additional research and support around career pathway implementation, and specifically around early career decision-making supports, is in line with current state initiatives and ongoing efforts.

Lastly, at the national level, there is a need for increased study and development of career pathway efforts, due to the need for a more defined body of research around career pathways and the need to develop systems to better prepare students for transition into careers. A defined body of research around career and technical education is lacking with few "studies to document the effectiveness of CTE initiatives" (DeFeo, 2015, pp. 82-83), providing little evidence to identify best practices or implementation guidelines. By defining the outcomes of components of a career and technical education model, the knowledge base in this area can be improved.

In addition to efforts to better define the national knowledge base around career and technical education, employers have called for improvements to our nation's career preparation system. In a survey of more than 400 employers in which the level of workforce entrant preparation was identified, nearly no (0.2 percent) high school graduates, only 10.3 percent of two-year college graduate, and only 23.9 percent of four-year college graduates were ranked as being excellently prepared to enter the workforce. Moreover, 42.4 percent of high school graduates, 10.8 percent of two-year college graduates and 8.7 percent of four-year college graduates were ranked as deficient (The Conference Board, Corporate Voices for Working Families, Partnership for 21st Century Skills, & Society for Human Resource Management, 2006, p. 31). Furthermore, within this same survey, more than 75 percent of employers indicated

that "K-12 schools should be responsible for providing the necessary basic knowledge and applied skills for their new entrants" (The Conference Board et al., 2006, p. 54). There also has been a priority in addressing career pathways at the national level beyond businesses.

The importance of career pathways and support of career education has been nationally recognized for years. The Obama administration recognized that "creating career pathways for more Americans to punch their tickets to the middle class has been a priority for the President from day one" (Mesiala & Burke, 2016). Career and technical education and career pathways continued to be a top priority of both political parties during the last election, with it being within the position on both the Republican (Republican National Committee, 2017, p. 34) and the Democratic Party platforms (Democratic Platform Committee, 2017, p. 30). The Trump administration has continued demonstration of support through the approval of the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) in 2018 (Advance CTE, 2018).

Results from the investigation of CJHSD's career pathway model have the opportunity to make significant improvements in policy and practice related to student career pathway at the local, state and national level.

Personal Beliefs and Connections

I feel strongly that schools across our nation's public education system have an obligation to best support our students in preparing them for success once they complete their secondary education. While there are many facets of preparation that must be addressed, I believe one of the most important factors is that students graduate from high school not merely prepared to transition to jobs, but to family-sustaining careers. Schools must take an active role in supporting students towards this cause. With the combined changing demands of our 21st century economy

and with barriers of access and affordability related to forms of postsecondary education required by many careers, schools no longer can make assumptions that students will absorb necessary career information and skills without aligned, concentrated efforts. Such efforts require schools to adjust their focus and approach.

I also believe schools have an obligation to respond to the needs of their communities, specifically related to those needed to better prepare a local workforce that can support 21st century careers. I believe the very structure of our nation and community are at risk if a pipeline that prepares our youth for today's world of work is not intentionally developed and improved. While our elementary and secondary schools, postsecondary education institutions, industry, and the greater community at large all have a share in developing this solution, our public schools -- an entity which derives its financial support and very existence from the communities they serve -- have an obligation to lead the development of this work.

It is for these reasons that I have such a passion for this work and feel that through my position of authority and influence on career pathway efforts at the local, state, and national level, my efforts behind researching, improving and scaling CJHSD's career pathway model can have dramatic impact for our communities and nation as a whole.

Critical Issues of Study

There are a number of critical issues that influence my interests, work and research as well as the outcomes of this work and research.

The first of these issues is the interrelated nature of systems of career pathways, their experiences and their components. In this framework, there is a hierarchy starting with its individual lessons and experiences embedded in each pathway course. Pathway courses, in turn, are embedded within programs of study. Individual programs of study, such as a high school or

postsecondary certificate program, can then be stacked together to create an individual's entire lifelong career pathway, including a series of jobs across one's career. These hierarchical relationships are impactful because any change in the system, no matter how small or early in the process, has the ability to impact and elevate all the subsequent components and outputs of the entire system. A small improvement to a high school's career program of study has the ability to be multiplied throughout the system, positively impacting an individual's pathway and career outcome.

For example, if early efforts during a career orientation course put a student on a track for success within their career pathway, this success can be multiplied by appropriately connecting a student to future pathway components, leading the student to positive career outcomes and successes. Conversely, an inability to optimize the early stages of a career pathway can result in a student's educational time and efforts being wasted and a student being ineffectively prepared for careers, risking diminished long-term outcomes and successes. Providing students the right opportunities for early career exploration and skill development is critical to increasing success of the system.

A second critical issue relates to equity and appropriateness of fit for students within the career pathway model. As the career pathway model seeks to assist in putting all students on a track with the potential to influence the rest of their lives, it is critical that while all students must be given access to career pathways, there is not a "one-size-fits-all" approach; there is not such a thing as "one-size" of student. Without a lens of equity and unique opportunities being given to all students, a career pathway model could have unintended or inappropriate consequences. A poorly constructed or deployed career pathway model could be inappropriately or unintentionally used to support discrimination, reinforce stereotypes, or reemphasize hidden curriculum related

to the abilities and opportunities made available to individuals or groups. Without a commitment

to providing each individual with customized opportunities and supports that he or she

individually needs, the system could fail to acknowledge a student's unique strengths or

weaknesses and put them at a disadvantage and risk their ability to achieve future success.

Finally, the development and deployment of a career pathways model must include and

embrace a range of stakeholders. The career pathway framework focuses on connecting student

strengths and aspirations to teaching and learning facilitated by teachers and postsecondary

opportunities provided by employers and the community. Work and efforts cannot be the sole

responsibility of one institution, as an individual's career pathway is not limited to only one

discrete portion of their life. Rather, to effectively support the entirety of a career pathway, there

needs to be explicit efforts by multiple stakeholders to come together around the promotion and

preparation of the student to be successful in careers within their communities.

Research Goals

In order to best prepare our students for their futures and best support the identified needs

of our communities and industry, the primary goal of my research is to determine how schools

can best get the right students to the right opportunities. Specifically, I wish to consider the early

opportunities and interventions that schools can put in place to help advise student career

decision-making. One of the earliest student learning opportunities within CJHSD's career

pathway model is its orientation courses. As previously described, this first course in each of

CJHSD's career programs of study, which in addition to teaching subject-specific course content

also includes a survey of the next steps in the pathway, including both secondary and

postsecondary options as well as opportunities to explore careers within the pathway in an effort

to advise, confirm, and/or challenge a student's state of career decision-making. If students

identify that a career cluster aligned with this course is appropriate, they should leave with a very clear understanding of the opportunities and requirements that lay before them. If a student realizes they do not identify with this career cluster, they should then able to redirect their exploration towards other career areas. As orientation courses generally provide the first deep dive into a student's career cluster of interest, I want to determine the impact these courses have on student career decision-making and identify best practice practices for the improvement of existing and development of new orientation courses. Ultimately, the goal of my research is to determine how to impact student career decision-making through effective design and development of career orientation courses so students can be guided to the best possible career preparation opportunities and outcomes.

Research Questions

Through my research, I will attempt to address the following two primary research questions: (1) Whether and to what extent do career orientation courses impact student career decision-making? (2) Whether and to what extent do the courses impact students' confidence in their career decision-making?

Secondary research questions include: (1) At what rate do students in career orientation courses confirm their career decision-making? (2) What factors within career orientation courses do students identify as impacting their career decision-making? (3) What is the correlation between individual career exploration components within these orientation courses and student confidence in their career decision-making? (4) What are identified best practices within career orientation courses for increasing student career decision-making?

By building upon researchers before me in the fields of career and technical education and student decision-making and personally leading an investigation involving teachers and

students engaged with the CJHSD career pathway framework, I intend to develop a better understanding of the impact of the orientation coursework on the student career decision-making process.

SECTION 2: REVIEW OF LITERATURE

In order to address my research questions considering the influences career pathway orientation courses have on student career decision-making, it is important to consider previous related research and findings related to these topics. Within this chapter, I will first present theories and research related to the influences and processes related to career decision-making. I will then examine existing, traditional career preparation efforts and systems and research related to their abilities to effectively support student career decision-making in schools. Finally, I will discuss research and writings on current and proposed innovative practices for improving student career decision-making and preparation in schools.

Decision-Making Theory

McFall (2015) defines decision-making as the "internal processes by which a course of action or inaction is chosen from a set of two or more alternatives" and goes on to indicate that these processes may or may not result in a given behavior (p. 47). As a result, decision-making may result in action or inaction, an indication that an individual may choose to respond or not respond as a result of their internal decision-making processes (Reese & Rodeheaver, 1985). Decision-making occurs using a variety of internal processes and at times may outwardly appear to be an automatic process, despite the occurrence of these processes (Djulbegovic & Elqayam, 2017, Redish, 2013; Ross, 1981; Tversky & Kahneman, 1974). During other times, decision-making may be easily observable as outward, conscious cognitive systems and actions overriding these purely automatic systems (Redish, 2013). This process is exemplified in situation where an

individual touches a hot stove. Natural automatic decision making would cause their hand to be removed, but their conscious cognitive system could override this response if a motivation to do so exists. McFall (2015) identifies this as evidence of the internal, complex nature of decision and its relationship to behavior.

As discussed by Neel (1977), in order to be of value to science, a psychological theory must provide "comprehensive coverage and integrate all available data concerning that topic without internal conflict" (pp. 15-16). He goes on to indicate that theories that deal only with a small aspect of a subject are valuable only if they can be linked to other aspects of the same phenomenon and support a larger topic. (Neel, 1977, pp. 15–16). While decision-making research examines "fundamental part[s] of human activity" and "central problem[s] in psychology" (Maule, 1993, p. 61) and has received significant research focus in recent years (McFall, 2015), the field is disjointed, involves a diverse set of disciplines and lacks any universal theory and set of research (McFall, 2015; Oliveira, 2007; Slovic, Fischhoff, & Lichtenstein, 1977; Staats, 1991), resulting in a challenging context through which to examine and leverage existing research.

Given this challenging research context and the broad sets of decision-making research and theory from fields including organization management, medicine, economics, education, political science, geography, engineering, marketing, management science and psychology (Slovic, Fischhoff, & Lichtenstein, 1977, p. 1), I found it necessary to limit my focus to specific areas of decision-making theory associated with my topic of study. As the aim of my research is to identify how student decision-making supports student postsecondary career choices and actions, this portion of my research literature review will focus on behavioral decision-making theory as it relates to actions and behaviors in adolescent career decision-making and planning.

Behavioral Decision-Making

According to Oliveira (2007), behavioral decision-making considers the processes of human thought and reactions to the external world as they relate to determining action between different alternatives. He states that decision makers consider the multiple courses of action, reflect upon both past and future events, personal values and goals, and the psychological consequences to the decision-maker related to these events.

Many researchers acknowledge two groupings of decision-making theory: normative and descriptive (Djulbegovic & Elqayam 2017; Lee, 2013; McFall, 2015; Oliveira, 2007; Slovic, Fischhoff, & Lichtenstein, 1977). Each of these will be individually examined in the subsequent sections.

Normative decision-making theory. Normative decision-making, also referred to as rational decision-making (Oliveira, 2007), describes how people should or ought to make decisions (Djulbegovic & Elqayam, 2017; Lee, 2013; McFall, 2015; Oliveira, 2007; Slovic, Fischhoff, & Lichtenstein, 1977). Normative decision-making theories assume people view situations based upon a fundamental set of axioms, tools and rules (Oliveira, 2007) and make their decisions through these lenses using logical or mathematical analysis (Djulbegovic & Elqayam, 2017; Oliveira, 2007). Such analysis is based upon a number of key principles, including consideration of gains and losses, uncertainties and probabilities, human cognition, situational consequences and constraints and impacts on society and one's self (Djulbegovic & Elqayam, 2017, p. 916).

Critics of descriptive-decision making, including Hoch, Kunreuther, and Gunther (2001), indicate that people rarely adhere to logical models of choice, that variations in human behavior

may remove any theoretical basis in decision-making, and that many of these theories fail to effectively consider the influence of culture in decision-making.

   Expected utility theory. The primary normative decision-making theory is the expected utility theory. The roots of this theory go back to 1600s, with the mathematician and theologian Blaise Pascal's attempt to mathematically determine whether one should or should not believe in the existence of God (McFall, 2015). Pascal proposed a mathematical function to guide a decision by multiplying the expected utility, or expected benefit, of a given outcome by its probability of occurring (Stanford Metaphysics Research Lab, 2016). The decision that yielded the largest product, or overall utility, is the decision that should be followed (Tversky & Kahneman, 1981). In the case of Pascal, even in a case of an extremely small probability that God exists, the infinitesimal utility of an infinitely happy afterlife led him to decide to believe in God (Stanford Metaphysics Research Lab, 2016b). This type of analytical reasoning and logic is illustrative of the core approach of expected utility theory.

   Over the subsequent 300 years, the expected utility theory was modified, adjusted and applied to numerous additional areas beyond religion. It has been widely used to describe the behavior of humans (Raiffa, 1968), including actions in the fields of economics, public administration, politics, morality, motivation, health, social psychology and computer science (McFall, 2015). Despite translation to multiple fields over hundreds of years, the general premises of the expected utility theory have remained the same. The expected utility theory uses logic to predict the overall benefit of a given decision based upon the expected utility of its outcome and probability (McFall, 2015).

   Oliveira (2007) expands consideration of utilities for individuals, indicating they are representative of an individual's personal values and perceptions. This individualized aspect is

evidenced in that two individuals will not necessarily make the same decision if they are both placed in the same situation. Yoshimura (2013) provides an example of this, indicating that the value of receiving a $10 bill is different for someone with nothing in their wallet versus a person with a wallet full of $20 bills. The use of the expected utility theory would potentially result in different decisions and behaviors for each of these two individuals, as utility is defined by the values and perceptions of an individual.

Djulbegovic & Elqayam (2017) identify multiple criticisms of the expected utility theory, including that individuals do not evenly or effectively calibrate the utility or probability of events, that human cognition is often insufficient to complete the logic and analysis necessary to determine the ideal outcome of a given problem, and failure to consider emotions and risk-aversive behavior in the decision-making process.

Descriptive decision-making theory. Descriptive decision-making theories, also frequently referred to as psychological or cognitive theories (Oliveira, 2007), describe how and why people actually make their decisions (Djulbegovic & Elqayam, 2017; McFall, 2015; Oliveira, 2007; Slovic, Fischhoff, & Lichtenstein, 1977). These theories initially were studied in the mid-1900s as an alternative consideration to the pre-existing normative decision-making models (McFall, 2015; Stanford Metaphysics Research Lab, 2016a). Descriptive decision-making theories identify how psychology and cognition actively are used to reach a decision rather than simply using logic and rationality to determine how the decision should be made (Oliveira, 2007). While descriptive decision-making theory is intended as a challenge to normative decision making theory it does not offer a universal approach to decision-making theory; however, it has been able to explain how and why deviations from normative models exist in some instances (Oliviera, 2007).

There is a wide range of individual descriptive decision-making models, each describing how decision-making occurs in slightly different ways (McFall, 2015; Stanford Metaphysics Research Lab, 2016a; Tversky & Kahneman, 1981). In the following sections, key descriptive decision-making theories, including bounded rationality, attribution and schema, prospect and ambiguity theories, will be described.

Bounded rationality. In his paper "Rational Choice and the Structure of the Environment", Simon (1956) first argued that concepts of learning theory appeared to better account for behaviors than previous theories on rational behavior. Simon (1956) indicated that an individual's personal and environmental factors "limit sharply its planning horizon" (p. 131), suggesting it is not feasible to identify and consider every possible outcome as proposed in expected utility theory. Further, he challenged the need and practicality of maximizing any single decision's utility function, as in reality individuals often are faced with satisfying multiple needs at once and it may be more appropriate for the individual to "satisfice" a situation rather than fully "optimize" (Simon, 1956, p. 129).

This revised perspective of rationality was the basis of the bounded rationality models of decision-making, where it is accepted that a decision maker does not always have the complete information nor the need to seek out an optimal outcome for every decision to complete his or her goal. Over time, the theory of bounded rationality was refined and expanded to consider the influences that context, environment, cognitive ability, previous information and social factors all have on decision making (Djulbegovic & Elqayam, 2017; McFall, 2015; Simon, 1997; Tversky & Kahneman, 1981).

Attribution and schema theories. An additional descriptive decision-making theory, attribution theory, was first proposed by Heider (1958). Attribution theory is a cognitive theory

describing the cognitive processes undertaken by individuals when they assign common attributes to behaviors in an attempt to explain the world around them (Kelley, 1973). Schemas, first introduced as a cognitive psychological theory in 1911, describes patterns of thoughts and memories that individuals use in the organization, categorization and retrieving of information (Ghosh & Gilboa, 2014). Schemas and attributions are impactful on decision-making because they each influence how individuals group and process new and existing information that drives future decisions and actions as schemas and attributes are combined together to form scripts and shortcuts for action (Oliveira, 2007).

Heuristics are the strategies, rules and shortcuts people use to test schemata and attributes and support the processing of new information (Djulbegovic & Elqayam, 2017; Oliveira, 2007). Heuristics allow an individual to rely on past knowledge, information and processes and ignore part of the information presented to make a decision "more quickly, frugally, and/or accurately than more complex methods" (Djulbegovic & Elqayam, 2017, p. 919). Intuition and other subconscious decision making are considered examples of heuristics (Dhami & Mumpower, 2018).

Heuristics are generally categorized one of three ways: availability, representativeness and anchoring (Djulbegovic & Elqayam, 2017; Tversky & Kahneman, 1974). Availability is a heuristic in which individuals relate new, ambiguous information to previous experiences and outcomes that can be brought to mind. Representativeness involves individuals assuming that similarities between current and past events will yield similar outcomes. Anchoring and adjustment involves having an individual estimate the magnitude of change (adjustment) due to a given decision by referencing it to a known starting point (anchor). All of these methods allow

an individual to expedite decision-making processes by using past knowledge and experiences to make estimates on future events.

   Prospect and ambiguity theories. Another descriptive theory, prospect theory, was originally proposed by Tversky and Kahneman (1979). This theory suggests that people make decisions based on the potential value of losses and gains rather than the final outcomes, and people evaluate these losses and gains using heuristics (Hogarth, 1994). The theory has two main elements: a value function and a decision weight function. The weight function reflects the probability of the outcome of the choice. The value function considers three factors: (1) an evaluation of the outcomes in terms of gains or losses, (2) a consideration of the outcome relative to an individual's previously defined point of reference -- the greater the change from the point of reference, the more sensitive the individual is to the change, and (3) an acceptance that individuals define losses and gains with different levels of intensity (Oliveira, 2017).

   A final related descriptive theory, ambiguity theory, was formalized by the work of Ellsberg (1961), and suggests that decisions are made in manners that appear to violate normative expected utility theories. In ambiguity theory, an individual's choice is heavily influenced by the level of uncertainty in the probabilities of outcomes of their actions. It suggests that decision makers prefer to take known risks over unknown risks even if the utility of the outcomes are diminished (Einhorn & Hogarth, 1985; Oliviera, 2017).

Influences on Behavioral Decision-Making

   Beyond study of overall theories of decision-making, substantial research has been performed on individual conditions and aspects that influence individuals' decision-making. In the following sections, the influences of cognitive development, culture and social factors on decision making will be examined.

Cognitive development. Research has shown there is variation in how and to what extent individuals develop the cognitive skills and abilities necessary for decision-making (Cauffman & Steinberg, 2000; Cowan, 2010; Datti, 2009; Fischhoff, Crowell, & Kipke, 1999; Gordon, 1996; Kitchener, Lynch, Fischer, & Wood, 1993; Piaget & Cook, 1952; Piaget, 1972; Steinberg & Cauffman, 1996; Vlaev, 2018; Welfel, 1982). In the following sections, the influences of individual cognitive factors will be considered.

Genetic endowments and special abilities. Research has indicated that genetic endowments, predispositions and special abilities may influence an individual's decision-making processes and outcomes (Datti, 2009). Heredity and development of structural organs and qualities can lead to individuals having different abilities to adapt, process resources, access memories, manage time and be motivated (Piaget, 1952; Vlaev, 2018), resulting in biases in the decision-making process and outcomes between individuals (Vlaev, 2018).

Operational thinking. Piaget (1952) theorized that throughout life, individuals move through various stages of cognitive development, each with its own level of maturity of mental processes of knowing. Key areas of cognitive development as they relate to decision-making include perception and reasoning.

From pre-adolescence to adulthood, individuals progress from stages of concrete to formal operational thinking. Throughout this progression, an individual's thinking and reasoning shifts from focusing solely on the immediate, physical world to being able to hypothesize and abstract as well as consider future actions, decisions and related consequences (Fischhoff, Crowell, & Kipke, 1999; Gordon, 1996; Piaget & Cook, 1952; Piaget, 1972). This results in individuals being able to more effectively undertake more complex decision-making processes as they transition from childhood to adolescence to adulthood (Fischhoff, Crowell, & Kipke, 1999).

Critics of Piaget's stages of cognitive development indicate that the theory solely addresses physical problems and fails to effectively describe internal processes of self-consciousness and reflection -- tasks required for advanced decision making (Kitchener, Lynch, Fischer, & Wood, 1993; Welfel, 1982).

Development of judgment. An individual's use of judgment in decision-making involves consideration of his or her own performance, ability, characteristics and consideration against explicit criteria developed from firsthand data and prior experiences (Cowan, 2010). Research suggests that such judgment depends upon three factors: responsibility, temperance and perspective (Steinberg & Cauffman, 1996), and that these factors are neither exclusively cognitive nor psychosocial processes. Rather, factors of judgment are products of one's cognitive development as well as social experiences (Cauffman & Steinberg, 2000). It is suggested that one's maturity of judgment develops over time, allowing the consideration of more complex decisions throughout adolescence (Cauffman & Steinberg, 2000; Kitchener, 1993). In a study by Cauffman and Steinberg (2000) of more than 1,000 adolescents and adults, it was found that both age and gender influenced the level of maturity of judgment, with judgment increasing by age and being greater for females. Research did find, however, that individual factors of responsibility, temperance and perspective were more indicative of mature responsibility than age or gender alone.

Influence of culture. Merriam Webster's Dictionary defines culture as "the set of shared attitudes, values, goals, and practices that characterizes an institution or organization" (Culture [Def 2], 2018). As noted in Oliviera (2007), a number of researchers (Geva & Mintz, 1997; Hastie & Dawes, 2000; Higgins & Bargh, 1987; Hogarth, 1994; Meneghetti & Seel, 2001; Stein, & Welch, 1997) have indicated that these components of culture are influential aspects on an

individual's decision-making processes. Oliveira (2007) expands on this notion by stating that "culture teaches preferences in life and manifests itself in how people behave, think, and believe" (p. 15). He further states that such preferences, behaviors, thoughts and beliefs are used as bases of cognitive processes, interpretations and decisions linked to the individual's previous experiences and environments.

Social influences. The social context in which decisions occur is influential on the processes and outcomes upon which decisions are made (Behrens, Woolrich, Walton, & Rushworth, 2007; Lee, 2013; Seo & Lee, 2014). Lee (2013) indicates that decisions made in social settings are jointly made through the actions of multiple decision makers. In the following sections, two key social theories describing the social interactions related to decision-making processes include Erikson's (1959) theory of psychosocial development and Bandura's social learning (1977) and social cognitive (1986) theories.

Erikson's theory of psychosocial development. Erikson's (1959) theory of psychosocial development describes eight life stages in which individuals experience psychosocial crises that influence their identify, growth and development. Five stages exist up to the age of 18, and three additional occur during adulthood.

Erikson (1963) utilizes the term psychosocial crises in his theory as each stage involves a conflict between an individual's psychological needs and the needs of society. When an individual resolves their conflict, they successfully complete their stage and develop a healthier personality and sense of self. An individual who fails to find resolution has diminished self-perceptions and may be challenged to continue to grow and complete future stages.

During adolescence, the primary experienced psychosocial stage involves a crisis of identity and role confusion. During this time, individuals examine their past and current roles in

society and determine where and how they will fit into society as they enter adulthood (Erikson, 1968). Specifically, during this period, adolescents are challenged as they search for a choice of occupation that is personally expressive but also socially recognized (Waterman, 1982). In order to successfully pass through this stage, adolescents must connect their childhood and what they anticipate for their futures. They must also find a connection between their personal vision of self and the vision they perceive society has set for them (Erikson, 1968).

  Bandura's social learning and social cognitive theories. The influence of society on decision-making and development is further described by Bandura's social learning (1977) and social cognitive (1986) theories. Social learning theory describes that individuals imitate the behaviors they observe being modeled around them, and develop behaviors through social reinforcement. Such imitation occurs according to four processes: attention, retention, reproduction and motivation. Attention is the extent to which an individual notices a behavior. Retention is the amount of which the behavior is remembered and retained in memory. Reproduction is the ability of an individual to perform the behavior that was observed. Motivation is the will, or consideration of risks and benefits, to repeat the behavior. In collective consideration of these factors, individuals make conscious and unconscious decisions to repeat behaviors they previously observed (Bandura, 1977).

  Social cognitive theory further refines these concepts by indicating that behavior, cognition and environmental factors all bi-directionally influence one another (Bandura, 1986). This results in a decision-making process that does not occur in a static environment with simple inputs and outputs, but rather one that is dynamic and inclusive of internal and external factors and dependent upon behaviors and actions.

Career Decision-Making

In the previous sections, foundational theories in the study of decision-making were examined in an attempt to develop a broad base from which more focused theories and research on career decision-making can be presented and examined. Career decision-making can be defined as a subset of general decision-making in which individuals make choices about occupations, education, training and employment (Sampson, Reardon, Peterson, & Lenz 2004), choices which can be considered amongst the most essential decisions individuals make in their lives (Atta, Akhter, Shujja, & Shujaat, 2013). According to Gatti (1986), key challenges individuals encounter in career decision-making include the lack of information regarding self-knowledge of the decision maker and career options, a lack of resources to obtain all necessary information, cognitive limitations to retain all necessary information and a lack of a framework for processing necessary information. Thus, career decision-makers are frequently presented with situations requiring them to identify the best decision based upon incomplete information and limited abilities (Crombach & Gleser, 1957, Gatti, 1986).

Quality of career decision-making is frequently measured in one of two ways by researchers. Some examine the process of decision-making and others examine the outcome of the decision-making process as it relates to employment and career attainment (Gati, 1986). While in experimental situations, outcomes can be isolated and measured to determine quality of decision-making (Krumboltz, Rude, Mitchell, Hamel, & Kinnier, 1982; Krumboltz, Scherba, Hamel, & Mitchell, 1982), in real life situations, it is generally necessary to focus on the quality of the cognitive processes given the complexities and uncertainties in the contexts in which career decisions are made (Katz, 1979; Pitz & Harren, 1980).

While career decision-making has been studied for more than 100 years since the publishing of Parson's (1909) *Choosing a Vocation* (Baker, 2009), it continues to be an area in need of active and refined research (Argyropoulou, 2007; Kelly & Lee, 2002; Tinsley, 1992).

In an attempt to develop a broader understanding of the practices and considerations that influence career decision-making, in the following sections, an examination of different influences on career decision-making and an overview of leading career decision-making theories will be examined in greater depth.

Influences on career decision making. Influences on career decision-making can be classified into three major categories: social influences, psychological influences and economic influences (Theresa, 2015). Below, each will be examined within the context of career decision-making to complement the influences previously linked to general decision-making.

Some sociologists consider social factors to be the most significant influences on career decision-making (Theresa, 2015). Friesen (1981) indicates this impact of social factors from two separate lenses. First is the influence career choice has on social factors, as it a major determinant of social class, residential area and educational and cultural opportunities afforded to a person. Second is related to the influence social factors have on career choice, as the range of occupations an individual will consider is largely determined by the expectations society has for an individual and social class to which an individual belongs. Further research by the Education Advisory Board (2018a) indicates that students tend to form their career decision-making and identities based upon what they see most commonly throughout their life. They indicate that the primary influences on careers include their family and community networks, societal norms and careers they see in advertisements and television, and that students are largely unaware of career opportunities that do not fall within these social considerations.

Psychological and cognitive factors also have been indicated to have great influence on career decision-making. Psychologists suggest career choice is an expression of the personality, self-concept, values and lifestyle of an individual. Individuals drive their career decision-making to live out their dreams, goals, hopes and aspirations; seek satisfaction; and fulfill their needs (Friesen, 1981; Judge & Bretz, 1992; Theresa, 2015). Career decision-making has been linked to Maslow's (1943) research on how individuals seek to address their hierarchy of needs, starting with basic physiological needs and progressing toward self-actualization (Friedman, 2014; Guy & Pentz, 2017). Research also has suggested that other psychological factors of self-efficacy, self-esteem and realistic thoughts around careers have a significant influence on career decision-making (Atta, 2013; Lent, Brown, & Hackett, 1994; Lent, Brown, & Hackett, 2000).

Finally, economists also have indicated the direct influence the broader economy has on individuals' career decision-making. Dependent upon the state of the economy, how an individual makes career decisions in relation to his or her established values, aspirations, skills and aptitudes may vary in an attempt to match the state of the economy to his or her needs (Friesen, 1981).

Career decision-making theories. Parson's (1909) *Choosing a Vocation* represents the first formal consideration of career decision-making as a field of research. Following this seminal work, multiple individuals have conducted subsequent research and developed new theories. While most theories considering similar concepts and periods of career development, they are distinguished from one another based upon their choice of emphasis of one or more aspects (Osipow & Fitzgerald, 1996). Using the organizational model suggested by Chen (2003), career development theories can be categorized into one of three groups based upon their emphasis and beliefs on careers. These groups include theories indicating that careers result from

self-realization, careers result from personal growth, and careers result from context conceptualization. In the following sections, examples from each of these career decision-making theory groupings will be discussed.

   Self-realization - career inventories. Career development and decision-making theories that focus on one's self-realization suggest that career decisions and actions are rooted in an individual's learning about and examination of oneself. Self-exploration and inventory tools such as the Myers-Briggs Type Indicator and the Strong Interest Inventory are two examples of theory-based tools used to enhance self-realization in support of career decision-making.

   The Myers-Briggs Type Indicator (MBTI) is a personality inventory widely used in career counseling for the purpose of helping individuals identify careers for further exploration (Chauvin, Miller, Landrum, & Thomas, 2010; Healy & Woodward, 1998). MBTI is rooted in Jung's theory that individuals have psychological and personality preferences for performing certain tasks (Jung, 2016). These psychological and personality preferences are comparable to an individual's physical preferences of dominant hand or eye. The Myers and Briggs research subsequently focused on how to measure such psychological and personality preferences, resulting in their development of the MBTI (Kennedy & Kennedy, 2004). Myers (1998) suggested that the MBTI helps individuals better understand their own selves, motivations, strengths and growth potential (Myers, 1998). Such knowledge can allow them to better consider how this knowledge relates across a number of contexts, including the world of work (Kennedy & Kennedy, 2004). Critics of the MBTI question whether the tool accurately measures the Jungian concepts it was designed to examine and whether individuals in different occupations actually have distinct enough MBTI scores from the general population (Healy & Woodward, 1998).

The Strong Interest Inventory is based upon research completed by Strong in which he systematically collected the types of things in which employees in different career areas were interested. After analyzing the data, interest patterns emerged for people in similar careers (Hansen, 1987) resulting in the creation of the Strong Interest Inventory. The Strong Interest Inventory is a tool allowing an individual to learn more about their own self through a 291-item self-examination of interests. Results are compared against the collected interests of others, allowing for the development of a list of potential careers of interest for the individual (Case & Blackwell, 2008).

Super's theory of vocational choice. The second category of career development and decision-making theories focus emphasize that careers come about from a process of personal growth through experiences and opportunities an individual has over time.

A primary leading theory in this area is Super's (1955) Theory of Vocational Choice. Super describes career development as being a lifelong process involving one's changing knowledge, identity, social settings and needs. These changes both require and inform an individual's decision-making (Osipow & Fitzgerald, 1996).

Super went on to identify that career development occurs through a series of stages (DeFeo, 2015; Theresa, 2015). One is the exploration phase, which occurs during adolescence. During the exploration phase, individuals begin to develop awareness about careers and the need to make career decisions (Theresa, 2015). This process parallels their development of self-concept, as the transitions of one's self-concept place different pressures on one's career identity and behavior (DeFeo, 2015; Osipow & Fitzgerald, 1996). He also wrote extensively on how career development can be supported and directed, specifically noting those in the exploration phase during adolescence should be provided all necessary information for making career

decisions at that stage so to avoid future errors or needs to correct past decisions (Osipow & Fitzgerald, 1996).

While many aspects of Super Theory of Vocational Choice have been empirically confirmed (Osipow & Fitzgerald, 1996), it has been criticized for its lack of representativeness for women and minorities and its lack of ability to be applied to changing and non-traditional contexts (Osipow & Fitzgerald, 1996; Savikas & Lent, 1994).

Ginzberg, Ginsburg, Axelrad and Herma's theory. A second theory that primarily considers careers as a personal growth process includes that of Ginzberg, Ginsburg, Axelrad and Herma (1951). Similar to Super, they suggested career decision-making occurs through a series of stages which progressed through a predictable sequence (Oladele, 2000; Osipow & Fitzgerald, 1996). The researchers explain that each stage of career development has a series of problems that need to be solved, and progress from one stage to the next is based upon abilities to solve these problems. The model focuses heavily upon the career behaviors an individual must exhibit in each stage to develop in their career maturity and less on the career and occupational outcomes in each stage (Osipow & Fitzgerald, 1996). During adolescence, the key problem to be addressed is in individual's need to define their interests and develop capacity to support his or her career choice (Theresa, 2015). The theory suggests that if an individual is failing to perform within the appropriate range of behaviors, career support efforts should be focused on their current stage to accelerate their development into the appropriate levels (Osipow & Fitzgerald, 1996).

Context conceptualization - Holland's career typology. The final category of career decision-making models focuses on context conceptualization. This is the consideration that every career, and every individual working within that career, is subject to the context in which

they exist. The goodness of fit of the individual, job and career are subject to this context (Chen, 2003).

Holland's Career Typology (1959) emphasizes that career choice and behavior is linked with its situational context (Oladele, 2000; Osipow & Fitzgerald, 1996; Theresa, 2015). The match between an individual, the career and the context in which they exist must be aligned in order for an individual to achieve career satisfaction, achievement and stability (Theresa, 2015). Factors such as social class membership, existing economic opportunities, the organization of the world of work and one's individual perception of each of these all influence how career decisions are made (Osipow & Fitzgerald, 1996). To aid appropriate career decision-making, Holland suggests it is important for an individual to have accurate self and career knowledge and be able to individually and collectively evaluate themselves and their context with accuracy (Theresa, 2015). Holland emphasizes that youths' contexts of careers, including their perceptions and stereotypes about different careers, can be particularly impactful on their view of how they fit into the world and, hence, on their decision-making (Osipow & Fitzgerald, 1996).

Traditional Models of Career Decision-Making Supports in Schools

Grounded in a fundamental understanding of decision-making theory discussed in the previous section, the following section provides an examination of traditional models of career decision-making that occur in schools. First is a consideration of broadly enacted policies and practices related to career development and career decision-making supports. Following will be a descriptive summary of both successful and unsuccessful results of these broadly enacted models of career education as they relate to student career decision-making and preparation.

History and Current Political State Around Career Education and Decision-Making

Career education and decision-making supports date to the early 1900s, with the first comprehensive school counseling and guidance program focused on career awareness, selection and preparation (Pope, 2009; Schenck, Anctil, Smith, & Dahir, 2012) and subsequent initial research into vocational education (Parson, 1909). Over the following century, a variety of changes and developments in career education were developed and promoted. During the 1930s, vocational guidance and counseling were split into separate entities -- with guidance, the development of career awareness, and counseling, the helping of students transition into postsecondary opportunities, being supported as separate aspects. This is a split that still can be observed in schools today (Schenck, et al., 2012).

Over following decades, the presence of career education in schools oscillated back and forth as areas of emphasis in schools adjusted to the will of political and social priorities. In the 1940s, career education diminished due to a resurgence of liberal arts education and a focus on personal-social development (Gysbers & Henderson, 2006). Career guidance and education in the areas of math and science reemerged in the 1950s with the launch of Sputnik 1 and expanded to other skilled occupation areas through the 1960s and '70s (Schenck, et al., 2012). The 1980s publishing of The National Commission on Excellence in Education (1983) report "A Nation at Risk" shifted the focus of schools back to core academic areas and had a detrimental impact on vocational education (Herr, 1995). During the 1990s, career education and decision-making supports began to increase in importance in schools; however, with the enactment of No Child Left Behind Act in 2001 (No Child Left Behind [NCLB], 2002), career education and guidance returned to a diminished state due to the focus on improving core academic achievement (Schenck, et al., 2012).

While career education has had some periods of elevation over the previous decades, overall it has been held at a "marginalized or second-class place in the secondary realm, resisting its reputation as less desirable than academic pathways" (DeFeo, 2015, p. 95). Despite this, given some "recent initiatives of the past two decades, it is gaining recognition as a viable and respectable option" for students who have aptitudes and interests in alignment with career areas (DeFeo, 2015, p. 95).

Some of these changes involved the adoption of the Carl D. Perkins CTE Improvement Act of 2006 (2006), commonly known as Perkins IV. Perkins IV identified the concept of the career program of study as a legislative federal priority. The career program of study is a construct that prioritizes both the technical and academic skills students need to earn a career credential and involves the creation of a secondary-to-postsecondary plan by which students can achieve this outcome (DeFeo, 2015). This concept moved career education toward a more equal level to academic coursework. However, simultaneous to the federal government raising the importance of career education through this act, it also decreased funding for career and technical education funding through Perkins from $1.3 billion in FY2007 to $1.1 billion in FY2017 (Education Advisory Board, 2018a, p 10), sending mixed messages regarding the level of importance.

Recent economics also have played a dominant role in the political prioritization of comprehensive career education. The Education Advisory Board (2018a) noted that prior to the Great Recession of 2007, "comprehensive career education was not a priority of the US public school system" and high schools focused on all students attended college (p. 8). In response to the Recession and parallel rising concerns of student debt and college affordability, the education system has shifted toward a model emphasizing both college and career readiness and has been

exploring approaches that emphasize a blend of college and career readiness (Education

Advisory Board, 2018a).

Individual states also have moved toward promoting the importance of career education.

In South Carolina, a plan for mandatory comprehensive CTE for all students has been enacted

(Mobley, Sharp, Hammond, Withington, & Stipanovic, 2017). Kentucky has developed

accountability standards that place equal emphasis on academic and career preparedness

(Ferguson & Lamback, 2014). Kansas pays students' college tuition and awards high schools

$1,000 for each student who completes an industry-recognized credential in a high-demand

occupation before graduation (Ferguson & Lamback, 2014).

Overall, while many reform efforts emphasizing career education based upon the need for

educational relevance, improved preparation for careers and increased student readiness for work

have been implemented (Mobley et al., 2017), the net continued policy of promotion of universal

higher education and college-for-all approach by American high schools has resulted in the

public education system continuing to move farther away from adequately preparing students for

work and careers (Education Advisory Board, 2018a).

General Structures and Capacities of Career Education Programs

There is great variation in the formats of career programs in high schools (Education

Advisory Board, 2017), with career education being delivered in formats including career

academies, career and technical education-only centers, career and technical education-focused

high schools, early college and high school career models and traditional, comprehensive high

schools that provide some level of career education coursework (Education Advisory Board,

2018a; Education Advisory Board, 2017; Lynch 2000; National Career Pathways Network &

Institute for a Competitive Workforce, 2009). Each model has its own unique characteristics,

philosophies, and advantages/disadvantages (Education Advisory Board, 2017a). With full acknowledgement of the varied structures, use and support of career education in high schools, the following sections will examine general descriptions and research related to current efforts in career education. These considerations will be generalized for the purpose of framing overall examination of successes, failures and proposed recommendations to career education in the United States.

Components of career education programs. Career education is generally noted as containing a few core components, including career and technical (CTE) coursework, work-based learning experiences and other extensions to the classroom, and systems of support and guidance to allow students to navigate early and future career opportunities (Education Advisory Board, 2018a; Mobley et al., 2017; National Career Pathways Network & Institute for a Competitive Workforce, 2009). The intention of unifying these components within a career pathway is to provide students the ability to experience "education with a purpose" (Hull, 2005) and provide educators, students, employers and society with the benefit of context, purpose, focus, rigor and relevance, and a level playing field in education (National Career Pathways Network & Institute for a Competitive Workforce, 2009).

Counseling as part of career education. For success in career preparation of students, career guidance and counseling is a critical complement to career education and preparation (Herr, 2013; Mobley et al., 2017). Counselors play a role in the development of student self-concept and knowledge and can support the creation of student connections and identifications with careers (Foskett, Dyke, & Maringe, 2008; Theresa, 2015). Counselors are able to support student career and self-assessment, provide objective guidance and support, challenge entrenched

perceptions on careers, place students in relevant opportunities and provide support behind their decisions and plans (Foskett et al., 2008; Theresa, 2015).

Despite the need for supported and connected career counseling systems, according to Harvard University's Pathways to Prosperity project (Ferguson & Lambeck, 2014), career education is inadequately supported by career counseling, and that "high quality career guidance is an anomaly in most of the nation's school systems" (p. 52). This results in significant counseling gaps for many students. The focus of counselors in high schools is generally not on career guidance; rather it is focused on students' personal, psychological and social problems (DeFeo, 2015) or administrative tasks related to scheduling, discipline and college application processes (Ferguson & Lambeck, 2014). According to the Education Advisory Board (2018a), an average of 90 percent of counselor time is being spent on tasks unrelated to college and career advising. Furthermore, the staffing of school counseling is insufficient, with current high school average student-to-counselor ratios being 491:1 versus the recommended 250:1 (Education Advisory Board, 2018a, p. 50). Only 36 percent of high school students receive guidance from counselors in determining future career options, and 62 percent of high school students rate their counselors as "fair" or "poor" in helping them think about careers (Education Advisory Board, 2018a, p. 50).

Staff capacity in support of career education. Staff's ability to effectively address both academic and career aspects of learning and planning is important to ensure students' awareness and choices are not inappropriately directed or limited to a narrow range of options (Foskett et al., 2008). Ensuring that education staff have the right knowledge and skill sets to support this work is critical to promoting success in career education and planning (Ferguson & Lambeck, 2014).

Despite this need, the capacity of schools to effectively support students' academic and career needs is inadequate (Ferguson & Lambeck, 2014). One factor of this inadequacy is the number of staff in high school who are prepared to effectively prepare students for careers. Whether considering teachers or counselors, not enough staff have been prepared to the necessary level of expertise in career education and counseling (Education Advisory Board, 2018a; Ferguson & Lambeck, 2014). While teachers are best positioned to provide in-depth career supports to students in their classrooms, too many are unfamiliar with career pathways and are unable to effectively communicate information to their students (Education Advisory Board, 2018a). Additionally, teachers lack the training to integrate technical, career content within their curriculum (Ferguson & Lambeck, 2014), and fail to create authentic career experiential learning opportunities for their students (Education Advisory Board, 2018a). Even in models in which authentic curriculum, activities and support are provided from industry partners, inadequate teacher capacity in career education limits effectiveness (Education Advisory Board, 2018a).

A second challenge relates to the lack of exposure to careers in which counselors and teachers need to have expertise to effectively support students (Education Advisory Board, 2018a; Ferguson & Lambeck, 2014). This is compounded by the unrealistic expectation for "one person with limited labor market training to be able to provide in-depth guidance across every industry" (Education Advisory Board, 2018a, p. 53). This could be partially addressed by leveraging content teachers to serve as industry-specific guidance experts, but high school models do not generally depend upon these individual to provide career guidance (Education Advisory Board, 2018a).

Outcomes and Results of Career Decision-Making Models

Across the following sections, an overview of research related to outcomes of current career decision-making supports in schools will be presented. Such a consideration is made in an attempt to provide insight around successful and promising facets of the current career education model, that should be sustained and unsuccessful facets which should be considered for change.

Such an examination of successes and failures of education's impact on student career decision-making is complicated by a number of factors. First, within the field of career education, there is general lack of sufficient research (DeFeo, 2015; Lambeth., Joerger., & Elliot, 2009; Lewis, 2008; Miller & Gray, 2002; Rojewski & Hill, 2014). The research that has been completed has been criticized for its lack of quality and ability to be generalized beyond specific contexts or individual disciplines (Rojewski & Hill, 2014).

Such considerations are further complicated due to a lack of cohesive research that examines career decision-making outcomes. While the field of decision-making has been extensively studied (McFall, 2015; Oliveira, 2007; Slovic, Fischhoff, & Lichtenstein, 1977; Staats, 1991), very few researchers have examined the influences and outcomes of students in their career decision-making (Argyropoulou, 2007). Because of these challenges, throughout the following sections, research on outcomes both directly and indirectly tied to career decision-making will be examined in an attempt to gauge the success of these current systems.

Academic success and coursework. Studies show that students who participate in career education coursework demonstrate marginal or no academic gains (Bozick & MacAllum, 2002, Bragg & Rudd 2007; Castellano, Sundell, Overman, & Aliaga, 2012; Dare, 2006; Hudson & Hurst, 1999; Lewis, 2008). CTE concentrating students -- students who take multiple career education courses in one area -- do tend to take fewer math and science courses than students are

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not concentrators (Stone & Aliaga, 2005). The Pathways to Prosperity project (Ferguson &

Lambeck, 2014) suggests that such shifts in enrollments are due to a lack of secondary school

curricula designed to simultaneously address both academic and career student needs, focusing

solely on either college or vocational preparation.

Career identification and confidence. The impact of career education courses on

student confidence in their career decision-making has mixed results.

In reports from the National Research Center for Career and Technical Education (Lekes

& Bragg, 2007) and the Institute of Higher Education Leadership & Policy (Offenstein, Moore,

& Shulock, 2009), it was found that students who take CTE courses feel more confident about

their career direction and goals. In a study by Mobley et al. (2017) of more than 1,000 students

from six high schools, CTE students reported higher levels -- 93 percent versus 82 percent -- of

career identification than non-CTE students.

In contrast, in a study by DeFeo (2015) of 1,134 high school students enrolled in CTE

courses 61 percent reported they knew "very little" or "nothing" about careers related to the CTE

course they recently completed. When student responses on their career interests and subsequent

career decisions and actions were considered, a high level of incongruence was observed,

suggesting students had a high level of uncertainty in their career decision-making.

Career and postsecondary planning and preparation. Despite career and

postsecondary planning and preparation being a core component of career pathways models

(Education Advisory Board, 2018a; Mobley et al., 2017; National Career Pathways Network &

Institute for a Competitive Workforce, 2009), the majority of research points towards a failure of

CTE participation to positively impact these factors.

A number of studies show a disconnect between students' career goals and their actions. According to research from the National Center for Education Statistics (2004) on students who enroll in CTE courses, many of the reasons for doing so are unrelated to their individual career decision-making and/or career trajectories. U.S. News and World Report (Sheehy, 2013) reported that 91 percent of 13- to 17-year -olds indicated they knew what career they wanted to pursue, but only 36 percent of high school graduates chose majors that aligned with their strengths and interests.

According to Arrington (2000) and Kosine & Lewis (2008), while students are choosing courses that have significant impact on subsequent career opportunities, they frequently do not know enough about their career and course options to make informed decisions. DeFeo (2015) expanded on this by stating that while "students are not engaging in career planning, they are nonetheless choosing high school courses" (p. 86) and that they are at risk of choosing courses misaligned with their career aspirations.

Student planning, course and career misalignment also could be linked to failures in appropriate advising, counseling and promotion and awareness of career opportunities. According to research by the Education Advisory Board (2018a), high-achieving students are often over-pressured into demanding career areas such as medicine, computer science or engineering, and are provided a lack of appropriate information on what these careers actually entail and require. Castellano et al. (2012) found that in other situations, students frequently are put into career courses based not upon their career interest but due to lack of other course options.

The Education Advisory Board (2018a) also found that promotion of student career opportunities is limited by geographic disparity of job markets, reducing students' awareness of careers that may align with their skills and interests.

As result of these misaligned efforts, many students leave high school without an appropriate plan for their future and are making postsecondary plans related to college majors and careers without appropriate opportunities to explore what best aligns with their skills and interests (Education Advisory Board, 2018a).

While research is overwhelmingly negative on outcomes related to postsecondary planning and preparation, there is limited research that indicates successes of career advising. According to Mobley et al. (2017), students who participate in career education have higher rates of individualized graduation plan development, participate at higher rates in career planning and development opportunities and have a higher rate of identification of specific jobs they plan to pursue.

College attendance and success. Limited research examining the benefits of CTE participation on college attendance is mixed (DeFeo, 2015).

The National Research Center for Career and Technical Education (DeLuca, Plank, & Estacion, 2006) examined the impact CTE participation had on college attendance based upon the examination of 8,984 youth tracked through the National Longitudinal Survey of Youth 1997. Overall, CTE participation appeared to be correlated with lower chances of college enrollment, but there is no significant impact on activities and choices once students were at college. The research found students who took a large number of CTE courses relative to academic courses had a diminished rate of college attendance, with students taking more than half their classes in CTE having a significant reduction. In a separate consideration of the

National Longitudinal Survey of Youth 1997, Cellini (2006) found that while CTE participation increased enrollment in 2-year colleges, enrollment at 4-year institutions decreased. The net effect on college attendance was nearly zero, "falling short of [CTE's] goal of smoothing the transition to college" (p. 409).

In a study following 40 CTE students from a top-rated CTE program completed by Miller & Gray (2002), it was found that CTE students who completed their high school program were more likely to enroll in college as full-time students than their non-CTE peers, though only 30 percent of students who began the program persisted until completion.

In studies on student success at two different community colleges by Bragg & Rugg (2007) and Krille & Parmer (2002), each found that CTE enrollment does not have an impact on subsequent college GPA.

Collectively, these studies indicate that CTE participation has not had its intended positive impact on postsecondary college attendance and success.

College and career readiness. The development of college and career readiness is of central importance of career pathways models; however, examination of the influence of career education on college and career readiness is complicated due to variations in the definition of college and career readiness across studies (Bragg & Rugg, 2007; Dare, 2006; DeLuca et al., 2006; Ferguson & Lamback, 2014; Education Advisory Board, 2018a; Lewis, 2008; Miller & Gray, 2002). In using a global view of college and career readiness, research revealed mixed results on the success of existing high school career education programs to successfully support such results.

Two studies indicated some level of success in promoting factors related to student college and career readiness. In addition to indicating previously discussed negative impacts on

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college attendance, DeLuca et al. (2006) found that CTE coursework positively impacted students' college and career readiness by providing them with career-preparing workplace learning experiences and also enabled students to start jobs immediately out of high school with higher wages. In the study of Bragg and Rudd (2007) of CTE students transitioning to community college programs, CTE students were marginally better prepared for college-level coursework in some areas, progressed to higher levels of study and indicated they felt better prepared for college coursework than their non-CTE student counterparts.

Other research indicated a more pessimistic viewpoint of traditional career education systems on students' college and career readiness. Rosenbaum (2002) notes that career readiness involves having developed soft skills and behaviors of "sociability, discipline, leadership, and attendance" (p. 8) prior to entering the job market (Miller & Rosenbaum, 1997); however, Rosenbaum (2002) notes that students leaving high school lack these necessary work habits and fail to meet the expectations of employers.

In a broad review of existing research on career education, Lewis (2008) concluded that career programs of study are "unlikely to produce marked improvements in achievement and transition to postsecondary education…[and] secondary occupational preparation will not provide sufficient skills to enable them to compete for the more rewarding jobs in the labor market" (p. 180), citing risks of failing to complete college courses, needs of participants to take remedial college coursework and low college graduation rates.

In a study of college performance data of 77 randomly selected CTE and 77 non-CTE students from a pool of high school graduates attending a community college, Ray (2011) found there was no statistical significance between CTE program participation and college academic

performance, while other traditional academic factors such as high school GPA were significant predictors of postsecondary readiness.

The Education Advisory Board (2018a) indicates there is a "significant need at the K-12 level to provide students with much greater career education, exploration, and guidance than what they are currently receiving" (p. 14) as students and recent graduates are not prepared for careers and the world of work. They cite that 67 percent of 25- to 34-year-olds across all levels of education attainment face challenges entering the job market (p. 14) and that three-quarters of graduates feel their high school failed to fully prepare them for the professional world (p. 63).

Finally, Harvard University's Pathways to Prosperity project (Ferguson & Lambeck, 2014) indicates the lack of high schools that adequately prepare students for both college and career and that there must be a greater emphasis on the combination of rigorous academics, technical education and work-based learning experiences to prepare students to be college and career ready.

Economic benefits and employment. While according to Mullin (as cited in DeFeo, 2015, p. 84) measuring workforce outcomes can be complex and methodologically problematic, success of high school career education efforts also can be considered by examining available economic outcomes related to students who participated in career education opportunities.

Bishop & Mane (2004) studied wage earnings experiences of high school students as they transitioned into the job market using data from the National Educational Longitudinal Study (NELS-88) data set. By considering educational participation and labor market statistics, they found that students who participated in CTE courses and were employed in jobs utilizing these skills experienced higher wages and also spent more time being employed over a period of eight years after high school. During this period, these students got better jobs and earned more than

students who did not take CTE courses. The researchers went on to determine the cost benefit of the increased earnings versus the cost of CTE education and found there was up to a 36.6 percent return on investment for students who took four advanced CTE courses (p. 31). On this type of return, Rosenbaum (2002) notes that such students benefit only from improved economic outcomes if there is alignment between their careers or jobs and their developed technical skills.

There are concerning indications of the failure of the education system as a whole to appropriately prepare individuals for economic and career success. According to the Education Advisory Board (2018a, 2018b), there is a failure in successfully aligning student secondary and postsecondary education choices to career opportunities -- both those that are made available to students as well as those students ultimately chose. This is evident as 67 percent of 25- to 34-year-olds face difficulty entering the job market because of a lack of career education that allows them to earn a living-wage job (Education Advisory Board, 2018a, p. 4), an indication that they could have "benefit[ed] from career education, exploration, and guidance" (Education Advisory Board, 2018a, p. 14). Of individuals who have earned a bachelor's degree, 34 percent are underemployed and 60 percent are in lower-paying positions than median income (Education Advisory Board, 2018b, p. 3). Finally, the Education Advisory Board (2018b) found that students from racial and gender minority groups were particularly at risk of entering such lower-paid careers regardless of their potential to excel in a higher-paying field. Each of these associated factors suggests a disconnect between the potential that individuals have for maximum employment and the education and preparation they receive in schools.

Engagement and motivation. Increasing student motivation and engagement in learning are key target outcomes of high school career education (Lynch, 2000). Examined research

uniformly identified the positive impacts that career education had on student engagement and learning.

According to the Advisory Committee for the National Assessment of Vocational Education, the connections to the world of work within CTE classes makes them more interesting, motivating and educationally powerful than standard academic classes (as cited in DeLuca et al., 2006, p. 4). Such connections and relevancies between learning and students' lives have been cited in multiple studies as a positive impact on students' motivation to stay in school (Bridgeland, DiIulio, & Morison, 2006; Lynch, 2000).

It is suggested that career and technical education promotes relevant learning applications for students within the classroom (Dare, 2006). In a report from the National Research Center for Career and Technical Education (Plank, 2001), it is observed that in schools that combine vocational concentrations and college preparation, students experience motivational benefits as they experience relevancy in career courses that acts as a balance to other core courses. According to Lekes & Bragg (2007), such integration reinforces abstract and practical learning, "allowing students to be stimulated intellectually...and see how their learning applies to their lives" (p. 5) as well as connections between their studies and future careers (Mobley, 2017).

Graduation rates. Finally, research exists examining the impact career education has on student graduation rates, both at the secondary and postsecondary levels.

In a study of three high schools undergoing comprehensive career-based school reform, Castellano, Stone, Stringfield, Farley-Ripple, Overman, & Hussain (2007) found that taking CTE courses did not have any impact on high school graduation rates. A similar result was found in research by Bragg & Rugg (2007) considering CTE programs at 52 different high schools.

Contradicting this finding was the study using the 1997 National Longitudinal Survey of Youth in which Cellini (2006) found that high school graduation rates increased by nine to 16 percentage points based upon CTE participation. In a different non-controlled study, the Association of Career and Technical Education (2018) reported that the average high school graduation rate for CTE concentrator students is 93 percent while the average national graduation rate is 80 percent. According to the Education Advisory Board (2018b), 81 percent of high school dropouts report that "seeing the connection between school and getting a job would have kept them in school" (p. 39).

Considerations on high school career education's impact on postsecondary persistence and completion rates also have been examined. The Education Advisory Board (2018b) suggests "it is imperative for districts to provide students with opportunities to test their career interest and fit within a lower-stakes high school environment" (p. 37). The Board goes on to cite concerns that most college students fail to select a major the first time, and undecided students frequently "select a college major or training program without understanding their interests or goals" (Education Advisory Board, 2018b, p. 36). Such uncertainty results in delays and increased costs, with the average community college student changing majors 2.5 times prior to completing an associate degree in an average period of 5.6 years (Education Advisory Board, 2018b, p. 37). Delays and uncertainty also lead to increased costs of degrees, with the average college graduate accumulating 21 excess credits at a cost between $3,000 and $19,000 (Education Advisory Board, 2018b, p. 37).

Overview of outcomes and results of career decision-making models. The preceding sections considered available research on career education and decision-making, examining the outcomes of traditional, broadly implemented high school career education models. While some

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limited promising results were revealed on select criteria and in individual studies, overall results indicated career and technical education in the United States has not achieved its intended impact of elevating the high school academic model nor sufficiently prepared and supported students for the transition to college and careers. For this reason, in the next section research from individuals and organizations who are actively examining promising educational models as well as future considerations related to career preparation in high schools will be presented as alternatives to the traditional career education models.

Future and Innovative Models of Career Decision-Making Supports

Throughout the preceding sections, an overview of career decision-making theory and the current state of career education and decision making supports were presented in an attempt to develop a foundation and understanding of what career education in schools could and should strive to be. In this final section of literature review, a summary of research and viewpoints on the state of career education in American schools from theorists and leaders in education will be shared. Additionally, recommendations for modification to existing career education models will be presented. Finally, aspects and information from schools that have distinguished themselves through the development of progressive, impactful career education programs will be examined for consideration as models for the future of career education.

Viewpoints on Current State of Careers and Education

The general view of the current state of career education in American schools is quite bleak. In his book "The Global Achievement Gap", Tony Wagner (2008) discussed broad ominous facts about the American education system that need to be addressed to prepare students for future realities. He indicated the United States is well behind other nations in high school graduation and college completion and that students are unprepared for college and careers in

terms of credentials, qualifications and career readiness. He challenges the common notion that "our schools are failing" (p. xxi), rather suggesting that over time schools have become obsolete and need to change and present students with "new skills for college, careers and citizenship" (p. xxi).

Wagner and Dintersmith (2015) go on to criticize the experiences students have in American schools, indicating that they revolve around "lectures, note-taking, recall-based tests and grades" and that "most lecture-based courses contribute almost nothing to real learning" (p. 7). They suggest that true, lasting learning can occur only when students have the opportunity to apply knowledge within real situations focused around collaboratively addressing authentic questions.

As part of the Harvard Pathways to Prosperity Project (Ferguson & Lambeck, 2014), Harvard Graduate School of Education Professor Emeritus Bob Schwartz echoed many of these concerns, writing that the United States was lagging in educational attainment and falling behind the European education system. He indicated that while in some European countries education systems were able to integrate "almost all their young people into the labor market" through the combination of learning and work, the United states was projected to manage that with two-thirds of its youth (p. ii). He called on a change in mindset away from the only measure of success in schools being enrollment in a four-year university, and for alternative postsecondary options to four-year college programs. The Pathways to Prosperity Project (Symonds, Schwartz, & Ferguson, 2011) expressed an urgency in the necessary work, indicating that "given dismal postsecondary attainment numbers, a narrowly defined 'college-for all' goal - one that does not include a much stronger focus on career-oriented programs that lead to occupational credentials - seems doomed to fail" (p. 7). The Project declared the American education school-to-career

system in serious need of modernization and warned that if we fail to address this, the U.S. could become an economically divided, underperforming and socially unstable society toward the middle of the 21st century (Ferguson & Lamback, 2014).

The need to reinvent and invest in new models of career education has been reinforced by additional individuals. Vince Bertram (2017), President and CEO of Project Lead the Way, indicated there is a need for schools to expand career options and awareness of students, as "too many students enter college with no idea what they want to do after graduation - or even what awaits them beyond the campus" (pp. 7-8). He goes on to indicate that while student dreams are important, they also need to have the education, plan and decision-making skills to get there.

Finally, in its report "Meeting the Career Readiness Imperative," the Education Advisory Board (2018b) indicates that states must "set and execute a vision that provides students with multiple, meaningful opportunities to...build awareness of career opportunities, provide real-world instruction and lead to credentials with labor market value" (p. 9) and that schools must help connect students to their passions and provide them with a vision of career opportunities beyond their household and society.

Considerations for a New Model of Career Education

Many individuals and organizations, including those whose work is previously highlighted throughout this review, have made recommendations regarding changes that should be made to specific aspects of high school career education systems. In following sections, these recommendations will be summarized and examined.

Role of counselors and personal learning and career plans. Supporting students in their identification of careers and postsecondary plans that align with their goals, aptitudes, interests and values is critical for student success (Hughes & Karp, 2004). It is important that

supports behind this process go beyond simply choosing coursework (Peterson, Long, & Billups, 1999) and rather include the development of Personal Learning and Career Plans (PLCP) as part of career programs of study (DeFeo, 2015). PLCP include opportunities for students to comprehensively "connect and plan academic experiences, coursework, self-exploration, mentorship, work-based learning and extra-curricular activities" (p. 86). Theresa (2015) indicates that such plans should extend beyond high school experiences and include how students can transition to postsecondary opportunities. Bertram (2017) suggests such plans allow students not only to dream, but also for them to be well-informed so as to follow their dreams in a smart way.

Personalized aspects of PLCP acknowledge realities of student diversity while simultaneously setting a common objective of supporting "all students to find meaning in their educational experience" (DeFeo, 2015, p. 93). Effectively implemented plans allow students to receive factual information about careers as well as individually contribute to the formation of students' occupational identities (Marx, Simonsen, & Kitchel, 2014). While the use of PLCP is critical components for student success, their use in schools is lacking (DeFeo, 2105).

To achieve universal use of PLCP and increase the frequency of use and effectiveness of career planning, Harvard University's Pathways to Prosperity project (Ferguson & Lambeck, 2014) has indicated that career guidance must be a higher priority for secondary school counselors and that counselors require increased training and access to information concerning jobs and postsecondary options for students. During the 2013 conference, expert panelists suggested counselors could create and support such plans by engaging with academic teachers and integrating career development activities into classroom lessons (Ferguson & Lambeck, 2014). To elevate career guidance in schools, it was recommended that counselors also be given

additional time to engage with students and focus time on student needs rather than on administrative tasks (Ferguson & Lambeck, 2014).

Early career guidance. Researchers also have indicated the importance of emphasizing career development at an early age (DeFeo, 2015; Education Advisory Board, 2018b; Fernandes & Bance, 2015; Theresa, 2015). Fernandes & Bance (2015) emphasized that the earlier career exploration occurs, the easier it is to guide students through the challenges of them discovering their futures. Multiple organizations suggest starting the career exploration process as early as elementary school (Education Advisory, 2018b; Ferguson & Lambeck, 2014) to help ensure students' career-identity development is based in sufficient, accurate information.

Support from multiple stakeholders. Multiple individuals noted the need to engage multiple stakeholders, beyond students' teachers and counselors, in the support of career education and decision-making. Frequently noted was the need to increase engagement with parents and families in the support of the student career development process (Education Advisory Board, 2018b, Fernandes & Bance, 2018; Theresa, 2015; Wager & Dintersmith, 2015). The Education Advisory Board (2018b) indicated the importance of empowering families with relevant, up-to-date information in simple documents to support family discussions around pathways. Fernandes & Bance (2018) noted parents need to be provided professional guidance to help them understand the role they can play in supporting their students' career success.

The Pathway to Prosperity project (Ferguson & Lamback, 2014) discussed how it also is important to engage business, civic, research, philanthropic and public organizations in the support of student career decision-making. They indicated that individuals and groups from these areas must come together and develop a system of unified support behind these students as individuals in the talent pipeline of their communities and industries.

Equity in pathways. Finally, multiple individuals and organizations discussed the

challenges related to equity in career pathway opportunities and supports, with specific calls to

better support disadvantaged groups including racial minorities, females and low-income

students (DeFeo, 2015; Education Advisory Board, 2018b; DeLuca et al. 2006; Ferguson &

Lambeck, 2014; Stone & Aliaga, 2005). While CTE coursework serves all students, enrollments

of minority groups have been disproportionately low (DeFeo, 2015; DeLuca, et al., 2006; Stone

& Aliaga, 2005), resulting in students from these groups failing to fully maximize their potential

and access higher-paying jobs and careers (Education Advisory Board, 2018b). Additional

identified examples of inequity in career supports include career advisory efforts that fail to

address geographic disparity of jobs and inappropriate pressure on high-achieving students to

enter into high-paying, demanding careers and low-achieving students to enter into low-paying,

less demanding careers (Education Advisory Board, 2018b). Both these result in a mismatch of

students' skills and interests with career opportunities. To address these issues, it is suggested to

expose students to a broader range of opportunities at a young age, prompting students from

underrepresented populations to consider non-traditional career fields (Education Advisory

Board, 2018b; Ferguson & Lambeck, 2014).

Pathway development and design. Multiple suggestions from researchers and

organizations have been made on developing and improving the design of career pathways and

decision-making supports. It is recommended that career pathway programs be designed to

include numerous transition points for students between education and work and employment

opportunities for students with different educational backgrounds (Education Advisory Board,

2018b). Students should have opportunities to explore multiple career pathways and adjust their

plans as appropriate (Theresa, 2015).

Considering curriculum design, DeFeo (2015) suggests that educators develop courses with a distinct purpose of either career exploration or intentional progress along a career program of study to address the challenges of a single class effectively supporting both learning objectives. It is further suggested that individual CTE courses provide students with opportunities to develop career knowledge and avoid a sole focus on teaching technical information (DeFeo, 2015; Kosine & Lewis, 2008; Schmidli, 2001; Tang, et al., 2008; Theresa, 2015). Furthermore, pathways should integrate both career and academic learning (Education Advisory Board, 2018; Ferguson & Lambeck, 2014)

Career pathway learning should leverage opportunities in which students engage in real-life, hands-on scenarios and problem-solving situations and work with industry mentors (Fernandes & Bance, 2015). Such efforts create opportunities for students to expand their career knowledge, develop awareness of day-to-day tasks and skills related to careers, and make connections between academic learning and careers (Education Advisory Board, 2018b).

Such pathway changes require educators to be positioned and prepared to teach in different ways. Educators must receive training in careers and pathway development to effectively connect their students with careers (Education Advisory Board, 2018b). Educators need to leverage and embrace the input, involvement and support of community and industry partners in the processes of teaching, training and guidance in an effort to develop to support behind student career development (Ferguson & Lambeck, 2014).

Existing Models of Success

Researchers have identified isolated models and frameworks that are currently successfully supporting student career decision-making and development. While these models do exist, it is proposed that limited school-business partnerships, traditional school organization

models, misaligned policy and resources and a lack of parent engagement and value in student career education all contribute to the challenge in taking models to scale (Education Advisory Board, 2018b; Ferguson & Lambeck, 2014).

The Education Advisory Board (2018b) has identified a number of innovative policies and practices that states recently have adopted to promote career development and readiness. A number of states have promoted universal access to career opportunities, including Maine, which delivers CTE options to all middle school students, and Colorado, which requires counselors to inform all students about certificates, apprenticeships and careers in the military. Kansas has developed a statewide incentive system that pays schools $1,000 for each graduate who earns an industry-recognized certificate.

While promising statewide systems exist, not all such efforts have been successful (Education Advisory Board, 2018b). Florida's model of providing funding based on certificate attainment is similar to that of Kansas; however, unrelated cost containment efforts in schools have led districts to promote lower-valued certificates in an effort to supplement funding, resulting in 60 percent of all received industry certificates being for less-valuable Adobe or Microsoft products (Education Advisory Board, 2018b, p. 12). Additionally, while Colorado has been able to produce 20,000 new apprenticeships, the cost per apprenticeship ranges between $45,000 and $85,000, and despite a growth in the number of apprenticeships by 40 percent, the total number of apprenticeship completers has dropped by 11 percent (Education Advisory Board, 2018b, p. 12). Each of these represent misaligned or unscalable options for career development.

The Education Advisory Board (2018b) has identified a number of individual districts that have developed innovative practices to develop their staff's capacity to effectively support

career pathways. Township High School District 214 in Illinois has developed pathways-based

professional development college courses through which staff participate in community career

events to develop their understanding of on-the-job skills in addition to creating student lessons

and materials to integrate into their courses. Metropolitan Nashville Public Schools in Tennessee

uses teacher externships in which general education teachers develop multidisciplinary career

lessons after personally working in various industries. Greenwood Public Schools in Arkansas

leverages the expertise of its counselors to coach classroom teachers in the practice of career

advising and development of up-to-date knowledge around careers.

Other schools have made modifications to school structures to better promote student

engagement and learning around careers. Whitewater School District in Wisconsin modified

school schedules to allow for 55 hours of structured and personalized career reflection for all

high school students, resulting in 92 percent of graduates feeling confident in identifying a career

that aligns with their strengths and interests and 97 percent feeling confident in their ability to be

successful in their chosen career path (Education Advisory Board, 2018b, p. 32-33).

Schools also have adopted new philosophies regarding what teaching can look like and

how learning can occur. Long Beach Unified School District in California has turned to industry

partners, rather than teachers, to develop curriculum as school administrators work with

businesses to source ideas and develop them into curricular projects. Students who participated

in such projects received an increased exposure to careers and were 9 percent more likely than

their peers to graduate from high school (Education Advisory Board, 2018b, p. 42).

Some schools have also begun to rethink the role of the counselor and how career

guidance can be presented. Township High School District 214 supports career guidance through

individual discussions with every student during course registration, with discussions focusing around one of four questions:

> What industry or industries are you most interested in, and why? What have you learned about your strengths and interests this past year? How confident do you feel about your plans after high school, and why? What classes can help you achieve your longterm industry aspirations? (Education Advisory Board, 2018b, p. 52)

Greenwood Public Schools has developed specially developed career-focused advisory periods in which students are assigned based on the match between their career interest and the interests or expertise of a staff member. Within their advisory, students take part in career development activities such as engaging with industry speakers, going on employer field trips and completing career research activities to support identification of the education, experiences and skills needed for a specific career.

Organizations such as Project Lead the Way (PLTW) have developed promising course and pathway curricular models to support student career decision-making and success. PLTW, created in 1997 to address the nation's need to develop STEM professionals (Chase, 2010), is now utilized in more than 10,500 schools across the nation. PLTW courses engage students in challenging, applied academic and professional content (Hoachlander, 2006) while exposing students to a wide variety of careers in engineering and engineering technology (Dare, 2006). The organization also provides intensive professional development to high school teachers to prepare them to effectively teach the career content (Hoachlander, 2006). Findings from a study of nearly 60,000 PLTW graduates indicated students who take PLTW courses are more likely to major in a STEM field, with students who take three or more PLTW courses being six times more likely to enter a STEM field (IUPUI, 2018). Hoachlander (2006) notes PLTW has

developed a linkage between high school and postsecondary programs to successfully increase the number of students graduating from high school prepared to pursue opportunities in the field of engineering.

High Tech High, a high school developed in San Diego in 2000, is an innovative model that has leveraged many of the previously identified considerations to improve student learning and decision-making. School founder Gary Jacobs indicated that High Tech High was created with the intention of "creating an environment where students are excited about math and science and want to continue their studies in this area" (Wagner, 2008, p. 212). The school embraces the concepts of personalization, real-world connections, adult world connection and common intellectual mission. Teaching integrates technical and academic education to support student focus on math and engineering through personalized learning approaches, a focus on design and inquiry, use of interdisciplinary projects and engagement with mentors and industry partners through internships and other authentic work opportunities. (Griswold & Riordan, 2016; Neumann, 2008; Wagner, 2008). The school focuses on providing relevant teacher professional development and engaging community partners to drive and sustain its work (Griswold & Riordan, 2016; Wagner, 2008). One hundred percent of High Tech High students are accepted to college, with 80 percent attending 4-year universities, and High Tech High graduates complete technical degrees at nearly double the national average rate (Wagner, 2008, pp. 207-208).

Conclusion

In the preceding sections, a review of literature related to the theory and current state of career decision-making supports in schools was considered. In the first section, major theories of decision-making were presented. The complexities of the various developmental, cultural and social influences on decision-making were examined, and their specific connections to

adolescent career decision-making were considered. Next, research related to the traditional application and support of career decision-making theories in schools was presented, revealing an overall failure of these models to effectively support the career decision-making needs of students. Finally, recommendations from researchers and educational leaders for the future of career decision-making supports in schools were presented along with an examination of isolated, existing successful models and approaches for supporting student career decision-making.

The findings from this examined research serve as a fundamental base for the arguments and considerations I will make within my own, original research related to the influences career orientation coursework has on student career decision-making and confidence as well as the subsequent recommendations for action and changes to policy that will support more effective results in our schools.

SECTION 3: METHODOLOGY

Research in this study consists of a program evaluation of career orientation courses within CJHSD's career pathway model. The primary research questions being considered are (1) Whether and to what extent do career orientation courses impact student career decision-making? (2) Whether and to what extent do the courses impact students' confidence in their career decision-making? Secondary research questions include: (1) At what rate do students in career orientation courses confirm their career decision-making? (2) What factors within career orientation courses do students identify as impacting their career decision-making? (3) What is the correlation between individual career exploration components within these orientation courses and student confidence in their career decision-making? (4) What are identified best practices within career orientation courses for increasing student career decision-making?

Research Design Overview

The research design of my study consists of three interrelated components. First, a program implementation evaluation of the courses being considered is completed through a survey of the instructors of these courses. Next, a quantitative questionnaire is given to students to solicit feedback as it relates to their orientation course experiences and the impact the course had on their career decision-making. Finally, a sample of these students is engaged in focus groups to gain a deeper perspective regarding the student experiences within these courses.

A research model beginning with a program implementation evaluation is critical for this study because while all courses being considered are identified as *orientation courses* according to CJHSD's career pathway framework, within this framework, each school, teacher and class has significant discretion and autonomy to implement the course according to the needs of the building, staff and students. While the ultimate purpose of this study is to determine whether and to what extent career orientation courses impact student career decision-making, it is first necessary to determine and define what actually occurred in these courses prior to evaluating outcomes. Patton (2008) states that implementation evaluation should focus "on finding out if the program has all its parts, if the parts are functional, and if the program is operating as it's supposed to be operating" (p. 308), determining "what is the program...what are its key characteristics...who is participating...what does staff do...what do participants experience…[and] what's working and not working" (pp. 308-309). Additionally, Patton (2008) states the following:

> At the most simple level, programs may fail for the two fundamental reasons: (1) failure of implemented programs to attain desired outcomes, which is called *theory failure*, that is, the idea didn't work as hoped, versus (2) failure to actually implement the idea (or

theory) which is *implementation failure*, and means the idea (program) was never really

tested for effectiveness because it was not implemented adequately or sufficiently (p.

310).

As the intent of this overall evaluation is to develop recommendations on organizational change

and policy development, "it is critical to be able to distinguish theory failure (ideas that don't

work) from implementation failure (ideas that haven't been appropriately tested)" (Patton, 2008,

p. 310).

Parts two and three of this study involve a mixed methods approach. Such an approach

combining a quantitative, large-scale survey of students enrolled in a career orientation course

with a number of qualitative, smaller-scale student focus groups is appropriate as it benefits from

the strengths of both quantitative and qualitative research and provides opportunities to "build a

rigorous, cohesive set of conclusions...through the triangulation of multiple sources of

data...enhanc[ing] the validity of results" (James, Milenkiewicz, & Bucknam, 2008, p. 81). The

student survey primarily focuses on the quantitative characteristics and outcomes of the students'

experiences and allows for the identification of overall rates and trends within the data. Focus

groups centered around qualitative questions allow for the meaning, context, understanding of

processes and causal relationships (James et al., 2008, p. 67-68) related to the students'

orientation course experiences and decision-making. The focus groups also seek to reveal deeper

understanding of influences within these courses and identify general understandings of student

career decision-making development that can begin to be applied to orientation courses outside

of this study.

CJHSD has 37 orientation courses across the district's 44 programs of study and supports 18,359 enrollments across these identified orientation courses. The following table indicates distribution within different curricular designations.

Table 1

Orientation Courses and Enrollments by Curricular Area

Curricular Area	Number of Courses	Enrollments
Core – Freshmen	4	7,760
Career and Technical Education	13	4,508
Fine and Performing Arts	14	3,768
Core - Mixed Grades	4	1,770
Physical Education	2	553

The targeted sample population in this study was students within CJHSD's Introduction to Health Careers, the career orientation course for the district's Health Careers pathway. This course is one of the 13 career and technical education orientation courses, and during the 2017-18 school year it had 362 total enrolled students at three of the district's six high schools. A total of six teachers, two at each school, taught 13 sections of Introduction to Health Careers.

Distributions within Introduction to Health Careers related to the number of sections, teachers, students and initial year taught as well as gender and grade level distributions within these courses are shown in the tables below.

Table 2

Introduction to Health Careers Courses by Building: Sections, Teachers, Students, Initial Year Taught

High School	Number of Sections	Number of Teachers	Number of Students	Initial Year Taught
Barton High School	5	2	135	2011-2012
Edwards High School	4	2	116	2017-2018
Farside High School	4	2	111	2009-2010
Total	13	6	362	

Table 3

Introduction to Health Careers Courses by Building: Gender

High School	Gender	
	Male	Female
Barton High School	30	105
Edwards High School	25	91
Farside High School	30	81
Total	85	277

Table 4

Introduction to Health Careers Courses by Building: Grade Level

High School	Grade Level			
	9	10	11	12
Barton High School	20	55	31	29
Edwards High School	32	73	4	7
Farside High School	63	35	7	6
Total	115	163	42	42

While Introduction to Health Careers is neither the largest nor the most broadly distributed course within CJHSD, it was identified as the course to focus upon within this study because of its standing as one of the longest-standing and most developed career orientation courses. The course and subsequent career pathways were developed at Farside High School in 2009 and served as a model for high schools within Illinois to use in preparing students for health careers. Since 2009, the program expanded to two additional sites within CJHSD, and additional orientation courses in other career programs of study have been developed from this initial model.

The decision to use Introduction to Health Careers as the sample was also due in part to the variation in how established each program was at each school. While Farside and Barton high schools taught the course for nine and seven years, respectively, 2017-18 is the first year Edwards High School taught the course. Such differences provide variations within the sample that could provide important perspectives in addressing the study's research questions.

Data Gathering Techniques

Data is gathered from four sources: Specifically, a course evaluation form given to each instructor, a questionnaire given to all participating enrolled students, and smaller focus groups involving a sample of identified students. Additionally, preexisting student and course information in CJHSD's student information system (SIS) is used to complement these three data sets.

Instructor Course Evaluation Form

Each participating course instructor completes a survey asking them to quantify the frequency and describe the modality of different career pathway activities within their orientation

courses. The survey focuses on three primary areas: career exploration components, high school pathway awareness and planning, and postsecondary pathway awareness and planning.

Career exploration components. Within this section of the survey, teachers are asked to quantify the frequency that career exploration activities occurred in their classes and describe their modalities. These career exploration activities include career exploration presentations or discussions, student career research projects, student career-related problem-based learning, in-class career speakers, industry site visits, career-related field trips, embedded career related practicums and other teacher identified activities. Teachers are asked to quantify how many times students had opportunities to participate in each of these experiences and identify the modality by which these activities were completed. Modalities included a teacher presentation, career advisor presentation, counselor presentation, industry professional engagement, classroom discussion, one-on-one counseling or advising, student-directed exploration, or another teacher identified modality.

High school pathway awareness and planning. Within this section of the survey, teachers are asked to quantify the frequency of high school pathway awareness and planning activities in their classes and describe their modalities. Pathway awareness activities include learning about the district opportunities and resources available to students, including the sequence of future career pathway courses, extracurricular career related activities, workplace learning opportunities, early college opportunities, industry credential opportunities, career related activities and other teacher identified activities. Pathway planning activities included career goal-setting, career portfolio creation and other teacher identified activities. Possible modalities included a teacher presentation, career advisor presentation, counselor presentation,

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industry professional engagement, classroom discussion, one-on-one counseling or advising, student directed exploration or another teacher identified modality.

Postsecondary pathway awareness and planning. Within this section of the survey, teachers are asked to quantify the frequency of postsecondary pathway awareness and planning activities in their classes and describe their modalities. Pathway awareness activities include learning about postsecondary education options, employment options and other teacher identified activities. Pathway planning activities include career goal-setting, career portfolio creation and other teacher identified activities. Possible modalities included a teacher presentation, career advisor presentation, counselor presentation, industry professional engagement, classroom discussion, one-on-one counseling or advising, student directed exploration or another teacher identified modality.

Survey Given to All Students

During the last month of school, participating students are asked to complete a survey through SurveyMonkey. The survey asks them to consider their current state of career decision-making, how their state of career decision-making had changed since the beginning of their orientation course and the career activity experiences they had in class.

In an attempt to reduce the length of the survey, chances of misreported information and student identifiable data, students are asked only to provide their student identification number (SID). This allows the researchers to link their responses to information from CJHSD's SIS. Utilized SIS data includes the student's school, teacher and section information as well as the student's race, gender and grade level. The student's career cluster of interest history is also taken from the SIS. This history represents the choice of career cluster the students identified

with their counselor earlier in the year. Beyond this data, no other student identification information from the SIS is gathered or linked with the students' responses.

Each student is asked to identify the career cluster of interest he or she has identified and their personal confidence level behind that identified choice. This is reported for his or her current state as well as his or her state at the beginning of the year. Choices include the 16 nationally recognized career clusters as well as unidentified. Confidence levels are designated using a 5-point Likert Scale ranging from *not at all confident* to *very confident*.

Finally, students are asked three questions about each career activities identified in the teacher questionnaire. They are asked to report the frequency they remember experiencing that task, the influence it had on their decision-making related to pursuing a career within health careers, and the degree of influence it had on this decision. The frequency of experiences is identified on an ordinal four-point scale including *never, once, a few times* and *many times*. An ordinal scale is used in place of an interval scale as it is anticipated that students may not recall the exact number of times experiences occurred, and their overall impression of the frequency is of greater importance to the researcher than a set number. Influence is measured on a three-point scale, including *discouraged me from pursuing a health career, no impact* and *encouraged me to pursue a health career*. Degree of influence is rated on a four-point scale including *not at all, very little, moderately* and *extremely.*

Overall, this survey aims to address the core research question of whether and to what extent career orientation courses impacted student career decision-making and many of the related research questions. By gathering quantifiable results from a large number of students, the overall impact of the orientation course as well as the influence of individual course components

can be considered. Trends across student groups -- whether grouped by gender, race, grade level or some other career-related identifier -- also can be revealed.

Student Focus Groups

To gain deeper perspectives into individual student experiences, uncover the causes and contexts of the trends revealed from the student survey and collect additional evidence that could support or refute the quantitative results of the student survey, student focus groups are performed following the administration of the student survey. In addition to audio recording each focus group, notes are taken throughout each session.

Five focus groups are run in total, with two to five students per group. Each group is created from students who identified in their survey that they had either a high or low level of confidence in their career decision-making. Beyond these groupings, students were randomly invited to participate in the focus group, resulting in a mix of students based upon demographic and career cluster identification.

Within each focus group, it is explained I was trying to determine how their career orientation course influenced their career decision-making. Furthermore, it is explained that there is no strict protocol as to any order they had to answer and that they are free to answer or not answer any of the questions, and given the available time, they will have around five minutes to discuss each question.

Each focus group consists of a 30- to 45-minute semi-structured interview to the group. Questions are generally standardized, though as determined necessary, probing or clarifying questions or statements are provided to elicit more elaborate or complete responses from the participants. Questions for each group comprise the following:

1. Think back to before you were in this course. What were some of the reasons and influences that led to you originally taking Introduction to Health Careers?

2. Before you were in this course, how would you describe your interest level and motivations into going into a health career and how confident were you about this choice?

3. Think about your year in Introduction to Health Careers. In general, can you tell me about some of the career exploration experiences you had in this class?

4. How did any of these experiences influence your choices around whether or not a career in health careers was right for you?

5. Were any of these experiences more beneficial than others in helping you figure out if health careers was for you? What was it about the experiences itself that made them beneficial?

6. Some of you may have decided you do want to go on in health careers and others that you do not want to go on in health careers. Was there anything about the experiences you had in Introduction to Health Careers that led you to realize that this was the right choice, and how confident are you in your choice?

7. What do you think could be changed or added to Introduction to Health Careers that would make you more confident in your future career choice?

Ethical Considerations

Despite the intended research processes having minimal risks, steps are taken in each phase of the project to protect study participants and adhere to ethical practices in research, including respect for persons, beneficence and justice.

Respect for Persons

> The respect for participants as persons consists of two primary considerations:
> First, that individuals should be treated as autonomous agents, and second, that persons
> with diminished autonomy are entitled to protection. The principle of respect for persons
> thus divides into two separate moral requirements: the requirement to acknowledge
> autonomy and the requirement to protect those with diminished autonomy (National
> Commission for the Protection of Human Subjects of Biomedical Behavioral Research, &
> Ryan, K. J. P. [NCPHS], 1978).

For these reasons, the participation of individuals in this study will consider their autonomy,
voluntariness and informed consent.

Students and staff involved in this study are considered human subjects, as personal
information about them as individuals or their courses and activities is gathered through the
survey and focus group processes. In order for student involvement through the survey and focus
groups to be completed in an ethical manner, it is essential that the design of their involvement
promoted that the "probability and magnitude of harm or discomfort anticipated in the research
[was] not greater in and of themselves than those ordinarily encountered in daily life" (U.S.
Department of Health and Human Services, 2010), resulting in minimal risk for the students.
Overall, the questions and format of the survey and focus group mirror existing efforts that
commonly occur in the school district and have minimal risk to participants. However, given that
private information is gathered, necessary steps are taken to protect participants.

Teachers who are involved in the study are provided consent documentation in addition
to engaging with me in individual discussions about the research. Additionally, out of respect for
these teachers as individuals and acknowledgement for the potential conflicts and concerns due

to our complex research-participant/administrator-teacher relationships, additional steps are taken to ensure they are treated ethically. Each are spoken to individually, addressing any questions they have. It is stressed that their participation is voluntary and they are reassured that any involvement in this research will not impact any professional relationships within the district. Additionally, any findings from the study with these participants will be shared so they and their students will receive maximum benefit from the study.

As minors are involved as human subjects through the survey and focus group processes, both parental/guardian consent as well as student assent are required to participate in the research process. Parental/guardian consent is gathered by sending home information to be signed. The information includes an overview of the study, descriptions of the student role in the survey and focus group processes, a detailed description of the SIS data that will be utilized, and acknowledgement of voluntary agreement to take part in the research. It indicates they have the ability to withdraw at any time and refuse to answer any questions. Contact information for follow-up questions or concerns also is provided. The consent information addresses both the survey and focus groups but acknowledges not all students may necessarily participate in both. Both the parent/guardian and student sign the consent form, and it is collected prior to the survey being administered. Any student who doesn't receive parental/guardian consent is not able to participate in the research survey or focus group.

While student participants are minors, their assent is collected as they were adolescents capable of making decisions related to their participation in the research. Steps are taken individually to collect assent for the survey and the focus group. On the survey, the first page of the SurveyMonkey survey included assent information that closely mirrors the information in the parental consent document and a checkbox to indicate their assent. When students assent, they

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are taken to subsequent questions in the survey. If they do not, they are exited from the survey and no additional information is collected.

Prior to the focus group, each invited student receives information regarding participation, along with an assent form that closely mirrors the information included in the parental consent. Signed assent forms are collected prior to the focus group starting.

Beneficence

Efforts are taken to ensure the research's beneficence for the participants. Participants are "treated in an ethical manner not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being" (NCPHS, 1978). While the benefits of the research focuses on examining practice that could be used to improve orientation coursework for future students and provides little direct benefit to the participants, there is minimal risk of harm to the participants. Despite this minimal risk, intentional actions are taken to further reduce risks, particularly as they relate to the collection, use and storage of participant data.

While student identification numbers (SIN) are collected in the survey, once the survey data is combined with the identified SIS data, SINs are removed from the data set, increasing the anonymity of participants. Pseudonyms are used for schools and teachers to further anonymize the identities of all individuals related to the research. Data from the survey is presented only in aggregate form according to teacher, building or student demographic categories.

While confidentiality between research subjects cannot be guaranteed for information shared during focus groups, students are asked to be respectful of what is discussed and not to share discussions outside of the group. Additionally, no student names or identifiers are recorded during the focus group, and student responses are reported using student pseudonyms. If names

are mentioned by participants during the focus group, they will be replaced by pseudonyms during transcription.

All data is stored in password-protected files on a password-protected computer with access limited to the researcher.

Justice

Justice in research refers to addressing equality and equity in the benefits the research creates and burdens that it requires. The Belmont Report states the following:

> The selection of research subjects needs to be scrutinized in order to determine whether some classes...are being systematically selected simply because of their easy availability, their compromised position, or their manipulability, rather than for reasons directly related to the problem being studied. (NCPHS, 1978)

In this study, the burdens and risks to which students are subjected were minimal. The sample population of students in Introduction to Health Careers is selected because of their direct relation to the problem being studied: the decision-making processes of students in orientation courses. Therefore, ethical concern around issues of justice are limited in this study.

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Data Analysis Techniques

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Three primary sources of data are collected in this study, including teacher-reported course data, student survey data and focus group data. Data analysis is initially done on each of the sources independently; however, data and findings from one source are also cross-referenced against the others to determine whether and to what extent themes can be identified and conclusions developed.

Analysis of Teacher Reported Course Data

Descriptive statistics are done on the quantitative data gathered from the teacher-reported questionnaire on course activities. Mean, frequency distribution and standard deviation for each response at the school and district level are determined.

Analysis of Survey Data

Descriptive statistics are done on the quantitative data gathered from the student survey. Mean, frequency distribution and standard deviation for each response are determined for both the total population as well as for disaggregated groups including gender, race, grade level, school and teacher. Data also is disaggregated based on students who reported having either a very high or very low confidence level in their career decision-making and for students who confirmed or changed their career cluster of interest from the beginning to the end of the year.

Inferential statistics are completed to determine the significance of differences between the student-reported influence each career activity has on their decision-making and their reported desire to change their career cluster. This is repeated to consider the student-reported influence each career activity has on their decision-making and their reported level of confidence in their career choice.

Analysis of Focus Group Data

Audio recordings of the focus groups are transcribed and open coding is performed for each focus group. From these codes, general qualitative themes will be developed. A discovery process of data related to these themes will be considered through three different lenses. This process will include considering data appearing universal to all groups, data appearing unique to either low confidence or high confidence groups, and data appearing unique to an individual school.

Cross Analysis of Data Sources

In order to compare and combine data and findings from one source to another, efforts are taken to cross-reference data gathered from the survey and focus groups prior to the identification of final themes and development of conclusions.

Teacher reported course data to student survey. The frequencies of student-reported career experiences are compared against the frequency of teacher-reported career experiences to assess the consistency and validity of these data sets.

Additionally, inferential statistics are performed to determine correlations between the presence and frequency of career-related activities reported by each instructor in their questionnaire to levels of confidence and frequency of change in career area of interest reported by each student in their surveys

Student survey to focus group. Findings from the quantitative and inferential statistics from the student survey and the themes developed from the focus group are cross-referenced in an attempt to develop deeper insights into the individual data sets as well as triangulate findings in order to create more valid, credible and reliable conclusions.

Conclusion

Within this study, three different processes are completed to support developing answers around whether and to what extent career orientation courses impact student career decision-making. Data from each of these processes is collected, analyzed and triangulated, providing the basis for future findings, interpretations, judgments and recommendations to be developed.

SECTION 4: RESULTS

Ultimately, survey data was received from five of the six Introduction to Health Careers teachers and their students. From these five groups, students were identified to participate in the focus group.

Within this section, data from the program evaluation of these five teachers and data collected from the student survey and focus group will be presented and analyzed to identify basic themes and findings from the study. These findings will then be considered along with additional data and information through Wagner et al.'s (2006) four Cs framework in an attempt to identify meaningful interpretations, judgments and recommendations for improvements of the CJHSD system.

Teacher Course Evaluation Data

In an effort to capture the type and frequency of career pathway experiences students had in Introduction to Health Careers throughout the year, teachers were asked to complete a course evaluation survey and quantify the number of times students would experience different career exploration, high school pathway awareness and planning and postsecondary pathway awareness and planning activities within their courses. For each activity, they identified the frequency using discrete integer choices from 0 to 5, aligning to how many times the experience was delivered, from never to five times. They could also identify if it occurred 6 or more times. If the experience was delivered more than 6 or more times, this experience was given a numerical frequency value of 6 for the purpose of analysis. Following identification of the frequency of each experience, teachers also were asked to identify by which modalities each occurred. The following subsection provides a summary and analysis of these results.

Activities Supporting Career Exploration

Teacher responses related to the frequency at which career exploration activities occurred

in their classrooms varied considerably in the level of agreement, with some activities showing

complete uniformity in frequency and others having dramatically varied frequencies. A summary

of this data, indicating the overall average, minimum and maximum of the teacher identified

frequency data is included in Table 5 below.

Table 5
Frequency of Career Exploration Activities

Description of Activity	Average Frequency	Minimum Frequency	Maximum Frequency
A career exploration activity including either a career focused presentation and/or discussion	5+	5+	5+
Student career exploration research project	3.4	1	5+
Student career related problem based learning activity	5+	3	5+
In class career speaker	5+	5	5+
Career related industry site visit or field trip	1.6	1	2
Embedded career related practicum and/or authentic work based learning experience	2.2	0	5+

As seen above, presentations or discussions, problem-based learning activities and career

speakers were the most commonly used activities to support career exploration, while research

projects, field trips and authentic work-based learning experiences were less frequently used.

An additional examination of each activity considered which modalities were utilized by

any or all teachers and whether these modalities were universally, commonly and uniquely used

by the five teachers. The universal, common and unique designation indicate which modalities

were used by all five, three or four or only one or two instructors, respectively. Results of this

examination are noted in Table 6.

Table 6

Modality of Career Exploration Activities

Description of Activity	Universal Delivery Modality (All 5 instructors)	Common Delivery Modality (3-4 instructors)	Unique Delivery Modality (1-2 instructors)
A career exploration activity including either a career focused presentation and/or discussion	CD, SD	T, CP, I	CA, OC
Student career exploration research project		SC	T, CA, CP, I, CD, OC
Student career related problem based learning activity	SD	T	OC, CD
In class career speaker	I		CA
Career related industry site visit or field trip		CA	I
Embedded career related practicum and/or authentic work based learning experience			T, I, OC, SD
Abbreviations: T = Teacher Presentation, CA = Career Advisor Presentation, CP = Counselor Presentation, I = Industry Professional Presentation, CD = Classroom Discussion, OC = One-on-one counseling, SD = Student Directed Exploration			

As shown above, in some cases modalities were universally used by all teachers to support a given activity. However, for most, there was evidence that modalities were not being universally used as a majority of modalities were used by only one or two instructors for a given activity.

It also can be seen that across all teachers and career exploration activities, every modality was used, and overall, through consideration of the universal and common delivery modalities, teachers were using a variety of modalities to support career exploration activities.

Activities Supporting High School Pathway Awareness

Teacher responses indicating the frequency at which different activities were used to support awareness of the high school pathway opportunities were very consistent across the five teachers. A summary of their responses is included in Table 7 below.

Table 7

Frequency of High School Pathway Awareness Activities

Description of Activity	Average Frequency	Minimum Frequency	Maximum Frequency
Awareness about the available sequence of career pathway courses in health careers	5+	5+	5+
Awareness about the available extracurricular career related activities (clubs, career days, career nights, etc) in health careers	5+	5+	5+
Awareness about the available workplace learning opportunities (internships, practicums, work experiences, etc) in health careers	3.8	2	5+
Awareness about the available early college credit opportunities in health careers	5+	4	5+
Awareness about the available industry credential opportunities in health careers	5+	3	5+

Each of the examined five high school pathway awareness activities was utilized multiple times in every teacher's classroom.

The modalities teachers used to support these activities were examined in the same manner as previously completed. Table 8 provides a summary of the use of modalities across teachers.

Table 8
Modality of High School Pathway Awareness Activities

Description of Activity	Universal Delivery Modality (All 5 instructors)	Common Delivery Modality (3-4 instructors)	Unique Delivery Modality (1-2 instructors)
Awareness about the available sequence of career pathway courses in health careers	T	OC	CP, CD
Awareness about the available extracurricular career related activities (clubs, career days, career nights, etc) in health careers	T		CD
Awareness about the available workplace learning opportunities (internships, practicums, work experiences, etc) in health careers		T, I	CP, CD, OC
Awareness about the available early college credit opportunities in health careers	T		CP, OC
Awareness about the available industry credential opportunities in health careers		T	IP, CD, SE
Abbreviations: T = Teacher Presentation, CA = Career Advisor Presentation, CP = Counselor Presentation, I = Industry Professional Presentation, CD = Classroom Discussion, OC = One-on-one counseling, SD = Student Directed Exploration			

Similar to the findings related to career exploration activities, while some modalities were universally or commonly used to support individual activities, unique approaches were identified as well. Unlike the broad use of multiple modalities across the career exploration activities, teacher development of awareness of the high school pathway activities was the one dominant method for all five activity areas, indicating teachers were the primary source of this information for students in these classes.

Activities Supporting High School Pathway Planning

It was found that goal-setting was the only high school pathway planning activity widely used in Introduction to Health Careers. A summary of teacher responses related to the frequency of high school pathway planning is included in Table 9 below.

Table 9

Frequency of High School Pathway Planning Activities

Description of Activity	Average Frequency	Minimum Frequency	Maximum Frequency
Health careers related goal setting for remainder of high school	4.0	1	5+
Students create career portfolio related to high school health careers experiences	0	0	0
Other teacher identified career pathway planning activity	0.4	0	1

The other teacher-identified career pathway planning activity that two teachers identified was the

Career Cruising web resource.

The modalities teachers used to support these activities were examined in the same

manner as previously completed. Table 10 provides a summary of the use of modalities related to

high school pathway planning activities across teachers.

Table 10

Modality of High School Pathway Awareness Activities

Description of Activity	Universal Delivery Modality (All 5 instructors)	Common Delivery Modality (3-4 instructors)	Unique Delivery Modality (1-2 instructors)
Health careers related goal setting for remainder of high school		T, OC, SD	CA, CD
Students create career portfolio related to high school health careers experiences			
Other teacher identified career pathway planning activity			CD, OC, SD
Abbreviations: T = Teacher Presentation, CA = Career Advisor Presentation, CP = Counselor Presentation, I = Industry Professional Presentation, CD = Classroom Discussion, OC = One-on-one counseling, SD = Student Directed Exploration			

No modalities were universally used by all teachers or across all high school pathway awareness activities, and overall, teachers used a limited range of types of modalities to support this career pathway component.

Activities Supporting Postsecondary Pathway Awareness

Teachers indicated that activities supporting awareness of postsecondary education and employment options were a significant focus in their classes, with all teachers indicating these occurred more than five times. A summary of their responses is included in Table 11 below.

Table 11
Frequency of Postsecondary Awareness Activities

Description of Activity	Average Frequency	Minimum Frequency	Maximum Frequency
Learning about postsecondary education options	5+	5+	5+
Learning about postsecondary employment options	5+	5+	5+

The modalities teachers used to support these activities were examined in the same manner as previously completed. Table 12 provides a summary of the modalities teachers reported using to support postsecondary pathway awareness.

Table 12
Modality of Postsecondary Awareness Activities

Description of Activity	Universal Delivery Modality (All 5 instructors)	Common Delivery Modality (3-4 instructors)	Unique Delivery Modality (1-2 instructors)
Learning about postsecondary education options	T, CD, SD	I	CA, CP, OC
Learning about postsecondary employment options	T, SD	K, CD, OC	CA, C
Abbreviations: T = Teacher Presentation, CA = Career Advisor Presentation, CP = Counselor Presentation, I = Industry Professional Presentation, CD = Classroom Discussion, OC = One-on-one counseling, SD = Student Directed Exploration			

There were multiple universal and common modalities used across all teachers or activities and overall in addition to some unique modalities. All modalities were represented in some capacity by at least one teacher as they related to these activities.

Activities Supporting Postsecondary Pathway Planning

Teachers indicated that planning of postsecondary options for education and employment was not a primary focus in Introduction to Health Careers classes, with many teachers indicating zero frequency instances of it being their classes. A summary of their responses is indicated in Table 13 below.

Table 13
Frequency of Postsecondary Planning Activities

Description of Activity	Average Frequency	Minimum Frequency	Maximum Frequency
Postsecondary career goal setting	0.8	0	2
Postsecondary career portfolio creation	0	0	0

The modalities teachers used to support these activities were examined in the same manner as previously completed. Table 14 provides a summary of the modalities teachers used to support postsecondary pathway planning.

Table 14
Modality of Postsecondary Planning Activities

Description of Activity	Universal Delivery Modality (All 5 instructors)	Common Delivery Modality (3-4 instructors)	Unique Delivery Modality (1-2 instructors)
Postsecondary career goal setting		T, SD	CA, CP, CD
Postsecondary career portfolio creation			
Abbreviations: T = Teacher Presentation, CA = Career Advisor Presentation, CP = Counselor Presentation, I = Industry Professional Presentation, CD = Classroom Discussion, OC = One-on-one counseling, SD = Student Directed Exploration			

Of those teachers including postsecondary planning in Introduction to Health Careers, there was general alignment of modalities, though many modalities were not utilized.

Student Survey

The following subsection provides a description of the responses provided by students on the student survey. This survey primarily identified previous and current student career interests, student career decision-making confidence levels, and student-reported influences of individual aspects of their Introduction to Health Careers course.

Description of Student Sample

The following tables describe the demographics of the students who successfully completed the student survey.

Table 15 identifies the breakdown of participating students by school and teacher along with the participation rate across each teacher's classes.

Table 15

Teacher and Student Research Participation by Building

High School and Teacher	Number of sections	Total number of students	Students who completed the survey	Survey completion rate
Barton High School				
Teacher A	2	40	30	75%
Teacher B	3	77	54	70%
Edwards High School				
Teacher C	2	51	27	53%
Farside High School				
Teacher D	3	81	70	86%
Teacher E	1	23	21	91%
Total	11	249	202	81%

Demographic information for the participating students, compiled from CJHSD's SIS, is listed in Table 16.

Table 16
Demographics of Student Participants

Category and trait	Number of students	Percentage of participants
Gender		
Male	50	24.7%
Female	152	75.3%
Grade Level		
9	80	39.6%
10	73	36.1%
11	31	15.3%
12	18	8.9%
Race		
Hispanic/Latino	101	50%
Asian	19	9.4%
Black or African American	2	1.0%
Native Hawaiian or Other Pacific Islander	1	0.5%
White	73	36.1%
More than one race indicated	6	3.0%
Economically disadvantaged		
Yes	67	33.2%
No	135	66.8%

Career Cluster Identification and Change

Within the student survey, students were asked to identify their career cluster of choice prior to taking Introduction to Health Careers and their career cluster choice at the time of taking the survey during the last weeks of the school year. The largest area of student career cluster identification was Health Science, with 65.3 percent of students indicating this choice both at the start and end of the year. This was followed in magnitude by students identifying as undecided, with 14.4 percent of students identifying this choice at the start of the year and 7.9% at the end of the year. The remaining student identifications were spread across the remaining career clusters, with no more than 5.4 percent of students choosing any one cluster. A full distribution these identifications is listed in Appendix A.

The distribution of students across teachers and schools in the two highest cluster identification areas, Health Sciences and Undecided, is listed in Table 17.

Table 17

Students Identifying Health Science and Undecided by School and Teacher

| | Start of Year | | | End of Year | |
	All Surveyed Students	Health Science	Undecided	Health Science	Undecided
Barton High School					
Teacher A	30	26	3	24	3
Teacher B	54	42	3	38	3
Edwards High School					
Teacher C	27	16	4	18	3
Farside High School					
Teacher D	70	41	11	41	5
Teacher E	21	10	6	11	1

As can be seen, while the Health Science career cluster was the highest area of interest both at the start and end of the course across the district and at the individual teacher level, there was no net gain or loss of students from this career cluster at the district level and no one single building or teacher accounted for a considerable amount of this change in or out of health. Farside High School did account for the vast majority of the net number of students who changed their career choice from undecided to decided.

Of the 202 students surveyed, 64 -- nearly one of three -- identified that they changed their career cluster of interest over the period of this course. To more deeply consider the potential factors that influenced students who changed their cluster choices, data was examined according to four non-exclusive student groupings. These groups were identified as:

Cluster Change Group 1 - Students who changed their cluster to Health Careers from a different identification at the start of the year

Cluster Change Group 2 - Students who changed their cluster to a different cluster after

previously identifying Health Careers at the start of the year

Cluster Change Group 3 - Students who changed their cluster from unidentified at the

start of the year to an identified cluster at the end of the year

Cluster Change Group 4 - Students who changed their cluster to unidentified after

previously having identified a cluster at the start of the year

Table 18 provides a count of the number of surveyed students who belong to each cluster change

group.

Table 18
Count of Students by Cluster Change Group

	All Surveyed Students	All Groups	Group 1	Group 2	Group 3	Group 4
Total (N)	202	64	24	24	21	8

Cluster change groupings were also examined by gender, grade level, race and

economically disadvantaged status as listed in Appendix B. Within each grouping, Chi-Square

Independence Tests were completed to determine whether student identifications to each cluster

change group were independent of student demographics of gender, grade level, race and

economic status. It was found that the differences in student identification to each cluster group

when considering student gender, grade level, race or economic status were not significant at the

level of $p<0.05$. Results of these tests are listed in Appendix C.

Students who changed their cluster identification over the term of the course were also

considered by teacher, and results are listed in Table 19.

Table 19

Students Who Changed Career Clusters By School and Teacher

	All Surveyed Students	All Groups	Group 1	Group 2	Group 3	Group 4
Barton High School						
Teacher A	30	7	2	4	1	1
Teacher B	54	14	6	7	3	2
Edwards High School						
Teacher C	27	13	6	4	3	2
Farside High School						
Teacher D	70	23	7	7	9	3
Teacher E	21	9	3	2	5	0
Total	202	64	24	24	21	8

Each teacher had students designated in each career cluster change group. Teacher A had the lowest rate of change at 10.9 percent, and Teacher D had the highest rate of change at 35.9 percent.

A Chi-Square Independence Test was completed to determine whether student identifications to each cluster change group was independent of teacher assignment. It was found that the differences in student identification to each cluster group considered according to teacher assignment were not significant at the level of $p<0.05$. Results of this test is listed in Appendix D.

Confidence in Decision-Making

In addition to a student identifying their cluster of interest at the start and end of the year, students were asked to identify their level of confidence for each of these choices on a 5-point Likert Scale ranging from *not at all confident* to *very confident.* The following table gives a summary of the reported confidence levels at the start and end of the year for all students.

Table 20
Student Reported Career Cluster Confidence at Start and End of Year

		Confidence - Start of Year						
		No Response	1	2	3	4	5	Total
	No Response	1						1
	1		2	1		1		4
Confidence -	2		2	2	2	1		7
End of Year	3	1	2	6	22	3	4	38
	4	1		11	38	39	5	94
	5			1	10	21	26	58
	Total	3	6	21	72	65	35	202

Key
1 = Not at all confident
2 = Not very confident
3 = Neutral
4 = Confident
5 = Very confident

Overall student career confidence increased over the period of the course. While 49.5 percent of students reported they were confident or very confident in their choices at the start of the year, more than 75 percent of students reported those same levels of confidence at the end of the year. Similarly, using the numeric scale from 1 to 5 aligning with responses from not all at confident to very confident in confidence level calculations, the average reported confidence at the start of the year was 3.5, and at the end of the year increased to 4.0.

Average confidence levels before and after the course also were considered by gender, grade level, race and economic status. Results are listed in Appendix E.

A series of one-way between subjects ANOVAs were conducted to determine the individual effects of gender, grade level, race and economic status on student change in career confidence levels. It was found there was not a significant impact of these factors on student change in confidence levels at the $p < 0.05$ level. Detailed results of these tests are listed in Appendix F.

In the following table, the confidence levels of students are considered according to individual teacher. Each teacher group showed an increases in average confidence related to their career decision-making.

Table 21

Average Confidence at Start and End of Class by Teacher

	Number of Students	Before Class	After Class	Change
Barton High School				
Teacher A	30	3.3	3.7	+0.4
Teacher B	54	3.7	4.2	+0.5
Edwards High School				
Teacher C	27	3.9	4.2	+0.3
Farside High School				
Teacher D	70	3.5	3.8	+0.3
Teacher E	21	3.2	4.1	+0.9

A one-way between subjects ANOVA was conducted to determine the effect of teacher assignment on student change in career confidence levels. It was found that there was not a significant impact of this factor on student change in confidence levels at the $p < 0.05$ level. Detailed results of these tests are listed in Appendix G.

To more deeply consider the influence career cluster choice has on confidence of career decision-making, student confidence levels were examined based on student career cluster identification at the end of the course. Students were grouped based on this ultimate cluster identification according to the following non-exclusive groups:

Group A - Students who ultimately declared health as their cluster of interest

Group B - Students who ultimately did not declare health as their cluster of interest

Group C - Students who maintained any cluster as their choice during the course

Group D - Students who maintained health as their career cluster during the course

Group E - Students who changed their cluster to any cluster during the course

Group F - Students who changed their cluster to health during the course

Group G - Students who initially were undecided and chose any career cluster by the end

of the course

Table 22 provides a count of the number of surveyed students who belong to each cluster

identification group.

Table 22
Count of Students by Cluster Identification Group

Group	Number of Students
All students	202
Group A	132
Group B	70
Group C	138
Group D	108
Group E	64
Group F	24
Group G	21

Students in all groups increased their average confidence level. Increases ranged from 0.3

to 1.3 with students in groups E, F and G experiencing the greatest growth and students in Group

D the smallest. Average growth in confidence experienced by each group is indicated in the table

in Appendix H.

A one-way between subjects ANOVA was conducted to determine the effect

participation in each student group had on student change in career confidence levels. It was

found that there was not a significant impact of this factor on student change in confidence levels

at the $p < 0.05$ level. Detailed results of these tests are listed in Appendix I.

In addition to considering the growth of confidence levels of individual groups, the

difference in confidence levels between groups was examined. Within this study, the term

confidence gap will be used to define this difference and will consider the difference between the

most confident group, Group D, and all other groups. This confidence gap measurement provides evidence on how far ahead or behind students are compared to the most confident group and how experiences across the duration of Introduction to Health Careers can be considered as to their impact on this gap. Over the term of Introduction to Health Careers, the confidence gap of every group diminished, indicating their confidence is more in line with the most confident group. Confidence gaps before and after the course for each group are listed in Appendix J.

The overall consideration of confidence levels and confidence gaps revealed that while over the term of the class all groups' confidence levels increased, all groups continued to trail Group D, students who began and ended the course identifying Health Science as their cluster of interest. However, while all groups' confidence levels trailed, all groups experienced a decrease in the confidence gap, indicating that over the year not only did student confidence improve, but less confident groups became more similar in confidence to their most confident peers.

Student course task reporting

The final portion of the student survey asked students to identify frequency of different career-related course experiences, their awareness of different career opportunities and how different experiences influenced their plan to pursue a career within health careers. These experiences were aligned with the same course experiences identified in the teacher course evaluation survey. Frequency was measured on a 4-point scale ranging from Never (0) to Many Times (3). Awareness was measured on a 5-point scale ranging from Not Aware at All (0) to Extremely Aware (4). Influence was measured on a 7-point scale ranging from Extremely Discouraged (-3) to No Impact (0) to Extremely Encouraged (3).

Student reported frequency. The frequency students reported each activity occurring is listed in Appendix K. For the purpose of determining an average, student frequency responses of

"never" were given a value of 0; once a value of 1; a few times a value of 2; and many times a value of 3.

Students identified that the only career-related experiences that occurred on average more than *a few times* were career-related discussions or presentations and career speakers. Other activities that had a majority of students identifying either *a few times* or *many times* included career research projects, problem-based learning activities, high school pathway awareness activities, and high school pathway planning activities. For 8 of the 17 activities, the largest individual response regarding the frequency students of occurrence was *never*.

Comparison of teacher and student activity frequencies. While students were asked to report frequencies on a general relative scale and teachers on a fixed numeric scale, there were clear differences in their reporting. In the following chart, the average frequency of a task reported by the teachers in the course evaluation survey was plotted against the average frequency of the same task reported by students in the student survey.

Chart 1
A Plot of Teacher- Versus Student-Identified Activity Frequencies
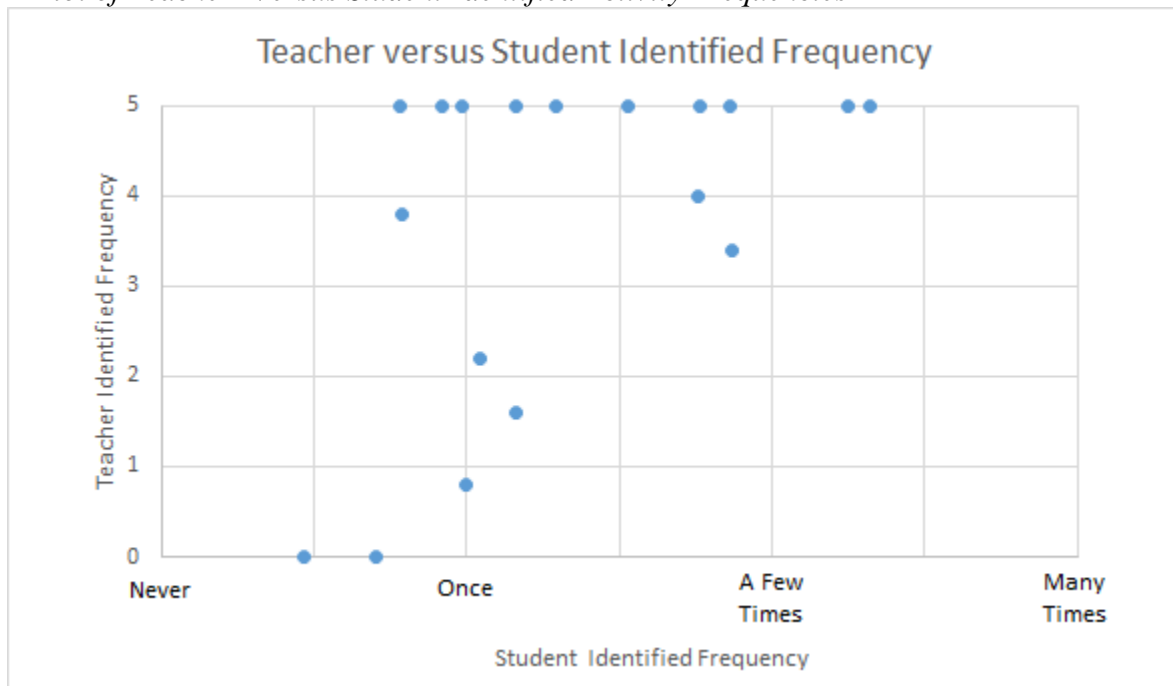
From this chart, it can be seen that the average frequencies at which teachers reported experiences occurring were nearly always greater than the frequencies at which students identified activities occurring. While the causes of this result are certainly multifaceted, may differ for each activity and may differ by student, teacher and class, it does reflect a difference in perception of the same event between the teacher and student groups. For this reason, both teacher and student frequencies will generally be used in the analysis of the awareness and influences students reported.

Student identified frequency by teacher. Within the Teacher Course Evaluation Survey, variations in the format of their courses were revealed when teachers were asked to identify the frequency of different course components included in their classes. Such teacher-reported variations were considered against the frequency by which students reported experiencing these same career course components. This comparison is listed in Appendix L.

Of the student-reported frequencies across teachers, ten of the course activities had very close frequency alignment, with their range in frequencies being less than 0.5, half a unit on the 3-point frequency scale. However, seven of these had a variation equal to or greater than 0.5, with some variations as large as 1.3. Such a variation in student perception of activities will be factored into future consideration of the impact of these components on awareness, influence and confidence levels as not all students received or perceived receiving the same quantity of experiences.

Awareness of pathway components. In addition to frequency and influence information, data was collected for seven career pathway items central to the curricular design of CJHSD's career orientation course model to determine the level of student awareness students related to these items. These items included questions regarding the sequence of courses, extracurricular

opportunities, workplace learning experiences, early college credit and credential opportunities students can access while in high school, in addition to education and employment opportunities for students postsecondary. Average awareness of each of these components is listed in Appendix K. In two of the seven pathway areas, students indicate that on average they were more than somewhat aware of the core opportunities they had within their career pathway. In the other five areas, the average student response was less than somewhat aware.

Individual student awareness of each of these seven components was also considered. The number of individual students who indicated defined levels of awareness in all seven components was determined, and results are listed in Table 23.

Table 23
Number of Students by Awareness Levels Across All Seven Components

Level of Awareness for All Components	Number of Students	Percent of all students
Extremely Aware	1	0.5%
Extremely or Moderately Aware	5	2.5%
Extremely, Moderately, or Somewhat Aware	32	15.8%
Extremely, Moderately, Somewhat, or Slightly Aware	69	34.2%

Based on this information, more than 65 percent of students reported not having even a basic awareness in all seven key areas that CJHSD's career orientation course model is designed to universally provide.

Influence of course components. The level of reported influence that students attributed to each course component also was evaluated. The intent of examining these career course components was not to simply find components that made students wish to continue with health careers. Rather, the intention was to determine what components invoke strong decision-making responses, an intention of career orientation courses as they aim to help students determine whether or not to continue in their career cluster of interest. For this reason, most of the future

analysis will group extremely encouraged and extremely discouraged, moderately encouraged and moderately discouraged, and slightly encouraged and slightly discouraged together in an attempt to not measure the direction of the student decision-making response, but rather the magnitude of the response. These magnitudes will be referenced as the degree of influence. In calculations of degree of influence, extreme responses were given a value of 3, moderate a value of 2, slight a value of 1, and no impact a value of 0. Appendix M lists the average degree of influence reported by all students, the percentage who indicated they were discouraged and encouraged and the number who reported extreme influence or no influence for each individual activity that was examined.

   Influence versus frequency of course components. The relationship between the influence that a student reported an activity had on their decision-making and the frequency the teacher and student reported it occurring also was considered. The following chart shows the relationship between the average level of influence reported by students and the frequency reported by both students and teachers for all activities.

Chart 2

A plot of career activity influence versus reported frequency
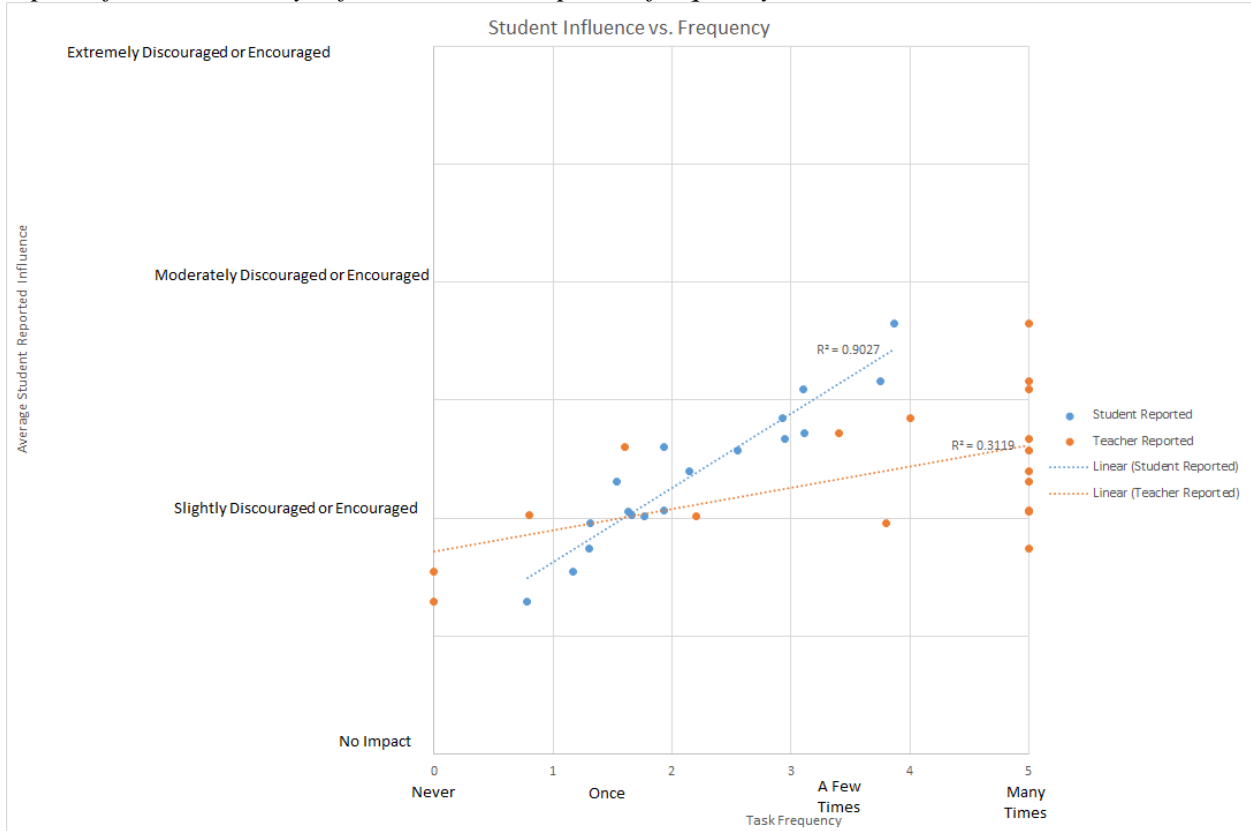
As shown, there is a higher correlation between student-reported influence and student-reported frequency than student-reported influence and teacher-reported frequency. This suggests that the student experience, perceived or real, is much more closely linked to their decision-making outcomes than the teacher experience, perceived or real.

In continued consideration of the influence that frequency of an activity may have on student decision-making, Table 24 shows the teacher- and student-reported frequency for the five activities with the highest student-rated influence and the five activities with the lowest rated influence, along with the reported teacher and student frequency for each activity.

Table 24

Degree of Influence and Frequency of High and Low Influence Activities

	Average Degree of Influence	Average Reported Frequency	
		Student	Teacher
High Influence Activities			
In class career speaker	1.8	2.3	5
A career exploration activity including either a career focused presentation and/or discussion	1.6	2.	5
Awareness about the available sequence of career pathway courses in health careers	1.5	1.9	5
Health careers related goal setting for remainder of high school	1.4	1.8	4
Student career exploration research project	1.4	1.9	3.4
Low Influence Activities			
Postsecondary career portfolio creation	0.6	0.5	0
Students create career portfolio related to high school health careers experiences	0.8	0.7	0
Awareness about the available industry credential opportunities in health careers	0.9	0.8	5
Learning about postsecondary education options	1.0	1.2	5
Learning about postsecondary employment options	1.0	1.3	5
All activities	1.2	1.3	3.7

Notes on scales and response values

    Degree of influence values: Extreme = 3, Moderate = 2, Slight = 1, No Influence = 0

    Student frequency response values: Never = 0, Once = 1, A few times = 2, Many times = 3

    Teacher frequency response values: Never = 0, 1-5 times = 1-5, 6 or more times = 6

It can be seen that the high influence cases have teacher- and student-reported frequencies that are above the average. Low influence events have student-reported frequencies at or below average, but highly variable teacher frequencies ranging from never to six or more times.

Influence by group and demographic. In an attempt to more deeply determine the impact different activities have on student decision-making, the influence of the top five influential activities will be analyzed according to different groups and demographics of students to determine whether and to what extent these factors influence student decision-making. The influence of these activities will be analyzed by student demographic groups, teacher, student

confidence groups, cluster change groups and final cluster groups. In each, the average degree of influence within each group will be considered against the average of all students.

High influence activities by demographic. The degree of influence of the five influential activities was examined by student demographic groups including gender, grade level, race and economically disadvantaged status. The average degree of influence for each student demographic group is listed in Appendix N.

Multiple one-way between subjects ANOVA was conducted to determine the effect identified student demographics had on the degree of influence of the five activities. When adjustments were made to the sample group to factor out demographic groups with fewer than five members, the influence of the activities was not found to be significantly impacted by demographics at the $p<0.05$ level. Detailed results of these tests are listed in Appendix O.

High influence activities by teacher. The degree of influence of the five influential activities was examined by teacher and results are listed in Appendix P. Other than the industry speaker activity, which was the highest-ranked task for all teachers, there was little variation in the degree of influence across the remaining four tasks by teacher.

Multiple one-way between subjects ANOVA was conducted to determine the effect teacher assignment had on the degree of influence of the five activities. For four of the five activities, teacher assignment was not found to significantly impact the degree of influence at the $p<0.05$ level. The test did reveal significant differences in degree of influence of industry speakers between the five examined classes ($p=0.043$); however, no significant individual differences were revealed when the Tukey HSD post-hoc test was completed. Detailed results of these tests are listed in Appendix Q.

High-influence activities by confidence level. The relationships between student confidence in their decision-making at the start and end of the course and their reported degree of influence of each of the five was examined and results are listed in Appendix R. Students who entered and left the course more confident reported that each of the activities invoked more extreme influences on their decision making. Additionally, in nearly all cases -- excluding those groups with small samples size -- the relative ranking of all five tasks remained consistent across career cluster groups, with industry speakers being the most influential activity.

Multiple one-way between subjects ANOVA was conducted to determine the effect of confidence in decision-making at the beginning and end of the course on the reported degree of influence of the five activities. Results of the ANOVA and subsequent post-hoc tests are listed in Appendix S. There were significant differences at the $p < 0.05$ level in the degree of influence that awareness of the sequence of courses, high school goal-setting, and career exploration research projects had on students when considered according to their incoming level of confidence. Upon consideration of a Tukey HSD post-hoc test post, these significant differences were seen to exist between reported level of influence of those students who entered the class "Very Confident" when compared to those at lower levels, most often "Not Confident at All," with the more confident students reporting a significantly higher level of influence on average in these areas.

There were significant differences at the $p < 0.05$ level in the degree of influence that all five activities had on students when considered according to their level of confidence at the end of the course. Upon consideration of a Tukey HSD post-hoc test post of confidence levels at the end of the course, the significant differences again were seen to involve students reporting they were "Very Confident"; however, the significances in the differences of influence involved students who were at the "Neutral" or "Confident" levels. Similar to the consideration of

confidence and influence at the start of the year, the more confident student reported each activity having a greater level of influence.

High-influence activities by cluster change groups. The influence of each of the five activities also was determined for each of the four previously examined groups aligned with students' change in career cluster identification. These four groups included:

Cluster Change Group 1 - Students who changed their cluster to Health Careers from a different start-of-the-year identification

Cluster Change Group 2 - Students who changed their cluster to a different cluster after previously identifying Health Careers at the start of the year

Cluster Change Group 3 - Students who changed their cluster from unidentified at the start of the year to an identified cluster at the end of the year

Cluster Change Group 4 - Students who changed their cluster to unidentified after previously having identified a cluster at the start of the year

This revealed that industry speakers are the most influential activity for all change groups. Additionally, it was shown that for all activities, Group 2, the group that changed from health careers to a different cluster, identified having their decision-making influenced the least by all five of these activities, both individually and collectively. The average level of each activity per cluster change group is listed in Appendix T.

Multiple one-way between subjects ANOVA was conducted to determine the effect cluster change groups had on the reported degree of influence of the five activities. Only the career exploration research project activity showed significant differences at the $p<0.05$ level according to student cluster change group. Upon consideration of a Tukey HSD post-hoc test post, the significant difference was seen to exist between Groups 1 and Groups 2 -- students who

changed their cluster to Health Careers and students who changed their cluster away from Health Careers -- with those changing to health careers receiving a significantly greater degree of influence from the experience. Detailed results of these tests are listed in Appendix U.

High-influence activities by final cluster group. The influence of each of the five activities also was determined for each of the seven previously examined groups tied to students' cluster identification either at the start or end of the course. These seven groups included:

Group A - Students who ultimately declared health as their cluster of interest

Group B - Students who ultimately did not declare health as their cluster of interest

Group C - Students who maintained any cluster as their choice during the course

Group D - Students who maintained health as their career cluster during the course

Group E - Students who changed their cluster to any cluster during the course

Group F - Students who changed their cluster to health during the course

Group G - Students who initially were undecided and chose any career cluster by the end of the course

The data indicates that students who changed their career cluster to health careers experienced the greatest magnitude of influence from the five activities, followed by students who maintained their career cluster. Regardless of group, students identified the industry speaker activity as the most influential experience. A table indicating the average level of each activity per cluster change group is listed in Appendix V.

Multiple one-way between subjects ANOVA was conducted to determine the effect career cluster groups had on the reported degree of influence of the five activities. Four of the five activities showed significant differences at the $p < 0.05$ level based on student career cluster group. Only high school goal-setting did not show significant differences in influence across

cluster groups. Upon consideration of a Tukey HSD post-hoc test for the four activities, the most common significant difference was seen to exist between Groups A and B -- students who ultimately identified Health Careers as their cluster of interest and students who did not, with students in Group A experiencing a greater level of influence than students in Group B. Students in Group D -- those who maintained Health Careers as their cluster of interest -- also reported a significantly greater level of influence than those in Group B in three of the five categories. Finally, it appeared awareness of course sequencing had the widest significant variation between groups, with Groups A and B, B and C, B and D, and C and D all having significant variation in the level of influence this experience provided them. Test details are listed in Appendix W.

Focus Group

Five separate focus groups were conducted to gain greater insight into the experiences students had within Introduction to Health Careers. Students in each focus group were selected from individual schools according to their final level of confidence in their career cluster identification, with three groups being made of students with high levels of confidence and two being made up students with low confidence. The confidence level, school and number of participants for each group is indicated in Table 25 listed below.

Table 25
Description of Focus Groups

Focus Group #	Number of Participants	Confidence Level Grouping	School
1	3	High	Barton
2	4	High	Edwards
3	4	High	Farside
4	2	Low	Barton
5	4	Low	Farside

Themes from focus groups

Open coding the student responses from the five focus groups revealed five general

themes. A brief description of each of these themes is listed in Table 26 below.

Table 26
Description of Focus Groups

Theme Number	Theme Name	Description of Theme
1	Understanding of Careers	Student experiences tied to learning about careers within health sciences
2	Understanding of Secondary Pathways	Student experiences tied to learning about secondary pathway opportunities
3	Understanding of Postsecondary Pathways	Student experiences tied to learning about postsecondary pathway experiences
4	External Influences	Student descriptions the influences outside of Introduction to Health Careers which led their decision making related to health careers
5	Pathway Adjustment Recommendations	Student recommended changes or improvements to health careers pathway design and delivery

Throughout the following sections, data and findings from the focus groups tied to each theme

will be presented and discussed.

Theme 1: Understanding of careers. Throughout the focus groups, students continually

cited three primary sources of information from which they developed their own understanding

on careers in health. First was knowledge they had gathered from sources prior to being in class.

Second was direct instruction and curricular activities led by their instructor within the class. The

last, and most frequently and deeply discussed, were the career speakers brought into the class.

Knowledge on health careers that was developed prior to students taking Introduction to

Health Careers was generally quite limited, and students were generally aware of the limitations

of their knowledge, with one student reflecting that he only knew about "nursing and other really

basic medical careers...not like everything that you could do." Many students who initially

indicated they entered Introduction to Health Careers with only a very basic understanding of the

types of careers and tasks associated with the career cluster demonstrated they had developed a much deeper understandings of the career area, citing a broad range of available careers and describing detailed aspects of associated job tasks. Some individual careers that students discussed included certified nursing assistant, medical malpractice lawyer, cardiothoracic surgeon and private company emergency medical technician. The revelation of their current state of deeper knowledge in spite of entering the course with limited awareness revealed that much of this increase was directly associated with the experiences related to Introduction to Health Careers.

It is notable, however, that some students, particularly those who had parents or family members in health careers, came in with significant knowledge of health careers. Some indicated that experiences in the course provided little additional career knowledge that was relevant to their predetermined pathway. Two examples included a student whose uncle was a top executive for a major healthcare provider and another whose mother was an anesthesiologist. In both cases, each student indicated that prior to starting the class they had extremely well-developed understandings of opportunities in the healthcare field and a well-defined future pathway, which their class experience did not significantly develop.

While additional teacher-directed curricular activities such as reviewing career websites, research projects, hands-on activities such as dissections and field trips to see a cadaver lab or a live heart surgery all were cited as positively influencing student understanding of career fields, the most frequently and passionately discussed influence were the industry career speakers that were brought into class. It was universally indicated that these individuals gave students relevant and authentic connections and understanding of their career fields. Students said these individuals gave them true understandings "about the jobs and not just about healthcare" and

health sciences in general, as well as the influence of different careers on quality of life outside of their work and what an actual daily experience looks like in a given career. All these were indicated as beneficial to their decision-making.

Students also frequently cited that learning about the soft skills and human interactions needed for each career area frequently influenced their decisions, with many indicating they valued knowing whether they would need to work with patients and colleagues. One student even cited that getting to see how doctors, nurses and patients interacted was the "thing he liked the most" about the medical career and was one of the most influential parts of his experiences.

Students not wishing to go directly into health careers also indicated they were able to benefit from Introduction to Health Careers as they were able to make connections to associated fields. One student cited he was able to see connections to develop medical technology as an engineer while another indicated the desire to work alongside emergency medical technicians as a firefighter.

Overall, there were not any significant differences in the responses and findings related to the Theme 1: Understanding of Careers between the high and low confidence groups, with both student groups responding in similar, uniform ways.

Theme 2: Understanding of secondary pathways. A second theme that emerged from the student focus groups was the students' discussion of their understanding of the secondary pathway and the opportunities available to them. Students cited their primary sources of information to be their counselors and other students, specifically older siblings or friends. Students' focus was primarily upon their perceived rigor and challenge of the courses and on the general feel of what goes on in the pathway and less on the specifics of each course and the opportunities they provide. One exception was related to the pathway capstone experiences,

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though there was only basic indication of the intermediate steps on how to get there. The accuracy of their information was mixed and impressions were inconsistent.

In general, students in the low confidence level group had only a basic understanding or inaccurate knowledge about the pathway. Students in the high confidence group showed a fairly high level of understanding of how the pathway was designed and appeared to have accurate knowledge on how to navigate through the pathway according to CJHSD policies and practices.

While both groups of students indicated desires to get good grades in their health careers pathway courses and indicated a general belief that they needed to work hard to be successful in the pathway, students in the low confidence group were more likely to cite concerns around the pathway being too hard and fear that they won't be successful. One low confident student cited that this fear surpassed her knowledge that this was the right career field for her to be in.

Finally, students indicated they perceived that the uniqueness of courses in the health careers pathway was an important factor in their decision-making process. Students indicated that the reputation of these courses not being like other core academic courses in the high school and their more engaging and relevant nature compared with other courses positively influenced their decision to take the course and continue participation in the pathway.

Theme 3: Understanding of postsecondary pathways. The third theme was related to students' understandings and perceptions of postsecondary options in health careers. Student discussions were almost uniformly focused on college options and not on employment opportunities. Students appeared to have given significant attention to developing their understandings of available postsecondary education options as well as developing their understandings of what postsecondary education is like. Identified sources of information included career speakers, college visit field trips and input from family members.

Student understanding of what postsecondary options exist was fairly uniform between the high and low confidence groups; however, student perceptions of what a getting a college education is like, their available approaches on how to navigate college options and decision-making and their level of efficacy varied dramatically. Students in the high confidence group showed little outward concern around their ability to successfully access and navigate postsecondary education tied to their career goals and frequently accurately cited opportunities for flexibility in their postsecondary plans if their decision-making changes. In contrast, students from the low confidence group frequently shared fears and concerns related to the continuing education tied to their career path. One student stated that pursuing their desired career "is hard because you need to go to school for years and...work during it...it is scary." Another identified that a career speaker revealed to them how "it was hard to get there...because you had to take a lot of school years in college." Some of the low confidence students revealed they would be first generation college students and feared navigating the system. One low confidence student even shared very specific, potentially inaccurate, concerns with the college requirement of their career, indicating they were scared of "being yelled at if I show up late to class" by their college professor. No high confidence student indicated any significant concern around accessing or being successful in postsecondary education.

Theme 4: Influences. A fourth theme was related to influences outside of Introduction to Health Careers that impacted their decision-making in health careers. Students discussed decisions and their influences ranging from their interest to initially enroll in Introduction to Health careers and their ultimate specific intended career to many decision points in-between. The most common influences included friends and relatives, counselors, television shows and various efforts related to self-discovery.

Influences of friends and family fell into two main categories: influences from individuals with experience in the health careers pathway and influences from individuals without experience in the health careers pathway. While both categories of influences were represented in both the high and low confidence groups, some unique subthemes appeared from the responses of those in the focus groups.

Advice and influence from individuals outside of the health career path tended to be very broad, general and without significant substance as to what the career entails, such as a parent who is not tied to the medical field simply reporting that "a health careers course would be good for you" or "there are lots of jobs in nursing out there." Some students, many in the low confidence group, indicated that while they greatly depended on such advice to make decisions, they realized it didn't really give them a strong base to be confident in their decision-making. Others who indicated similar initial broad influence but ultimately identified with a higher level of confidence group appeared to have taken it upon themselves to more deeply pursue their own investigation of the field and/or had additional sources of influence that contributed to their decision-making and high confidence levels.

Advice and influence from individuals within the health career path appeared to be much more specific and informed. Sources of this included family members or friends who were either in health careers pathway courses at the high school or college level or individuals who were currently employed in the healthcare industry. While information coming from these sources appeared to be better informed, students receiving such advice were both in the high and low confidence group; however, evidence behind the reasoning for these identifications appeared to be for different reasons than with their peers receiving broad and general advice. The detailed discussions and experiences provided to students in the high confidence level group not only

appeared to inform the students about the career area and pathway but also result in the student developing a deep connection and passion to the field. In contrast, some students in the low confidence group who received such advice or information did not appear to develop any apparent connection and passion. While given deep and accurate information on the field, some students reported they were told they should or must pursue the field rather than choosing it, using words like "pushed into [the course]" or parents insisting that the "course would be good for [the student]."

A second influence type that appeared to have rather consistently high results in promoting student confidence was when the school's counselor came into a class or supported individual sessions to pursue college and career decision-making and planning with students. While this was not universally discussed by all students or groups, it appeared to be a highly influential practice in supporting decision-making.

Finally, individual students indicated they were influenced by other external factors. These included students completing their own self-discovery processes and determining an alignment of their skill sets and abilities to health careers. The most frequent attributes in this approach were students reporting a desire to help people or passion for being able to apply what they had learned and enjoyed throughout studying science. Individuals who provided such responses were overwhelming confident in their career choices.

One last influence identified by multiple students was television and media, specifically the shows *Scrubs* and *Grey's Anatomy*. For each show, the students who identified these sources had an overwhelmingly strong reaction to the portrayal of the social benefits that healthcare provides on these shows, and students subsequently had a very strong confidence in their career decision-making.

Theme 5: Pathway adjustment recommendations. Throughout the focus groups, students provided recommendations for improving different aspects of the health careers pathway and Introduction to Health Careers course. Such information was sometimes prompted and sometimes not, as it was provided in their responses to unrelated questions as well as to a series of questions soliciting advice for improving their career decision-making process and confidence. Four main common subthemes were revealed across groups and confidence levels, including needs for increased college and career planning support by counselors, increased use of industry speakers and site visits within the Introduction to Health Careers curriculum, increased provision of career awareness and planning tools and resources, and increased development of an authentic learning environment modeled after healthcare settings.

Students made recommendations for the increased involvement of counselors in college and career planning in two primary ways. First, they identified the benefit that could be increased when students receive counselor-provided career decision-making supports as part of an intentional course selection process. This process should also support laying out the career pathway of students all the way through college and career so students would be aware of all the steps they will need to take. They also noted how it is highly effective when counselors push into classes and support groups of students in their college and career decision-making.

The most frequent and strongest suggestion was that career speakers and site visits should be increased and be made mandatory for all students in Introduction to Health Careers. Many students identified that hearing directly from individuals who have truly worked in the field was the most beneficial components of the course, but in some cases, it only occurred a few times throughout the year and attendance was optional. Students also expressed the benefit of having

career speakers come from career areas affiliated, but not directly aligned to, health careers, in support of expanding their awareness of career opportunities.

Students generally asked for increased college and career planning tools that would aid them in career decision-making. They suggested that development and more frequent use of different checklists tying careers to the skills and abilities they used throughout the course would help align the academic nature of the course to their broader college and career decision-making.

Finally, there were multiple individual recommendations that all can be related to attempting to increase the authenticity of the Introduction to Health Careers learning environment. Students broadly suggested that teachers should better model the classroom environment to include components that they would actually see within the health careers industry to better develop their skills and advise their decision-making. Specific suggestions included reducing rote memorization and textbook activities and increasing problem-based and situational learning; developing simulations; increasing hands-on-learning both in the classroom and in the introduction or expansion of practicum opportunities; and focusing on developing healthcare communication skills.

"As-Is" Diagnosis

While one could attempt to make deeper interpretations, judgments and recommendations solely based on the information collected through the proceeding research, Wagner et al. (2006) suggest leaders utilize an As-Is diagnostic tool that allows for the acknowledgement and exploration of the complex, holistic nature of problems by considering the "whole" of their organizations by examining four different arenas in need of change (p. 98) in their current state. It is with this intent that I will consider Wagner's four Cs to make more meaningful interpretations, judgments and recommendations based upon the results of my research.

Wagner's Four Cs

A visual representation of CJHSD's "As-Is" state of its career pathway orientation courses is listed in Appendix X along with a description of Wagner's four Cs of Context, Culture, Conditions and Competencies. Wagner et al. (2006) suggested that consideration of these four Cs "can be used to create a greater understanding of the need for fundamental change" and to "realize what a shared vision for success might actually look like" (p. 120). I will consider these four Cs as I seek to develop understandings, strategies and action based upon my research and the needs of CJHSD.

Context. Wagner et al. (2006) defines the context of change to be "the larger organizational systems within which we work, and their demands and expectations, formal and informal" (p. 104). These systems, demands and expectations not only influence the current state of a system but also may positively or negatively impact efforts to influence and drive change. Following are three key contextual factors within CJHSD, all of which positively influenced the As-Is state of career orientation courses.

Career readiness redefinition efforts. CJHSD's district goals, the Redefining Ready! initiative and newly developed state and federal legislation related to student college and career readiness preparation and indicators of success all positively impact the development and deployment of career orientation courses in CJHSD.

Federal action through the reauthorization of the Elementary and Secondary Education Act of 1965 and approval of the Every Student Succeeds Act (ESSA) into federal law in 2015 aligned federal and state priorities to the career efforts underway in CJHSD. For the first time in federal legislation, ESSA explicitly required "that all students in America be taught to high academic standards that will prepare them to succeed in college and careers" (U.S. Department

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of Education, 2018). The directives to states related to career education within the Elementary

and Secondary Education Act of 1965 (2018) were multifaceted, requiring them to align state

academic standards to career and technical education standards (p. 61), increase access to high

level coursework and career counseling to identify student interest and skills (p. 94), coordinate

and promote skills and learning in support of in-demand occupations and work-based learning (p.

94), promote relevant career-focused teacher professional development (p. 106), evaluate

improvement of student career and technical skill attainment (p. 161), and focus on student

postsecondary transition into careers and employment (p. 173). Such a development of new

language into law affirms the priority CJHSD has given to its career pathways and helps support

the development of a network of state and national stakeholders in support of CJHSD's

development of scalable best practices behind these efforts. Supporters include institutions such

as the Education Systems Center, the Joyce Foundation, Jobs for the Future and Connect Ed.

Each of these partnerships has increased the strength and impact of CJHSD's career pathway

efforts.

In response to the authorization of ESSA, the Illinois State Board of Education also

adopted a new set of College and Career Readiness Indicators (CCRI) and created opportunities

to provide career pathway endorsements on high school diplomas. Each of these initiatives

expanded the context of support behind the creation of high school career pathway opportunities.

The Board also added defined measures and targets through which high schools could measure

career readiness. Such measures included prioritizing and defining career interest identification,

participation in career development or workplace learning experiences, completion of a dual

credit career pathway course, or attainment of an industry credential (Education Systems Center,

2017; AASA, 2018a). These were used as guideposts for the refinement of CJHSD's career pathway efforts, and each are core areas of focus in CJHSD's career orientation course model.

The most influential contextual component to CJHSD's career pathway and orientation courses was The School Superintendent's Association (AASA)'s, Redefining Ready! campaign. Redefining Ready! is a research-based, multi-metric system of measurement, assessment and accountability based on college, career and life readiness. While the campaign was eventually formally adopted and promoted by AASA, it was originally conceived by CJHSD's superintendent and locally developed within CJHSD's administration. CJHSD was the first official adopter of Redefining Ready! and continues to be amongst its largest supporters. Because of this relationship, the design, deployment and promotion of career orientation courses and pathways in CJHSD are closely tied to this campaign.

Overall, the development of external and internal systems linked to the redefinition of career readiness legislation, policies and programs created a context in which career orientation courses and supports are greatly valued and supported.

Requirements of 21st century careers and citizenry. Career orientation courses in CJHSD are also influenced by the context of the changing needs placed upon students in order to be prepared for 21st century career success and citizenry. These new needs have required CJHSD's teachers and schools to think and act differently to effectively prepare students for success.

In his book *The Global Achievement Gap*, Wagner (2008) lays out a vision for what schools must be in order to serve the 21st century needs of students and society. Within this work, Wagner focuses on the presence of a global achievement gap. This gap differs from the frequently discussed performance gap between middle class students and low-income minority

students and focuses on the "gap between what our best suburban, urban, and rural public schools are teaching and testing versus what all students will need to succeed as learners, workers, and citizens in today's global knowledge economy" (Wagner, 2008, p. 8). This new gap is fueled by "fundamental economic, social, political, and technological changes of the last two decades" (Wagner, 2008, p. 9).

Wagner suggests there are seven "core sets of survival skills for today's workplace, as well as for lifelong learning and active citizenship" (Wagner, 2008, p. 14) including critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information and curiosity and imagination (Wagner, 2008).

Preparing students for new careers and outcomes through its CJHSD career orientation courses places new requirements, as outlined by Wagner, on teachers and the education system as a whole. The achievement of new outcomes requires new ideas and approaches.

College debt crisis. The state of higher education and facets of its access and affordability for students have become influential contextual factors guiding the approach and operation of CJHSD. Most notably are the facts that 44 million Americans currently hold $1.5 trillion in college debt (Hess, 2018), the cost of college attendance has increased 33 percent from 2004-05 to 2014-15 (U.S. Department of Education National Center for Education Statistics, 2016) and 75 percent to 85 percent of students change majors before they graduate (Student Success Collaborative, 2016, p. 3). Each of these factors illustrate challenges in the resources of time and finances that students are increasingly facing if they are to complete a postsecondary degree or certificate.

To support access to the postsecondary education necessary for many careers within this context of economic challenges related to the rising costs of higher education, CJHSD has focused its career pathways programs on more intentionally supporting students' college and career decision-making, helping them determine what they want to do with their lives while in high school rather than waiting to begin such exploration in college. The district's career pathway framework, which includes opportunities for career exploration, preparation and affirmation while in high school, is evidence of this approach.

Culture. Wagner et al. (2006) defines culture as "the shared values, beliefs, assumptions, expectations, and behaviors related to students and learning, teachers and learning, instructional leadership, and the quality of relationships within and beyond the school" (p. 102). Following are six key cultural indicators that have been identified to have mixed influences on the effective development of career orientation courses in CJHSD.

Academic expectations for learning. CJHSD has consistent high levels of academic expectations for all students, and the commitment to learning is evident at all levels of the organization, including students, staff and the greater CJHSD community. Students and parents are vocal in their expectations for CJHSD to continue to provide high quality and innovative opportunities that connect learning with students' interests and dreams. Staff have high expectations for themselves and their schools to continuously change, adapt and improve practice to support student learning. These individuals dedicate considerable amounts of personal resources and attention to achieving this, as well as demanding similar support from the district at large. The broader community takes pride in the academic awards and achievements schools earn, and have an expectation that they continue to perform at the top of the state and nation.

Such a culture of high expectations and commitments to learning creates an environment in which highly effective learning opportunities receive high levels of support for development and execution.

Buy-in and support behind career pathways. While highly effective learning opportunities garner a high level of support within CJHSD, buy-in and support behind career pathways and career orientation courses has been mixed. This is primarily because not all stakeholders have a uniform view of pathway opportunities as critical high-quality learning experiences.

Teachers and staff who view career pathways and courses as critical facets of high school student learning are extremely driven to develop and promote excellence in these opportunities; however, teachers who have a lesser belief in their value may focus their attention on alternative learning initiatives or even actively oppose efforts, suggesting career pathways are distractions to or detractors from more valuable learning.

Similarly, those in the community who value a developmental model including early college and career exploration and supports are generally active supporters behind CJHSD's career pathway model; however, those who value a more traditional liberal arts-focused high school model or do not see the benefit of such developmental supports are not supportive or may even actively oppose the promotion of pathways.

The individual belief systems of stakeholders influence the effectiveness of career pathway orientation courses, as the level and type of support behind pathway development and execution is closely linked to these beliefs.

Local control of academics. CJHSD has a very flat organizational structure and a strong culture of local control of academics, and values promoting building- and teacher-level input

around program and curriculum development. By design, teacher-led professional learning communities and leadership teams led by lower and middle administrators wield most of the direct decision-making power in the district. Much of the function of district-level administration and top leadership is to develop and communicate broad vision and provide supports to aid the function of building- and teacher-level groups.

While such a culture has influenced broad long-term success in CJHSD as it promotes distributed leadership, ownership of teaching and learning and an environment in which local solutions can be developed for local problems, it also allows for significant variation in the development and implementation of programs. Centralized administrative efforts to make uniform changes across the district require the negotiation of buy-in at the building and teacher level, frequently requiring the provision of supports and incentives rather than the directive of requirement and mandates.

The result of this culture of local control is the existence of many variations in curriculum and program design, implementation and outcomes across the district, and any future district-wide efforts around change at the classroom level are similarly influenced.

Community involvement in schools. There is a high level of support and involvement within CJHSD's schools from community partners and parents. Additionally, within CJHSD's schools there is a developed culture that greatly respects and welcomes such involvement in the educational process. Parents have an active voice in the available opportunities and operation of the school. Industry and community members are engaged in the design of pathways and academic programs and are depended upon to help support providing resources and authentic learning opportunities for students.

Such involvement within the schools has mixed impact on the development of highly effective career pathways and orientation courses. Parents and community members who support these opportunities are highly influential in increasing support among teachers and administrators, both through voicing their advice and expectations as well as providing direct financial and resource support behind these programs. However, voices of community members who do not support the career pathway model also are valued and have had significant influence. At some schools these individuals have slowed the progress in their buildings fully adopting the career pathway model and developing highly effective orientation courses.

Encouragement of progressive, risk-taking efforts. CJHSD prides itself on a culture that supports experimentation, innovation and action. Across the district, it is not only allowed but expected for new ideas to be explored and brought to reality, and this can be done without fear of repercussion of potential failure. This is supported both formally through teacher mini-grants and workshops as well as more informally through ongoing discussions and charges given to teacher-led professional learning communities.

Such a culture has created a space in the district in which new ideas are welcomed as opportunities to develop new learning opportunities for students. The redevelopment of career pathway opportunities and orientation courses could benefit from such a cultural approach.

Administrative/union trust and collaboration. While CJHSD is built around a culture that promotes experimentation and change, recent diminishing trust and collaboration between the CJHSD administration and the teachers' union has resulted in increased conflict, specifically as it relates to change processes. While the importance of change around educational opportunities and development is embraced by a majority of district stakeholders, details around

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who should initiate and own such change has become a point of contention between union and administrative leadership.

Recently, changes originating from district and building administration are frequently resisted by staff and union leadership who would prefer that such changes are initiated by and driven from the teacher level. Despite such opposition, the district's administration continues to insist on the ability to exercise their authority to identify, organize and promote change efforts. These differences have resulted in increased conflict within the organization. Ultimately, this, in combination with a mixed level of support and buy-in behind career pathways, has created a challenging dynamic related to the universal development and promotion of improved career pathway orientation courses.

Conditions. Wagner et al. (2006) defines conditions as the "external architecture surrounding student learning, the tangible arrangements of time, space, and resources" (p. 101). Such conditions impact the ability of CJHSD to support both the development and delivery of effective career orientation courses.

Resource support. There is a high level of district and a mixed level of building support behind CJHSD's career pathway model and career orientation courses. District-level administration and staff have provided a significant amount of effort, financial resources and attention in support of these opportunities. This is frequently done by coordinating curriculum development processes, soliciting and coordinating support from industry partners, redeveloping lab and classroom spaces and allocating additional supplies and materials for classroom use.

While some buildings have provided similar additional support from the building level, others have almost entirely depended on the district to encourage development within their buildings. This has resulted in varied levels of net support being provided to a career pathway

program dependent upon its school location. Such variations have led to programs across the district being developed at different rates and levels.

Curriculum development and preparation time. Access to and allocation of building- and district provided collaboration, curriculum development and course preparation time is equally provided to all teachers; however, this time is not equally used at the department and teacher level. Similarly, there are coaching, curriculum and professional development resources made available to all staff members, programs and buildings, but their effective use varies.

Some individuals and departments maximize the use of these resources and have been able to make significant changes to their curriculum and support continuous improvement processes in their programs. Others, who have failed to access available resources or effectively use them, have struggled to keep up with the basic needs to maintain their courses and programs. Such a discrepant situation has led to variation in the design and quality of courses, school to school and teacher to teacher.

Number of individual class preps. The number of unique courses each CJHSD teacher is responsible for preparing varies significantly, with some having responsibility for developing and teaching one or two unique courses over the year and others five or more. Ultimately, an individual career orientation course may be a primary responsibility for one teacher while for another it may be one of many such priorities for them to develop and manage. This results in some sections of career orientation being given a different level of care and attention by some staff members, resulting in varied design and quality.

Collection and distribution of data. Supporting successful student career decision- making processes and developing high-quality career pathways requires deep knowledge of the learner as well as information on job markets, career competencies and industry dynamics. Such

knowledge and information involves the collection and distribution or and careful attention to numerous sources of data focused on the student as well as the career pathway itself. It is necessary for students, teachers, administrators and other stakeholders to effectively navigate and use such data and information to develop an appropriate, individualized career plan for each and every student.

In CJHSD, such necessary data is inconsistently gathered and systems do not exist to effectively share existing data with all stakeholders. Such a condition greatly hampers the overall ability of staff to develop and students to navigate high-quality pathways and orientation courses.

Determination and sharing of best practices. Information around and resources supporting the development of best practices for what can and should be done in career orientation courses have not been identified, broadly discussed or distributed across CJHSD. While some developmental work around career pathways and orientation courses has occurred at the district and building levels, there has not been sufficient dedicated efforts to encourage sharing or consensus-building on what approaches could be replicated across sites and programs.

Similarly, while best practices from outside CJHSD are used in individual courses and programs, there has not been an effective process to broadly evaluate, share and replicate these. As evidence, research completed in this study suggested that different orientation course activities had different levels of effectiveness and influence on student career decision-making and also that some relatively ineffective practices were frequently utilized and some highly effective practices were underutilized. The condition of CJHSD's practices related to reviewing and sharing such processes is lacking in its ability to effectively support changes related to career orientation courses.

Career pathway teacher leads and workgroups. Finally, within CJHSD there are structures in place to promote development and implementation of career pathways programs. Teachers can be designated as career pathway teacher leads and pathway teacher workgroups can be identified to provide the authority, time and space for teachers to direct and develop career pathways at their building and across the district. However, while these structures have been developed, these groups have been ineffective as their work and operation have not yet been adopted into common practice and no pathway changes have been made. The activities and processes of these groups are not standardized, and their meetings are not regularly scheduled. While there is promise of what these groups could do to develop career orientation courses, few results have been actualized to date.

Utilization of counselors in orientation courses. Counselors in CJHSD have little to no direct role regarding the career orientation course classroom or in its design. Counselors do provide a four-year core counseling curriculum aligned to the Illinois PaCE framework in an attempt to support college and career readiness; however, these efforts are generally isolated to groups supported through each school's student services department and are not embedded and aligned with the work occurring in career pathway courses. While the counseling and academic career pathway models are aimed toward similar goals and outcomes, they have not been fully aligned nor integrated behind the support of student learning and decision making.

Competencies. Wagner et al. (2006) defines competencies as "the repertoire of skills and knowledge that influences students learning" (p. 99). In the development of career orientation coursework, this primarily revolves around the abilities of teachers, administrators and external stakeholders to effectively influence the development, instruction and management of high quality career pathway programs.

***Faculty professional experiences*.** CJHSD faculty who currently teach career orientation courses come from varied backgrounds and have different levels of experience and expertise, both as professionals in their specified career areas and in leveraging these experiences for the benefit of students learning a career pathway program. While some staff members have significant assets and abilities to connect to and promote careers, others have significant deficits and little to no experience. Within health careers, teaching staff vary from individuals who have worked in hospitals and clinic settings to those with traditional biology or health education backgrounds with no real personal or professional connections to the healthcare field. This variation has impacted the system's capacity to universally deliver high quality career orientation course instruction and make the necessary relevant connections in support of career exploration.

***Faculty career advising capacity*.** Nearly all of CJHSD's career orientation teaching faculty have little or no formal training or researched-based knowledge on how to effectively influence and support student career decision-making and planning; however, each school's student services department has individuals with significant training and capacity in these areas. Each schools' counseling department has been named a Recognized American School Counselor Association Model Program (RAMP), of which career counseling is one of three primary domains. Despite this, both groups are rarely simultaneously engaged in the development or implementation of classroom-based career orientation opportunities, a practice which was identified by students as being an effective one that should be expanded.

***Career pathway education expertise*.** The ability of CJHSD to develop effective career pathway opportunities and orientation courses also is influenced by the knowledge of its individuals in the areas of career pathway education and curricular design. While there is limited capacity across CJHSD's teachers, the district has some administrators and access to external

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professionals and consultants who are national experts and thought leaders in these areas. While some of these resources have been actively utilized to support the development of pathways and pathway opportunities through professional learning communities and communities of practice, they have remained largely underutilized. Such an existing, untapped capacity to provide support gives CJHSD the ability to readily access internal and external sources of technical assistance to ensure the developed pathway models and individual courses and activities are of high quality and leverage research-based approaches and best practices.

Evaluation and coaching in career pathways. CJHSD does not have customized methods or tools in place to evaluate the effectiveness of career pathway teachers or courses and does not have set processes to coach individual instructors struggling in their development and deployment of these opportunities. All teachers are evaluated according to the same standard rubric through the same observation process, which does not sufficiently capture nor value the requirements of a quality decision-making process. Furthermore, many evaluating and supervising administrators personally lack the sufficient career pathway knowledge to make appropriate judgments and provide required supports to help develop staff in these areas. Such a lack of supports limits CJHSD's ability to effectively recognize successful or struggling teachers and systematically ensure the quality of student learning opportunities is consistently being elevated.

Analysis and use of data. There is a large variation in the ability of CJHSD staff to effectively analyze and use student, course and career-related data in support of development and implementation of student learning opportunities. With the dependence on student decision-making and jobs and career data as a central piece of developing relevant career pathway

opportunities for students, such a variation in abilities results in even greater varied experiences and value for students.

Interpretation

Through my quantitative and qualitative research on CJHSD's Introduction to Health Careers course, my professional experiences and an in-depth analysis of CJHSD's four Cs, it can be seen that while career orientation courses in CJHSD positively influence student career decision-making, their impact and effectiveness fall short of the districts' potential capacity and are inadequate to fully appropriately support the necessary student career decision-making of all students. While this was revealed in many facets of the As-Is analysis, it is further made clear when considering the 202 students involved in Introduction to Health Careers research. Of these students, after their career orientation course experience, 8 percent still failed to have an identified career cluster, 25 percent were not confident in their decision-making, 65 percent failed to have a basic level of awareness regarding all the key areas of the district's career pathway, and gaps in student confidence levels between groups still existed.

Additionally, the curricular design of orientation courses has not been maximized, as best practices have not been identified and embraced. Course components that students reported as being uninfluential were frequently supported throughout the curriculum. Reduction of these would allow for the capacity to increase the frequency of other components that were reported as being highly influential and desired to have greater frequency.

Additional opportunities to create a more effective career pathway model, such as the integration of counselor career decision-making supports within the classroom, a development of a culture and conditions to support the collective ownership and development of pathway opportunities and intentional development of the competencies of staff have not been broadly

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attempted or tested. The current execution of the career orientation course model, while having positive impacts, is ineffective at supporting the needs of all students.

Judgments

Now that both the four C's as they relate to CJHSD's orientation classes have been evaluated and quantitative and qualitative research related to CJHSD's Introduction to Health Careers completed, my study's research questions can be reexamined.

Extent and Impact of Orientation Courses on Career Decision-Making

The first primary research question was whether and to what extent do career orientation courses impact student career decision-making?

From the research of the student survey and focus group, there were suggestions that the course impacted student decision-making, but some of the causes and effects of this impact remain uncertain. While some individuals within the focus groups provided indications that the course directly and significantly impacted their decision-making, some also suggested that non-course components also were influential. Identifying the extent of the impact of these factors would require additional factors to be evaluated.

The net impact of the orientation course experience also remains uncertain. While nearly one out of three students changed their cluster of interest from the start to the end of the course, this change included an equal number of students changing both toward and away from the key subject matter of the course, health science, as their cluster of interest.

There was no significance identified between student demographic groups regarding their examined states of student cluster identification or cluster change.

From both the quantitative survey and the qualitative focus groups, it can be suggested that the course was successful and played a key role in supporting students who enter the course

undecided in their career choice on their path to becoming decided. The rate of students being undecided dropped from 14.4 percent upon entering the class to 7.9 percent when exiting. This decrease, paired with the influential nature students cited throughout the survey and in the focus group, suggests the course was at least among the factors leading this change.

Extent and Impact of Orientation Courses on Student Confidence

The second primary research question was whether and to what extent do career orientation courses impact student's confidence in their career decision-making?

From both the survey and focus groups, it can be suggested that the course does have an impact on strengthening student confidence in decision-making. This can be determined by considering both the average increase in student confidence of all examined groups from the start to the end of the course in addition to the feedback on the course and its curricular components gathered through the focus group process.

Considering the quantitative data gathered through the survey, it appears that while all student groups increased their confidence throughout the term of the course, male students and upperclassmen appeared to have the greatest level of positive change in their confidence. Additionally, when the confidence gap between the confidence level of students who never changed their cluster of interest away from health careers was examined against the confidence level of other groups of students, it appeared as if the experiences students had during the term of this course served to shrink this confidence gap. This shrinking confidence gap was most evident for career-changers, most notably those changing from an undecided identification to an identification of health careers.

Rate of Career Confirmation

One of the secondary research questions was at what rate do students in career orientation courses confirmed their career decision-making?

From the student survey, it was found that of the students in Introduction to Health Careers, approximately one-third change their career cluster, though there was no net shift in the overall number of students who declared health science as their cluster of interest. There was also not any apparent influence of any examined student demographic factor on the rate at which students confirmed or changed their career cluster. There was, however, a decrease of students who identified as being undecided in their career identification, with approximately half of the students who began the class later identifying a cluster of interest.

While these changes occurred to this group of students over the period of time they were in Introduction to Health Careers, a direct causation between the course and the change in cluster cannot be directly linked, nor can the impacts seen across Introduction to Health Careers be guaranteed to be representative of all career orientation courses.

Student Identified Factors Impacting Decision-Making

A second secondary research question was what factors within career orientation courses do students identify as impacting their career decision-making?

Overall, examined course components had varied degrees of reported influence on student decision-making, though individual activities had a very high level of agreement in the degree of influence they had demographic groups. Student data also identified a strong correlation between the frequency at which each activity occurred and the degree of influence it had on decision-making. This suggests a few potential possibilities, including that repeated experiences of an activity increases its influence, teachers delivered more influential experiences

more frequently in their classes, or more influential experiences were remembered and reported at a higher frequency than less influential experiences.

The activities identified from the survey to be most impactful included career speakers, teacher career pathway presentations and discussions, activities developing awareness about the high school pathway, high school pathway goal-setting, and career research projects. These were also the five activities with the five highest frequencies as reported by students. Four of the five also were reported at the highest frequency level by teachers. The focus groups strongly suggested that career speakers were the strongest classroom influence on student career decision-making.

The activities with the lowest influence included postsecondary and high school career portfolio creations, developing awareness of available industry credentials opportunities, learning about postsecondary education options and learning about postsecondary employment options. These five activities were reported among the seven least frequently occurring activities by students. The creation of portfolios was among the activities occurring with the lowest frequency by teachers, but the other three activities were reported among the most frequent.

Relationship Between Exploration Components and Student Confidence

An additional secondary research question was what is the correlation between individual career exploration components within these orientation courses and student confidence in their career decision-making?

Through the consideration of the impact of the top five influential activities, it was determined that students who entered the course with a higher level of confidence in their career choice reported they found the subsequent course activities to be more influential in their decision-making. The same finding was found of students with high low confidence levels.

Best Practices

The final secondary research question was what are identified best practices within career orientation courses for increasing student career decision-making?

A number of highly influential course activities emerged from the research. The strongest was the involvement of industry speakers throughout the course. Not only was it identified as the most influential activity for all student groups in the student survey, but it was also frequently referenced across the focus groups as having high impact as well as being a component that students recommended occur with increased frequency.

While hands-on and authentic learning opportunities did not stand out as highly influential course components in the student survey, they were frequently referenced in the student focus groups as having a large impact on student career decision-making. This disconnect may be in part due to the relatively low frequency such activities were reported, leading to a decreased student perceived influence. With this consideration, such activities could be considered as beneficial practices to further promote in orientation classes.

A final best practice relates to the encouragement for placement of students with an undecided career cluster of interest into orientation classes. Not only did nearly 50 percent of these students declare a career cluster of interest by the end of the course, they also experienced the largest close in their career decision-making confidence gap when compared to all other identified student groups. These two findings indicate this experience is highly beneficial for supporting students in finding their career cluster of interest and also in approaching a level of confidence that matches that of their most confident peers.

Additional Findings

One key finding that was not initially identified as a research question was the very low level of awareness of key pathway course components by students who completed Introduction to Health Careers. Despite teachers reporting that they frequently have opportunities to develop the awareness of the seven critical pathway components, only 2.5 percent were at least moderately aware of all components and 34.2 percent had any awareness of all components. This is a critical indicator that students are lacking key knowledge of the pathway, which may influence the extent and accuracy of their decision making.

Recommendations

Analyzation, interpretation and judgments made on the As-Is state and research performed in CJHSD provided a basis upon which to make recommendations for the district's career orientation courses and pathways. It is recommended that identified strengths of the model be sustained and expanded, while improvements be developed to address the identified weaknesses. A description of the current strengths and weaknesses along with other specific recommended programmatic changes are identified in the following subsections.

Strengths in the As-Is Framework

The As-Is framework had a number of strengths that should be sustained and embraced to continue effectiveness practice that supports CJHSD's career orientation courses. Identified strengths included strong alignment of the contexts of national, statewide and local efforts to redefine college and career readiness which elevated the importance and focus on creating high quality, impactful orientation courses. Culturally, CJHSD's orientation courses benefited from the district's progressive nature and involvement of a committed system of stakeholders. Providing staff members with the ability to take risks and make adjustments along with having

human resources available to support such changes would be critical in the system's ability to make progress. Lastly, examining both the conditions and competencies for support, while not all individuals were highly supportive of or prepared to do the work required in this career pathway model, CJHSD had subgroups of highly committed and prepared stakeholders who could serve as champions in leading early efforts of the work and support its broader adoption across the system. Finally, as evident from the performed research, structures within CJHSD exist that, if effectively employed, could have a great impact on promoting increased distributed leadership and ownership of the career pathway efforts. In any change initiatives from the As-Is state of CJHSD to its To-Be, these positive factors should be considered and leveraged to promote success and progress.

Findings from the research also indicated there were a number of strengths in the existing career orientation course. First, there were a number of course components that were found to be effective in influencing student confidence levels. A focus should be put on continuing such practices to maintain the effectiveness of the courses.

Weaknesses in the As-Is Framework

In the examination of CJHSD's As-Is framework, a number of factors detracted from the success of developing a highly effective career pathway model and orientation courses. These areas of deficit would need to be addressed in development of CJHSD's To-Be framework.

Context. While the vast majority of the identified contextual factors generally promoted success of the career orientation courses in CJHSD, one factor that could be improved would be the tie between career pathways and improved college affordability. While it can be suggested that improving students' decision-making around their path to college degrees and careers would help reduce time and cost of degrees and certifications, such an outcome has not been fully tested

in its relationship to career orientation courses and these results are only hypothesized. Having a known outcome in this area would strengthen the context and need for high-quality career orientation courses.

Culture. CJHSD experienced a mix of cultural influences, some of which detracted from the successful development of its orientation courses. First, there was a lack of universal buy-in behind career pathways from all staff and buildings, resulting in mixed levels of support behind these efforts. This mixed lack of support, combined with the value of local building control of academics, created a challenging dynamic in which significant control over the educational system was held by individuals who were in opposition to its intended direction. Lastly, the growing lack of trust and contentious relationship between union members and administration created an environment where collaboration and development of new ideas was hampered. These cultural issues would need to be addressed in order to improve pathway opportunities.

Conditions. A number of the structures and arrangements related to time, space and resources limited the effectiveness of career orientation courses across CJHSD. In some cases, individual buildings provided limited resources, both physical and time, behind the development of these courses. Additionally, there was a mixed allocation and effective use of time, data and collaborative opportunities by the career orientation course teaching staff. These resources, if better managed, could have been better used to promote success in these courses. Finally, there was a failure to use counselors as part of the development and execution of orientation courses. To develop highly effective courses, these would need to be addressed to improve career pathway opportunities.

Competencies. Both the competencies of teachers and administrators would need to be addressed to create highly effective career orientation courses. Staff had mixed professional

backgrounds and knowledge of career areas and ability to use career and student data. Many administrators lacked the tools and methods to effectively evaluate and coach teachers in development of career pathways and orientation courses. Ultimately, this lack of competencies detracted from the ability to develop highly effective courses.

Counselor Engagement, Involvement and Collaboration

One key primary area in which changes could be made would be in the engagement, involvement and collaboration of counselors and student services staff within the development and implementation of orientation classes. Such a change would be in response to address the competencies, culture and conditions within CJHSD.

In consideration of competencies, one area of deficiency related to the knowledge and skills of existing pathway teachers to effectively support student decision-making in pathway courses. Unlike counselors within their schools, most of these teachers are not professionally trained or experienced in counseling or advising students, so efforts to effectively support student decision-making are inadequate to the new classroom needs of a career orientation course.

Culturally, an increased level of buy-in behind CJHSD's career pathway model should be developed across all schools and departments. Such buy-in would allow for the development and success of the counselor-teacher teams to be supported and celebrated within the CJHSD community, and allow the existing culture of high levels of academic expectations for students and teacher-level ownership of program development to be fully achieved.

Finally, the conditions within CJHSD would need to be significantly adapted in order to provide time and structures to allow counselors to be involved in the development and delivery of career orientation courses and other pathway experiences. To achieve this, counselors and teachers should be provided common professional learning community and workshop time to

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develop orientation course curriculum and experiences. Part of the core role and responsibilities of counselors should also be adjusted to allow and require them to be embedded within career orientation and pathway courses so they can provide direct supports to students as they develop their career decision-making.

To achieve these changes, there would need to be significant changes to the CJHSD organization. With the responsibilities of counselors being expanded to include classroom instruction and support roles, staffing of counselors would need to be increased. Additionally, with the role of counselors being adjusted to more of a curricular function, competencies of new counselors, as well as the professional development for existing counselors, would need to be adjusted accordingly. The curricular and professional development processes of staff supporting career orientation and pathway courses would need to be adjusted. No longer would teachers be the sole developer and deliverer of curriculum. In the new model, teachers and counselors would need to collaborate on the development of courses, with teachers serving as content experts and counselors as the decision-making support experts. The combination of these aspects into a highly effective student experience would need to be supported by professional development and other supports.

This issue was selected because, in light of the importance of developing student career decision-making, the research and consideration of the As-Is state suggested that career orientation courses in CJHSD may not be as effective as possible. While students made improvements in their decision-making, the overall outcome of fully developing student decision-making still could be improved. Additionally, many of the individual decision-making supports that teachers in these classes provided students were revealed to have little impact on student decision-making. Despite these challenges, the schools' experts in student decision-

making supports -- their counselors -- were not at all involved in the development or delivery of the orientation course. This is a lost opportunity to have a more significant influence.

Additional changes would lead to an improved, ideal state of CJHSD, where career pathway courses would be highly effective in supporting career decision making for all students. Such a state will be described in the following section, which considers an ideal To-Be state of CJHSD.

SECTION 5: TO-BE FRAMEWORK

Throughout this section, an ideal state of CJHSD in which career pathway courses are highly effective in supporting decision-making for all students is presented through a To-Be framework, listed in Appendix Y. This To-Be framework includes a description of the four Cs of CJHSD in its ideal state. Such a plan would require embracing the successful aspects previously identified in the As-Is framework as well as acknowledging and addressing deficiencies.

Wagner Four-Cs

Following are descriptions of the four Cs in the ideal state of a To-Be framework along with the new features that would have to be developed within CJHSD to address necessary changes.

Contexts

Largely, the contexts within CJHSD's As-Is and To-Be frameworks would not vary dramatically. CJHSD was fortunate to benefit from a highly developed, strong alignment between national, statewide and local efforts to define and develop career readiness. Within the To-Be framework, the district's career orientation course development efforts would capitalize on this context and continue building upon the momentum already created.

Culture

While academics and student learning in CJHSD broadly benefited from the district's progressive approach and the commitment of stakeholders to high-quality teaching and learning, district career pathway efforts failed to have universal buy-in and support, and the communication, coordination, collaboration and trust between administrators, teachers, individual buildings and the district office sometimes struggled. Furthermore, there were breakdowns between counseling and teaching and learning efforts, with classroom and counseling activities not being blended in an effort to provide the most equitable support to CJHSD's students.

In the district's To-Be framework, the progressive approach of the district and the high level of academic expectation for students would need continue to be embraced as they promote a culture of acceptance of change that benefits student learning. However, the culture and approach toward success would need to become much more inclusive of all staff in all aspects of learning, and the voice of all stakeholders would need to be elevated and valued throughout these opportunities. This would specifically include the involvement of counselors as key participants in the development and delivery of career orientation course curriculum. Teachers would need to more greatly understand and value the role of counselors, and vice versa. Additionally, there would need to be an increase behind the level of buy-in, support and sense of urgency around career education across all buildings, departments and staff. While local ownership and design of educational opportunities would still be valued, communication, coordination and collaboration throughout the district and across all levels and departments of staff would be more greatly valued to develop equitable, high-quality career orientation opportunities for all students. Finally,

to achieve this, an increased sense of trust and collaboration would need to be restored between unions and administration to allow for contributions of all stakeholders to be actualized.

Conditions

The conditions within CJHSD would require significant adjustment to provide an environment for success related to career orientation classes. Outside of the high level of district support, many of the conditions identified in the As-Is plan hampered the success of the career pathway orientation course development. Building resource support varied. Development and planning time were not efficiently used. Counselor participation in the development and delivery of career orientation courses was completely absent. Teachers were distracted by other priorities, and information on best practices and student and career data information were not readily available or used.

In CJHSD's To-Be framework, the role of the counselor would need to be redefined to involve direct classroom and instructional support responsibilities. CJHSD would also have increased resource support, focus, time and attention to career pathway orientation courses, and data and curricular resources would be more readily available to staff.

Competencies

Competencies of CJHSD's staff and administrators would need to be developed to ensure success of the development of career orientation classes. While some individuals across CJHSD's staff and administration had relevant professional career experiences, abilities to support career decision-making, expertise in areas of career education and skills to effectively use student and career data, such assets were not sufficiently possessed by all stakeholders who held critical roles in career pathway course development and deployment. For this reason, the competencies of both pathway teachers and counselors would be fully utilized in the new model.

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Over time, such collaboration also would develop the content competencies of counselors and decision-making competencies of pathway teachers.

Furthermore, the district had little capacity in the ability to effectively evaluate or coach staff in the areas of career pathway development or deployment. Both teacher leaders and administrators would have the knowledge and skills to fully support the needs of staff across CJHSD.

Overall Vision of Change

Overall, to move from CJHSD's As-Is of being ineffective in its career orientation courses to its To-Be of having these courses be highly effective at supporting all students' career decision-making, three key outcomes must be achieved. First, staff and stakeholders must be given an increased voice and sense of ownership across the career pathway model for the system to benefit from their contributions and to develop an increased buy-in and acceptance of CJHSD's initiatives. Second, stakeholders involved in the development and delivery of the orientation courses must be broadened so the pathway benefits from the collective capacities of pathway teachers and counselors. Finally, all stakeholders must be supported in quality professional development relevant to the creation and execution of pathway opportunities. Instruction and support of students will change, leading to increased student learning and engagement and ultimately improved student decision making and confidence in their career choices.

In the following section, specific strategies and actions to achieve this To-Be vision will be identified and discussed.

SECTION 6: STRATEGIES AND ACTIONS

Within Section 4, results from the research on CJHSD's Introduction to Health Careers course was presented, and the district's As-Is state was fully described with strengths and weaknesses identified. It was ultimately determined that the career pathway orientation courses were ineffective at supporting student career decision making. In Section 5, a new To-Be state for CJHSD was described. This state embraced the strengths and weaknesses of the As-Is state, resulting in a design in which career pathway orientation courses could be highly effective in impacting student career decision-making.

To link the As-Is to the To-Be state, seven strategies were identified. Appendix Z links each strategy to its As-Is and To-Be state. Appendix AA describes the action phases and levers that will be used to support each strategy.

Wagner et al. (2006) states that complex systems change occurs in three phases: preparing, envisioning and enacting (p. 133). In the preparing phase, leaders plan for the change and develop an understanding of three facets of the change. These facets include the need and urgency for the change, how educators will need to take responsibility for supporting students in the change, and how educators must work differently in the new changed state (Wagner et al., 2006, 133-134). During the envisioning phase, leaders expand stakeholder ownership and input as they work to define collective responsibilities and develop trust and cooperation between stakeholders. During the final enacting phase, the priority of the leaders and stakeholders is to make the necessary improvements by providing regular information, supporting frequent communication and adjusting practice to make improvements.

Wagner et al. (2006) also indicates there are three "critical spheres of work" for the leader to use to make the change, called change levers. The three change levers include data,

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accountability and relationships (p. 134). Data involves the quantitative and qualitative information, which can lead to change and success of schools. Accountability includes the responsibilities people in schools have, and to whom they are responsible. Accountability can be based on how leaders hold their subordinates responsible for their work or can be based upon shared and mutual commitments. The final lever is relationships, which include the attitudes, feelings and behaviors individuals and groups have toward one another.

In this section, the seven strategies to transform CJHSD from its As-Is to its To-Be state will be presented, and the actions and levers that will be used in each of the three phases will be examined.

Strategy #1: Advocacy for Change to Legislation and Policy

The first strategy addresses changes to the contexts in which CJHSD's career pathway courses operate. It works to align local, state and federal policy and practice to Redefining Ready! and additional support for college and career readiness, skills needed for 21st century careers and citizenry and the alignment of education systems to encourage college affordability. While some early alignment in these areas exists, this strategy seeks to expand and accelerate support for them in federal, state and local legislation, policy and priorities.

Phases of Change

In the preparing phase, local, statewide, and national data and research would be collected to gather a case for support for aligned systems, Redefining Ready!, college and career readiness and 21st century skill development. Such sources would include research and data in support of theoretical models as well as actual student success and performance data from traditional systems and systems aligned to these changes. While some of this data and research has been collected, the sets would need to be expanded and further developed to fully address the

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need for urgency of the change and describe the new responsibilities and ways in which stakeholders would need to work in order to achieve the change. Such efforts would help develop a stronger case for change of systems and legislation.

Within the preparing phase, leaders would need to evaluate political systems of support and identify potential stakeholders and supporters. This process would provide knowledge of the politics and context, which the change leaders would need to navigate, and the existing assets they could access and challenges they would need to address.

During the envisioning phase, leaders would need to expand understanding and a sense of urgency for change across the greater community. Leaders would need to utilize relationships and knowledge of supporters to develop a diverse consortium of stakeholders in support of the change, including educators, community and industry leaders, legislators and other policy makers. These individuals would need to be informed on the vision and background of the work and should be engaged to develop and adopt frameworks and goals in support of the changes. Leadership and ownership of the change should be developed to expand the capacity of support behind the efforts. To benefit from different viewpoints and collective knowledge and experiences, leaders should ensure active engagement of a wide range of stakeholders, value diverse voices and encourage their active support.

During the enacting phase, the work of the consortium should be put into action, developing new policy and legislation and using identified relationships and systems toward adoption. During this phase, it would be critical to leverage the strengths and abilities of those involved, communicate stories of success and make adjustments to address weaknesses and failures. Such an approach would allow the effort to progress successfully and benefit from the collective input of all stakeholders.

Levers of Change

This process would rely on the change levers of data, accountability and relationships to successfully change the context within which CJHSD's career pathways operate.

Quantitative and qualitative student performance data, in addition to broader research and data on college and career readiness, 21st century skills and education system alignment, would illuminate the CJHSD's current context and help develop the argument that change is necessary. This data also would be critical in informing the appropriate planning and development of the experiences policy and legislation.

Preexisting and developed relationships are critical levers of this change. Using relationships within education groups would be imperative, because initiating and sustaining change would be dependent upon having a unified collective voice from within education -- indicating that this change is appropriate and important. Disunification within education would be enough to bring question to the change and immediately bring it to a halt, so using relationships within education to develop a unified voice is important.

While disunification within education is enough to stop the change, unification within education would not be enough to have it pass. To pass policy and legislation, it would be critical to use and develop relationships with leaders and members within the community at large to develop a broad level of popular support behind the educational changes. While schools should seek to develop support from their communities, they also should be careful in that they are responsive to the communities they support.

Finally, once support is developed from within the education community and the community as a whole, relationships with legislators, politicians and other policymakers should be leveraged to finalize and enact the change. Two relationship tactics can be employed. If these

individuals are opposed to the changes, they can be convinced or implored to support change based on the representative relationship they have with the public that wants them to support their change. A second approach would be to use relationships with key individuals who already are in line to support the change. Being able to navigate and manage relationships is central to being able to achieve the necessary changes.

There are two main levers of accountability that are influential in this contextual change. The first is the accountability public school leaders have to their representative communities. As public servants, these leaders have an obligation to make decisions for the good of communities, balancing the expressed desires of the community and the professional obligations to best educate the community's students. Changes made would need to be in line with best practices for educating the community's students, and in line with the will of the CJHSD community.

The second lever of accountability that impacts this change is the responsibility of public appointed and elected officials to their constituencies. These individuals have an obligation to represent their constituents, and their continued employment in their elected roles is dependent on their responsiveness to their constituents' wills. This makes them accountable to their community at large, creating a large lever which is influential on the changes being made.

Strategy #2: Development of Collective Pathway Ownership Within Schools

The second identified strategy addresses the culture of pathway ownership within schools. This change is achieved by providing diverse working groups of counselors, teacher, employers and other stakeholders' collective ownership of CJHSD's career pathways and academic programs. Such collective ownership not only empowers practitioners to make changes that are necessary for the improvement of the pathway, but also encourages collaboration and innovation within the pathway.

Phases of Change

In the preparing phase, leaders must evaluate the existing systems of support and current structures of ownership. To determine what needs to be changed, it is important for leaders to have a comprehensive understanding of what currently exists, what is successful and what is not successful. Such an investigation can be supported through surveys, interviews, observations and general reflections of the structures, policies, procedures and practices that influence ownership and meaningful participation across CJHSD.

During the envisioning phase, increased ownership and participation in the change implementation must be developed. Required actions can be put into two main areas: actions developing the required structures for the change and actions engaging the participants involved in the change. The actions related to the structures and processes would include creating the vision and case for support behind changing past practices of ownership. Such actions would be influenced by information gathered in the preparation phase and would result in early identification of the needs and development of the structures, supports and resources required for success in the creation of diverse working groups that support pathways and academic programs.

Actions related to developing the participants involved in the change would start with the engagement of the formal and informal leaders across CJHSD. Their awareness, support and input behind the change would be central to its success. Collaborative planning discussions around the details on the membership of these groups, how they will operate and what supports they will need could be led by this leadership team. Finally, the individuals who would participate on these diverse working groups would be identified, and their specific needs and required supports would be identified.

During the enacting phase, these working groups would be convened. Their needs and

successes would be monitored and supported to ensure the result of their discussions and efforts could make meaningful improvements to career pathway design and implementation in CJHSD.

Levers of Change

Change levers of data, accountability and relationships would be used to promote the development of pathway ownership across diverse working groups.

Data from surveys and evaluations and best practices gathered from research would be used to promote successful change. Surveys and evaluations from existing groups and structures can guide the preparation of CJHSD in its development of a new structure for pathway ownership. Research developed from CJHSD and national sources also can be used to identify best practices for engagement, which could advise the design and implementation of the pathway groups. The ongoing use of surveys and evaluations could also help identify successes, challenges and needs for adjustments in the future.

Relationships are the key lever for change as this strategy develops new structures in which individuals work together in new ways to solve existing and future problems. This structure is inherently a social process, and is highly influenced by existing and new relationships. Key relationships include those between administration and staff, within and around CJHSD's formal and informal leadership, and between the broader community and the school. Throughout all three phases of change, it is important to leverage these relationships to promote the change process and its successes and address any weaknesses in the relationships so they do not negatively impact the initiative.

In such a social structure, many of the identified relationships also are a source of accountability that can be used as a lever of change. Each group's relationships with one another comes with it a set of expectations and related accountability measures. For example, the

relationship between staff and administration also includes levers of accountability, with staff accountable to their administration through evaluations and administration accountable to staff through the expectations that they support the wellbeing of those they employ. The school-community relationship is one in which the community is accountable for providing direct support to the school as a community-owned resource and the school is accountable to the community to develop its youth for success upon graduation. Peers in decision-making groups hold others accountable both formally and informally as each individual has ethical, professional and personal expectations for one another that others attempt to fulfill. Overall, such expectations and levers of accountability are tied to and are important in determining the success of the strategy.

Strategy #3: Improvement of Union/Administrative Relationships

The third identified strategy involves the cultural changes related to the improvement of union/administrative relationships -- namely, the resolution of discrepant opinions on the appropriate management of change processes related to innovation, with each group wishing to possess the control over these processes.

Phases of Change

In the first preparation phase, administrative leadership should strategically and impartially evaluate the existing union and administrative relationship, examining the successes and challenges in their relationship in an attempt to advise and identify future practice and changes which could improve the relationship.

During the envisioning phase, open and meaningful dialogue needs to occur between the administration and union leadership. A clear understanding of the intentions of the dialogue and subsequent efforts must be had, and trust mired in realistic expectations must be established. It

must be understood that it is unreasonable to expect agreement and enthusiasm in every discussion; however, it is reasonable to expect that all discussions on each side are viewed with having good intentions and a desire to work toward finding win-win solutions. From the administrative viewpoint, Strategy #2's development of collective pathway ownership should be noted as an indication of sincerity of this approach, and union cooperation and support behind a collective vision of pathways should be a reasonable request.

Once trust and understanding is established, a collective voice around pathway decision-making could be implemented and gradually expanded. It would be imperative to continue to give attention and care to the union/administrative relationship beyond simple decision-making to ensure it continues to improve and not regress to a state of diminished trust and effectiveness.

Levers of Change

Change levers of data, accountability and relationships would be used to promote improved union-administrative relationships.

History and records of past union-administrative interactions would be valuable levers to allow for the evaluation and planning of relationships of the past and guide practice influencing what they could become in the future. Having information on how some efforts successfully impacted conditions and how others may have harmed conditions within CJHSD would allow for both the union and administrative leadership to determine how best to work together in the future to more frequently reach mutually beneficial outcomes.

Additionally, student career pathway data would be an additional valuable lever as student success data could be a powerful unifier and driver of change. Deep and meaningful collaborative discussions could uncover some of the root causes of student successes and failures, and these findings could be drivers for collective action and change.

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The primary lever for this strategy is relationships, including the combinations of relationships between the union membership, its leadership and the district administration. Focusing on areas of strengths within these relationships and addressing areas of weakness would allow the overall effectiveness and collective impact of the union and administration to be improved. Without specifically using and addressing the relationship, progress will remain challenged.

Levers of accountability, all of which are tied in some form to existing relationships, also exist. One such accountability lever is each individual group's ethical obligations to students. All involved parties are influenced by their fundamental obligation to provide quality learning opportunities to students, and any positive or negative impacts on student learning due to the actions of any one group would be a highly influential factor in their perception of any changes. Identifying evidence which shows that changes would positively impact student learning would be a strong argument in promotion of that change.

A second lever of accountability includes the formal and informal responsibilities and obligations between an employer and its employee. This lever is also mirrored by the union and union leadership's obligation to its membership. Each set includes a complex web of contracts and positions, wants and desires, and obligations and responsibilities. For some of these, the union and administration have similar positions; while for others they have significant differences in beliefs and attitudes. However, all are influential in their overall impact and must be carefully considered and leveraged throughout the change process.

Strategy #4: Teacher and Counselor Career Pathway Co-Design and Delivery

The fourth identified strategy involves a change in conditions and competencies through the use of counselors in the co-design and delivery of career pathway classroom experiences.

Phases of Change

In the preparation phase, information and deep understanding of the current state of the career pathway model and of the role of counselors in CJHSD would need to be gathered and examined by the change leaders. Additionally, general research on the best practices related integrating career counseling and instruction would be gathered. Through this evaluation of existing practices and potential outcomes of the change process, an understanding of the need, urgency and impacts of the future change could be considered.

During the envisioning phase, additional stakeholders would need to be engaged to develop a collective understanding and responsibility related to the change. Leadership and development teams would need to be created. These teams would require individuals with diverse expertise, with representatives from counseling, teaching and learning, administration and industry included to ensure multiple perspectives were considered throughout the process.

From these teams, a framework and approach for integrating counselors into career pathway courses would be developed and evaluated. Metrics for success and professional development supports would be developed to provide guidance for implementation.

During the enacting phase, the counselor-teacher co-design and delivery process would be deployed. The new combined approach of embedding counselors as co-teachers and designers of pathway courses would be communicated to staff, students, parents and other community stakeholders. Staffing models would be adjusted to allow for the assignment of counselors into pathway courses, allowing this to become part of their core, assigned duties. The success of the model would be evaluated upon the metrics identified during the envisioning phase by the leadership and development teams, and the model will be adjusted as necessary.

Levers of Change

Change levers of data, accountability, and relationships would be used to support the new role of the counselor in the co-design and delivery of career pathway course experiences.

The first lever of change for this strategy would be data, specifically as it relates to student success and decision-making data and best practices on counseling and career pathway development. Data showing deficiencies in students' career pathway decision-making and college and career readiness would provide a strong, data-driven argument that the current model of student career development is insufficient and needs to be modified to meet student needs. Research indicating the benefits of counselor-student interactions on student decision-making and the impact of embedding decision-making supports into courses and other experiences (Mobley et al, 2017, Herr, 2013) creates an influential argument that such an approach is the right thing for students.

A second primary lever relates to the high level of self-accountability educators assign themselves for students to be successful. Combining this lever of self-accountability with the first data lever indicating the benefit of using a new best practice would create an extremely strong argument for teachers and counselors to adopt and embrace this model.

Additional secondary levers for change also exist. One includes a relational lever of change including the peer-to-peer interactions of educators. While education is a social endeavor, it is also quite isolating, with a majority of time spent in student settings and limited time spent working with other professionals. Providing an opportunity for educators to have significant time to work alongside another educator through a co-teaching and co-design opportunity could be a source of motivation and encouragement for many staff members.

Another secondary lever for change would include the relationship and accountability

experienced between a staff member and administrator. Relationally, the administrator is frequently seen as a source of guidance and direction. Excitement and support behind a change initiative from the administrator toward the staff member can be a significant motivating factor, and should be considered as a lever. Additionally, this relationship carries an aspect of reciprocal accountability, with accountability being embedded in the job performance evaluation carried out by the administrator and in required job support and professional development being given to the staff member. Such accountability can be used to promote change.

<p align="center">**Strategy #5: Career Pathway Professional Development**</p>

The fifth identified strategy involves a change in the types and quantity of professional development provided to all staff members. Specific areas of development would include career pathway development and delivery and career pathway data analysis.

Phases of Change

In the preparing phase, three primary tasks would be done. First, to effectively determine what competencies staff need to effectively support CJHSD's career pathway, a role-specific articulation process of career pathway development, delivery and analysis needs would be performed, considering current task as well as best practices. Such a process would be comprehensive, considering all staff, including but not limited to administration, core and career pathway teachers, counselors and specialists and support staff. Once the baseline for required competencies is identified, a needs assessment would be completed to identify areas of deficit that need to be addressed through professional development. A plan to realign the entire framework of CJHSD's professional development system would be developed to ensure it appropriately acknowledges and provides support behind professional development experiences that address the new needs of the system. Such needs would include experiences such as industry

credential attainment and externships.

During the envisioning phase, additional stakeholders will be engaged in the planning and development of the professional development opportunities. Both internal and external experts and stakeholders will be engaged to develop a job-specific professional development model that is able to provide timely and relevant supports to address the needs of staff. Parallel to the development of supports, individualized professional learning plans for all staff members will be developed and shared in alignment with their individual needs.

Within the enacting phase, identified professional development will be provided to staff and the new framework for career pathway-related professional development would be shared and promoted. Career pathway teachers would be supported in content and skill development. Career pathway counselors would be developed in career exploration and decision-making supports. Administrators would be prepared to supervise, coach and evaluate staff members in a career pathway framework. All individuals would be developed to be able to gather, analyze and use student and career data. The effectiveness of the professional development as well as the learning of staff will be tracked and evaluated, and adjustments to both the overall as well as individual professional development plans will be adjusted as needs reflect.

Levers of Change

Change levers of data, accountability and relationships will be used to support the comprehensive career pathways professional development for all staff.

The results from the evaluation of staff competencies in areas related to career pathways is a key data lever. Not only would this data provide an aggregate summary of the capabilities of CJHSD as a whole to provide high quality career decision-making supports, it also would provide an indication of the abilities and needs of individual educators. Such data could be used

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to develop comprehensive professional development for all staff as well as specially tailored professional development for individuals. It also provides staff members an opportunity to self-reflect upon their own skill set.

Relationships can be a lever of change by appropriately engaging available expert resources to develop staff competencies. Within CJHSD's own teaching, counseling and administrative staffs, regional and national experts exist in areas including career pathway design, counseling and decision-making frameworks, as well as many others. CJHSD also frequently engages with external experts on career pathway topics. These individuals could be used as a lever of change through the development of supportive relationships with staff who have identified needs.

Levers of accountability, many of which are embedded in relationships, also exist. These accountability levers include employer/employee accountability, educator-to-student accountability, and educator peer-to-peer accountability. In the case of the employer and employee, the employer can hold employees accountable to develop skills through professional development via their employment agreement; however, the employer is also expected by the employee to provide individual supports to develop his or her own skills. Educators are held accountable by their students via expectations for them to provide highly effective learning opportunities. An educator falling short of this would be highly motivated to develop his or her own skills. Finally, in the proposed highly collaborative model in which educators co-develop and deliver career pathway courses, there is a strong peer-to-peer accountability lever between colleagues as the preparation and performance of one educator has a greater influence on others.

Strategy #6: Schedule Realignment

The sixth identified strategy involves the realignment of schedules to promote the

development of preparation, collaboration and instructional times in support of development and delivery of pathway activities and the new co-designed, co-taught career pathway model.

Phases of Change

In the preparation phase, a time and schedule study would be completed to develop a comprehensive understanding of the current needs and use of time. Student and teacher schedules would be evaluated, perception surveys given and policy and practice promoting the effective use of professional time be examined.

In addition to considering schedules and the use of time in the current model, early exploration as to the types of time and schedule needs required by the new model would be completed.

During the envisioning phase, a schedule development leadership team developed from a wide range of stakeholders including administrators, teachers, parents and students would be developed to gather input on the development of a new schedule that would better reflect the needs of the new career pathway model. Topics such as instructional planning and collaboration, scheduling for co-teaching and times allowing for students to engage with authentic workplace learning experiences within and outside the school would be considered. This group would develop a new schedule conducive to pathway activities, gather feedback on it from the CJHSD community, and be responsible for making appropriate adjustments prior to deployment.

In the enacting phase, final information on the new schedule would be communicated across all stakeholder groups and the process be deployed. Formative and summative evaluations would be collected from the CJHSD community, and appropriate adjustments would be made by the schedule development leadership team.

Levers of Change

Change levers of data, accountability and relationships would be used to support the realignment of the schedule in support of career pathway activities.

Primary data levers would include both research on best practices in scheduling as well as information gathered from the time and schedule study. While there may not be a clear best practice to perfectly fit the needs of the CJHSD model, this evidence would influence the actions which would be taken.

The adjustment of school schedules has a potential dramatic impact on the facets of the lives of all stakeholders, including staff, students and families and facets inside and outside of school. Adjustments to school start and end times impacts work schedules, supervision of students and community dynamics. Changes to bell schedules impacts plan times, lesson planning and school activities. For this reason, individual and group input and relationships are critical levers that can dramatically impact the results of any time and schedule decisions.

The administrative and staff relationship and accountability levers are important for any discussions regarding the effective use of planning and preparation time during the day. If the school and administration adjust schedules to provide opportunities for staff to collaborate on the development and delivery of career pathway opportunities, there is a relational component that must be factored into ensure this time is utilized and supported.

Peer-to-peer and educator-to-student accountability in schedule changes are similar to the accountability in the professional development changes. In a new, more highly collaborative and interdependent environment, peers will hold each other more highly accountable for their use of time, because another's ineffective use more greatly impacts their own work and role. Additionally, staff continue to be highly accountable to their students to effectively use time in

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this new schedule as the quality of student learning is dependent upon their use.

Strategy #7: Best Practices and Data Analysis

The seventh identified strategy involves the effective gathering, development, analysis and sharing of career pathway best practices and career data in support of improved pathway development and delivery.

Phases of change

During the preparing phase, current practices related to gathering, development, analysis, and sharing of career pathway best practices will be identified and examined to reveal both successful and unsuccessful current practices. Current best practice sources will be evaluated, and gaps in practice and support will be identified.

Similarly, current practices related to gathering, sharing and analysis of career pathway data will be examined. This will include both student performance and participation data in addition to local and national career and jobs data and information. A review of staff capacity to use this data will be completed.

During the envisioning phase, a diverse leadership team consisting of administrators, counselors and teachers will be created to examine the gaps in access and practice related to best practices. They will develop a process and support structure to identify, test, and share out best practices across CJHSD's staff.

This group also will develop a plan to appropriately collect and disseminate student career performance and participation data. They will identify any gaps in staff access to local and national career and jobs data and information and identify solutions.

Finally, the leadership team will create a professional development plan that will give staff the appropriate skills and knowledge to identify, access, and use career pathway best

practices, student career data, and local and national career and jobs data in support of student career decision making and learning.

During the enacting phase, the professional development plan will be deployed. Progress will be evaluated, and adjustments made as necessary. Results and successes from the process will be communicated and shared.

Levers of Change

Change levers of data, accountability and relationships would be used to support the effective gathering, development, analysis and sharing of career pathway best practices and career data in support of improved pathway development and delivery.

The primary data levers would include the evaluations which were completed on the current practices. Deficiencies or inconsistencies in practice would serve to clarify the current state and as motivators for improving capacity and practice.

Relationship data levers include staff peer-to-peer changes and administrator to staff. In each of these situations, the relationships could be a source of encouragement and support through the development of new competencies and practices.

Finally, there are two main categories of accountability. The first lever of accountability is that of the employer and employee. In cases where best practices or skills are not at the expected level, improvement and change can be a basic condition of employment. In turn, the employee can also expect the employer to provide appropriate supports related to developing their skills and practice.

The second lever of accountability relates to the expectations that students, industry, and the community have on the school and its educator to support best practices and effective use of relevant data to effectively guide the career development of its students. Failure to do so violates

the expectations that these groups have for schools, creating a significant change lever in this area.

Conclusion

Throughout this section, seven different strategies were identified that would help move CJHSD from its As-Is state of having ineffective career pathway orientation courses to an ideal To-Be state in which career pathway orientation courses are highly effective at supporting student career decision making. In further sections, these strategies and related findings will be considered in the development of policy recommendations which extend beyond CJHSD and influence career pathway development nationwide.

SECTION 7: IMPLICATIONS AND POLICY RECOMMENDATIONS

All across the United States, local, state and federal efforts related to elevating student career education and career decision-making supports are developing and gaining attention. Notably, these include the reauthorization of the Elementary and Secondary Education Act of 1965 through 2015's Every Student Succeeds Act (ESSA), which for the first time included federal language requiring all students to receive preparation for both college and careers (U.S. Department of Education, 2018). Additionally, there was bipartisan support behind the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) in 2018, indicating significant enthusiasm behind career education (Advance CTE, 2018). At the state and local level in Illinois, similar efforts were undertaken after 2016's passage of the Postsecondary and Workforce Readiness Act (PWR), which aimed to support preparation of high school graduates with the skills, knowledge and understandings needed for career success (Advance Illinois, & Education Systems Centers, 2017).

Despite them each being monumental legislative actions supporting the importance of career decision making at the federal, state, and/or local levels, continued significant changes to policy and action still are in order to develop learning environments that effectively support student career decision-making at scale.

Rationale and Evidence for Change

As was indicated within the review of literature, support of student career decision-making is a complex area, both in regards to research and practice. Decision-making is influenced by a web of factors including, but not limited to, cognitive development, culture, social factors and economics, and researchers have diverse opinions in their beliefs and findings as to how decision-making occurs and how it should be supported. Adding to this challenge, practitioners within schools must also navigate the complexities of the education system, wrought with mixed priorities, insufficient resources and ineffective systems, all of which frequently combine to move public education farther away from preparing students for careers (Education Advisory Board, 2018a).

Research suggests that effective support and guidance systems are necessary to allow students to navigate career opportunities (Education Advisory Board, 2018a; Mobley et al, 2017; National Career Pathways Network & Institute for a Competitive Workforce, 2009); however, teachers in our schools are not prepared to effectively provide such supports (Education Advisory Board, 2018a; Ferguson & Lambeck, 2014). It has been found that the effective use of counselors in schools can be successful in achieving this result (Mobley et al, 2017, Herr, 2013), as they are able to support student development of self-concept and identifications with careers (Foskett, Dyke, & Maringe, 2018, Theresa, 2015), provide career and self-assessments, provide guidance and support, challenge student entrenched perceptions of careers, support their

placement into opportunities and provide support behind their decisions and plans (Foskett et al.; Theresa, 2015). Despite this opportunity, counselor-supported career guidance is not effective in schools as they are not provided enough time with students to adequately support students (DeFeo, 2015), and 90 percent of the time they do spend with students is not focused on college and career advising (Education Advisory Board, 2018a). Additionally, current career counseling practice lacks effectiveness as it fails to be appropriately connected to classroom-based career education (Ferguson & Lambeck, 2014), resulting in career education supported by career counseling being "an anomaly in most of the nation's school systems" (p. 52). As a result of all these and other factors, only 36 percent of students receive guidance in determining career options, and 62 percent of high school students rate counselors as "fair" to "poor" in helping them think about careers (Education Advisory Board, 2018a, p. 50).

My own research provided additional support to these findings. While students in CJHSD were enrolled in career orientation classes specifically designed by teachers to develop student career decision-making, more than 40 percent of the students failed to increase their level of confidence in their career decision-making and 25 percent indicated they were still not confident in their career choices at the end of the course. Additionally, 65 percent of students indicated that at the end of the course they failed to have a basic awareness the key factors related to career decision making as defined by CJHSD's career pathway model. Courses created and delivered by teachers were ineffective at supporting the career decision making needs of all students.

An additional challenge revealed by my research was indicated by the finding that 35 percent of students surveyed at the start and end of the course were not interested in health careers; however, within this career orientation experience, the only support they received was from a content area teacher specialized in health careers. This teacher-led career orientation

model fails to provide career decision-making supports from counselor generalists who would be able to provide high-quality support to students interested in health careers as well as other fields.

Finally, within the focus groups held during my research, students noted a general lack of effective support they received related to exploring career options from their teachers. This was particularly true for students who entered the course with low levels of career confidence.

To address these issues, research suggests it is necessary to reform education systems in the United States to develop a greater focus on supporting student career awareness and preparation (Bertram, 2017; Education Advisory Board, 2018b; Wagner, 2008). Career courses should be designed with the intention of career exploration (DeFeo, 2015) and not just technical information (DeFeo, 2015; Kosine & Lewis, 2008; Schmidli, 2001; Tang, et al., 2008; Theresa, 2015), and students should be provided early career guidance (DeFeo, 2015; Education Advisory Board, 2018b; Fernandes & Bance, 2015; Theresa, 2015) and be supported in their development of personal learning and career plans (DeFeo, 2015). Harvard University's Pathways to Prosperity Project suggests counselors must provide additional career decision-making support and should create and engage in plans with academic teachers to bring effective career development into the classroom (Ferguson & Lamback, 2014).

My own research supports these findings and suggestions. Through my study's survey and focus groups, students indicated there was mixed effectiveness in CJHSD's teacher-designed health careers orientation courses. While some components of the courses were highly influential in supporting student career decision-making, other activities, some of which were implemented with very high levels of frequency, had little or no influence on student career decision-making. This suggested the current teacher-driven curricular model was ineffective or inefficient in

developing student career decision-making. Conversely, students indicated counselors were highly effective in supporting their decision-making and they would benefit if counselors were integrated into career orientation classes to support decision-making activities and provide students with career planning tools and aids.

Overall, despite legislation elevating the importance of career education in schools, school districts such as CJHSD developing career pathways, and researchers and students recognizing the importance of full integration of counselors within career exploration opportunities, few, if any, districts have successfully developed models that comprehensively use and integrate teachers and counselors in support of career decision-making in the classroom. To effectively address the priorities of recent legislation and needs of our students and communities, pathway orientation course design and delivery involving integration of counselors and pathway teachers must be developed, supported and scaled.

Policy Statements and Changes

To achieve and promote models that effectively integrate counselors and teachers in career pathway orientation courses at scale across the nation, coordinated policy and actions should be developed at the federal, state and local levels. While it is recognized that the local contexts of individual states and school districts exist and would impact the development of policy and implementation of practice, for convenience of illustrating such efforts, the state of Illinois and CJHSD will be used as examples for this policy implementation discussion.

Federal Policy

Support for the integration of counselors into career orientation courses could be supported through adjustments and expansion of Perkins V. Perkins V serves as the primary source of federal to state support for career education as well as a major driver in national career

education innovation and reform. While Perkins V currently allows for career exploration supports such as counselor engagement and professional development to be grant-supported, it is not a required component of implementation, as the legislation allows for a significant amount of flexibility in state-level implementation. A change of federal policy to require the inclusion of career counseling as a condition of state eligibility for federal career education funding would promote the integration of counselors in career orientation courses nationwide.

Additional support for this action could be achieved through adjustments to Perkins funding allocation levels and related policy. Perkins grant allocations could be legislatively restored to their $1.3 billion level FY 2007, restoring $200 million in cuts made over the subsequent 10 years (Education Advisory Board, 2018a, p 10). Additionally, to multiply the impact of this increase of federal funding on career education in local schools, Perkins V's existing Maintenance of Effort (MOE) requirement, which requires states to match federal funding with non-federal funding, could be adjusted for any restored or newly allocated dollars. States could be required to match federal at a ratio greater than 1:1, encouraging more career funding to be allocated to schools to support these new efforts.

State Policy

With new federal sources of funding supporting career education and expanded requirements for career counseling, states would be both required and enabled to make additional local changes to policy.

In Illinois, to allow for federal and state CTE funds to be used to support local integration of counselors in career orientation courses, adjustments to the state administration of Perkins and its state-matched Career and Technical Improvement (CTEI) funds could be made, namely through an expansion of the types and qualities of expenditures allowed in the plan. First, the

staffing of counselors as co-instructors in career pathway courses would need to be an allowed and required component of local CTE funding plans. Additionally, adjustments to the current state limitations on the percentage of grant funds that can be used to support salaried positions could be removed to allow for newly integrated counselors to be fully funded through grants.

While student career readiness and decision-making supports already are defined priority efforts in Illinois schools through the state's recent adoption of college and career readiness indicator (CCRI) within Illinois's ESSA plan and the PWR Act, Illinois legislators could amend the PWR Act to explicitly include the use of counselors in career advising capacities within career orientation courses as a component of these plans. Within the PWR Act, integrated counseling practices could be included in the core design of Illinois Postsecondary and Career Expectations (PaCE) framework and as a required component of Illinois's Career Endorsement model. Such an effort would define this as a new requirement and be a resource to schools as to how they can implement the practice and include it within an existing framework that recognizes school success in such practices.

Local Policy

While changes in policy at the state level would influence and encourage the integration of counselors within career orientation courses, the most significant changes would be supported at the local district level. Beyond the realignment of practice and procedures to comply and leverage funding opportunities related to new state and federal policies, school districts could consider additional adjustments to local policy that would create requirements and favorable conditions supporting such work.

School districts could adjust policy to redefine the role of the counselor and instructional program. In CJHSD, this would primarily involve making adjustments to board policy and procedures related 6:60 - Curriculum Content and 6:270 - Guidance and Counseling Program.

CJHSD's Policy 6:60 - Curriculum Content currently requires career and vocational education to be taught at all buildings and a career awareness and exploration program to be available at all grade levels. This policy, however, does not speak about career orientation courses or how they should be developed or delivered. This policy could be amended to require a career orientation course to be included in each career pathway focused on the decision-making factors defined by CJHSD's career pathway model and requiring counselors to be integrated into their delivery and development. Following the approval of this policy, detailed administrative procedures for Policy 6:60 that are based on research and best practices could be created to guide the development of curriculum and implementation of these courses.

CJHSD's Policy 6:270 - Guidance and Counseling Program currently requires the district to provide a guidance and counseling program that encourages students to seek help from counselors to develop curricular goals that conform to the student's career objectives. This policy could be modified and expanded to require all students to receive career counseling and advising supports and require the district's guidance and counseling program to include integration of counselors into career orientation courses. Upon approval of this policy, detailed administrative procedures related to the role of the counselor could be created to ensure the expectation of counselors acting in this new capacity is supported in schools. In line with research on effective counseling and career decision-making supports, counselors could be required to be involved in the development and delivery of career orientation courses and could have their attention shifted away from management of placement systems and other operational task toward a primary focus

on college and career advising. Additionally, administrative procedures could set the maximum

student to counselor ratios to be far less than that of the national average, 491:1, and less than

national guidelines, 250:1 (Education Advisory Board, 2018a, p. 50), to ensure they are able to

effectively implement this expanded counseling model.

Beyond the adjustment of board policy, additional efforts would need to be taken to

ensure labor contracts, defined job descriptions, and performance evaluation systems align with

the new integrated career counseling model. This may require CJHSD to renegotiate legal terms

and requirements with CJHSD's teachers' union.

<center>**Analysis of Needs and Policy**</center>

To fully consider the influences behind and the impact of changing policy and practice

related to the integration of counselors into career orientation courses, there are six different

lenses of analysis of needs and policy I will consider. These lenses include the consideration of

the policy and change through educational, economic, social, legal, political and moral and

ethical analyses.

Educational Analysis

An educational analysis of policy focuses on considerations related to the impact changes

may have on teaching and learning.

Throughout the review of literature and my own personal research, I have identified

numerous sources and findings that indicate the positive impact comprehensive career pathways

supports and integration of counselors into career courses have on student career decision-

making (Bertram, 2017; DeFeo, 2015; Education Advisory Board, 2018a; Ferguson & Lambeck,

2014; Fernandes & Bance, 2015; Foskett, Dyke, & Maringe, 2018; Herr, 2013; Mobley et al,

2017; National Career Pathways Network & Institute for a Competitive Workforce, 2009;

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Theresa, 2015). Collectively, there is strong evidence that redefining the role of and relationships between career orientation courses and counselors would greatly benefit students in their career pathway development.

Research also has found that making connections to student interests and promoting relevance and greater awareness in student learning increases academic performance and outcomes (Hulleman, Godes, Hendricks, & Harackiewicz, 2010; Hulleman & Harackiewicz, 2009). This suggests that if students are supported by counselors in career orientation classes to better identify and connect with their career interests and subsequent learning, there would be a positive impact on academic performance. However, given a lack of research specifically related to this relationship, the impact of involving counselors in career orientation classes on student academic performance would need to be examined to make a more definitive determination. Integrating counselors in career orientation courses may have additional impacts beyond the improvement of academic achievement. In increasing the career orientation courses' focus on career decision-making supports, the focus on technical content may be reduced. Students leaving a course may be more confident in their career choices, but less prepared with the knowledge and skills for success.

Such a change would have the potential to radically change the profession of teachers and counselors and require an adjustment to school environments. In the model, teachers and counselors would be required to collaborate at an extremely high level in development and deployment of these courses. Efforts of this type are rarely attempted or achieved in American schools. In a report completed by the National Staff Development Council and Stanford Center for Opportunity Policy in Education, limited opportunities for collaboration in schools have led to only 16 percent of teachers feeling as there is a cooperative climate in their schools (Wei,

Darling-Hammond, & Adamson, 2010, p. 20). To develop an environment to support this work, the climate and tradition of isolationism in schools and professional development supporting effective collaborative in schools would need to be addressed.

Economic Analysis

An economic analysis of policy focuses on considerations related to the costs related to the change, and in this policy examination numerous proposed costs and changes to financing schools will be considered.

If counselors were integrated into the career orientation courses without a reduction of other counseling or academic services, it would involve a significant increase in expenses incurred by schools. If implemented across the nation's 12,669 secondary schools (National Center for Education Statistics, 2018b) with a modest introduction of one counselor per high school at a salary equal to the national average of $58,950 (National Center for Education Statistics, 2018a), the net cost of the program would be more than $740 million. While the change represents less than a tenth of a percent increase of the total $660 billion spent annually on public education (National Center for Education Statistics, 2018c), it would be an expense that would need to be addressed.

While estimates on net economic return of educational expenditures vary (Bernasek, 2005), Northwestern University's Institute for Policy Research (2017) found there is a positive relationship between increased school spending and positive student outcomes and that on average, every $1 invested in schools results in $2 return, suggesting an increase in funding could yield a net positive impact for society. An increase in funding may have even larger potential economic benefit as this particular initiative focuses on career and postsecondary exploration and preparation, providing an avenue to directly address costs related to existing

educational and societal challenges. Some of these challenges include the growing $1.3 trillion college student debt crisis (Education Advisory Board. 2018b), the estimated $100 billion per year in lost economic productivity due to high school dropout rates (Levin & Rouse, 2012) or the impact of youth unemployment and underemployment, which have doubled from 2000 to 2011 (Sum & Khatiwada, 2010) resulting in an estimated $8.9 billion annual total cost (O'Sullivan, Mugglestone, & Allison, 2014, p. 6). If the investment in improving high school career planning and awareness had even a partial positive influence on any one of these or other factors, as research suggest, the investment behind the increase of career counseling would pay for itself.

This proposed policy change also included a significant increase in federal and state funding models to provide direct revenue towards these costs. If federal Perkins funding were restored to FY2007 levels, an additional $200 million in federal funds and $200 million in state matching funds would be made available to local districts to support this initiative (Education Advisory Board, 2018a, p 10). If federal funding or the state-federal match ratio was increased for new funding, as suggested, sufficient revenue for local districts could be raised to fully fund the program. Such an increase in revenue would require both economic and political considerations at the state and federal levels, as increasing revenues or reallocating distributions towards career education funding would need to be made a priority over other programs and efforts.

Social Analysis

A social analysis of policy focuses on questions related to the timing, relationships and consequences of the policy as they relate to societal beliefs and issues. Two primary areas of consideration that impact the proposed policies are the current societal attitudes towards schools

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and education and society's beliefs and values related to participation in preparation efforts related to college and careers.

Role and beliefs of schools in society. There is a significant belief within society that public education is failing and can no longer support the needs of our society and students (Ravitch, 2013; Wagner, 2008; Wagner et al., 2006). Such beliefs enter into many discussions relating to education policy reform and automatically increase the level of conflict between educators and these opponents of public education. Such a situation can lead to some educators automatically becoming defensive as they seek to rally around the protection of their jobs and the profession and some reformers automatically approaching any discussion on education with the intention of trying to deconstruct the institution of public education.

Many of these talks and issues date back to before Reagan's *A Nation at Risk,* which put education under new criticism, only to continue with the introduction of George W. Bush's No Child Left Behind (NCLB) legislation, in which criticism was amplified and schools were placed in a system of unrealistic expectations including high stakes accountability. This resulted in schools narrowing curriculum and developing a focus solely on standardized testing (Ravitch, 2013), and resulted in the reported percentage of schools deemed as failing to rise from 29 percent in 2006 to 48 percent in 2011 (Resnick, 2011). Then-United States Secretary of Education Arne Duncan warned that up to 82 percent of American schools could soon be identified as failing (U.S. Department of Education, 2011). Ultimately, states were given waivers to the accountability measures and many other aspects of the legislation (Klein, 2015) as the flawed nature of the legislation was addressed and there was steady growth in other student learning measures, such as the National Assessment of Educational Progress (NAEP) (Ravitch, 2013, p. 50). Such critical views and poor perceptions of public education have contributed to 11

percent of business leaders feeling that graduates are not prepared for success in the workplace (Wagner & Dintersmith, 2015, p. 19) and a surge of attacks on public education by the reform movement, which includes proposals that privatization and corporatization of education is the only way to fix the broken system (Ravitch, 2013). Beliefs exist that public schools are overfunded and lack accountability and that the weakening of unions and introduction of competition to public education is the answer to improving poor student performance (Ravitch, 2013)

This context of the criticism of the American education systems is complicated, however, when the critical views of society on the entire public education system as a whole is pitted against individuals' views of their own schools. According to a 2016 Gallup poll, 76 percent of Americans were satisfied with their own child's education; however, when asked about the overall satisfaction with the state of education, only 43 percent of respondents indicated satisfaction -- the lowest rate since just before the introduction of NCLB (Saad, 2016). In a similar poll delivered by Education Next, despite 55 percent of Americans giving their own schools a grade of an "A" or "B," up from 43 percent 10 years ago, only 25 percent of them gave the American education system the same grade (Education Next Institute, 2019). These disparate results of society's perceptions of their own schools versus the American public education system suggest the failing reputation of America's schools may be unearned and inaccurate as a collection of local perceptions would lead to schools being viewed much more favorably, and it can be suggested that the poor perception of the American education system is being driven by a false narrative of failure of the public education.

Researchers and educational leaders such as Ravitch (2013) and Wagner (2008) reinforce this suggestion but indicate that public education is not failing. Rather, they indicate the

challenges in schools are the result of a disconnect between the realities and structures of education and the expectations of society. Ravitch (2013) suggests reformers and critics of education refuse to address the influence that concentrated poverty and racial segregation, which have been magnified through social practices in the United States, have on student learning (Ravitch, 2013, p. 4). She suggests society refuses to address the challenges of addressing racial segregation and poverty, only to place blame of the results of these societal ills onto public schools and educators (Ravitch, 2013). Wagner et al. (2006) takes a different angle, stating it is not that schools that are ineffective and failing, but that challenges result from societal change in the expectations for schools without a change in structures and formats. He suggests the current state of schools must be allowed to move away from testing and traditional academics to a new focus on preparing students for the needs of educating all students for college and careers in the 21st century.

State, values, and beliefs of college and careers. An additional influential societal factor related to this change policy is society's current state, values and beliefs related to student preparation for college and careers.

Across recent history, the postsecondary landscape has been rapidly changed. Over the past 60 years, the number of defined occupations has grown from 270 to 840; the number of postsecondary programs of study has expanded from 410 to 2,260; and the number of college and universities has grown from 1,850 to 4,720 (Education Advisory Board, 2018b, p. 2). As a result of these changes, students are requiring more support as they transition out of schools (Education Advisory Board, 2018b).

Over this same period, realities related to employment opportunities have shifted, with the number of secure, well-paying, blue-collar jobs dramatically decreasing (Wager et al, 2006,

p. 9) and a requirement for individuals to earn some level of postsecondary education growing to 85 percent for all current jobs and 90 percent for the fastest-growing and highest-paying jobs (Wagner, 2008, p. xx). During the economic recession and recovery of 2008-2010, the number of jobs requiring only a high school diploma decreased by 1.8 million, while jobs requiring a bachelor's degree continued to grow, adding 187,000 jobs. Following the recession until 2016, jobs requiring only a high school diploma continued to decline by 5.5 million, while jobs requiring a bachelor's degree grew by 8.6 million (Education Advisory Board, 2018b, p. 20). In addition to providing access to jobs, postsecondary education influences students' ability to earn higher wages. Individuals who have earned a bachelor's degree will earn nearly $1 million more over their lifetime compared to those who earn only a high school diploma (Education Advisory Board, 2018b, p. 16).

High school students wishing to access 21st century jobs and salaries increasingly need to continue to participate in education and earn postsecondary credentials. As such, there has been a dramatic shift in society's expectations for students' postsecondary plans, with college attendance rates blossoming from 2.4 million students in 1985 to 20.2 million in 2010 (Education Advisory Board, 2018b, p. 2). In response, many schools have tried to adjust to a standard for "college for all" (Wager et al, 2006, p. 9).

Despite this massive shift towards four-year college attendance for all, there is not universal support or enthusiasm behind this approach, largely due to the skyrocketing cost of attendance and associated student debt. According to the Education Advisory Board (2018b), the rising cost of tuition and fees at public four-year institutions has outpaced the growth of median family income by a multiple of 19 since 1980 (p. 9), resulting in a 33 percent increase in average student debt since 2008 (p. 11) and a total of $1.3 trillion in student debt held by all students (p.

9). However, while the cost of college and overall debt has greatly increased, perceptions of this increase are even more greatly exaggerated in society, further fueling concerns related to costs of postsecondary education. In an analysis of news stories on student debt, while the average calculated student debt was actually $29,400, the average amount covered in the news was $89,100 (Education Advisory Board, 2018b, p. 10). Although school debts are increasing, analysts indicate that average debts are not yet at a critical level, with the average graduate having an 8.6 percent loan payment-to-income ratio, well below what is considered the maximum manageable threshold of 12 percent (Education Advisory Board, 2018b, p. 11). While the accuracy and extent of society's concerns regarding costs of postsecondary education can be debated, there is an active movement searching for support, guidance and relief within this perceived challenging time of rising college costs and debt.

In the combination of society's general desire to support college for all and the mounting concerns related to college costs and debt, greater consideration is being given to what role associate degrees and other certificates play in the arena of postsecondary education. In society, there are viable employment opportunities for students who earn associate's degrees. Since 1991, the number of "good jobs" -- defined by Georgetown University's Center for Education and the Workforce to be jobs that start at more than $35,000 or pay $45,000 for those over the age of 45 -- that require an associate's degree have increased at 84 percent, only slightly lower than 98 percent for bachelor's degrees (Education Advisory Board, 2018b, p. 21). Furthermore, in an analysis of U.S. Census Bureau wage data, it was found that over a third of individuals with associate degrees out-earn similarly aged individuals with bachelor's degrees (Education Advisory Board, 2018b, p. 22). However, much of this can be linked to which career path and degree students choose to pursue (Education Advisory Board, 2018b, p. 23). Such options for

students to access high-wage, high-need careers have led some to call for schools to refocus on career education programs leading to alternatives to the four-year college model and a blend of college and career readiness (Education Advisory Board, 2018a).

Overall, society has numerous outlooks on education and careers that would impact efforts to integrate counselors into career orientation courses to improve career education. Any such effort would need to contend with those who believe public education is failing and should be privatized or receive reduced support and funding, individuals who believe schools should focus on providing paths to four-year college attendance for all, and other groups that are actively looking for public education to support new and efficient alternatives to four-college attendance. Having knowledge of and addressing these societal groups and values would be critical for the success of this change policy.

Legal Analysis

A legal analysis of policy focuses on considerations related policies, laws and traditions that a policy must comply, change or influence.

Beyond the considerations related to the legal processes and requirements related to the redevelopment of proposed legislation, direct implementation of the new legislative requirements, and compliance with the transference of funding, the largest legal consideration of this policy change relates to the legal structures and traditions dictating local versus federal control of schools, as this dictates the distribution of the power and authority to influence systematic change. Without proper consideration and adherence to these legal policies and traditions, change in education cannot be achieved.

The foundation of the division of local and state control versus federal control of schools is rooted in the 10th and 14th Amendments to the United States Constitution, which respectively

provide for "the powers not delegated to the United States by the Constitution… [to be] reserved to the States" (U.S. Const. amend. X) and the requirement for the states to provide "any person within its jurisdiction the equal protection of the laws" (U.S. Const. amend. XIV). These two amendments collectively leave the power of directing education to state discretion outside of issues of constitutionally protected legal and civil rights.

Within Illinois, the Illinois Constitution indicates that the State will provide a free, public education funded primarily by the state under the direction of the State Board of Education (Ill. Const. art. X, §1-2), and also provides limited governmental local school boards as units of local government under the laws of the state and direction of the Board of Education (Ill. Const. art. VII, §8).

In such a legal arrangement, the federal government has limited ability to directly implement changes in education, depending on its ability to influence state action by offering funding to states on a conditional basis. Such a model of influence through conditional funding is the basis of the proposed federal policy change. In this new policy, the federal government influences the integration of counselors into career orientation courses by linking this action to conditional funding to the states through Perkins funding. While any level of federal involvement in schools is politically controversial and frequently divided along political lines, (Balingit & Douglas-Gabriel, 2018; Jacobsen & Saultz, 2012; Pelsue, 2017), the funding and influence of career education through the Perkins Act has long received strong, bipartisan support (Advance CTE, 2018).

At the state level, Illinois legislators and the Board of Education can legally direct local school boards to implement change through the passage of legislation and modification of policy and administrative rules. The proposed policy includes Illinois making adjustments to its

distribution of Perkins and CTEI funds and modifications to its PWR Act and ESSA plan. All these fall within the legal control of the state and follow its traditional models of interaction and control with its local schools.

At the local level, while the boards of education hold the legal authority to implement local change through board action, tradition dictates that boards of education focus on providing clarification of the purpose of the district through articulation of policy -- but empower superintendents and administrative delegates of the district with the authority to direct district and school-level actions and manage operations (Illinois Association of School Boards, 2018). In this light, the proposed action is in line with legal considerations, as boards of education are led to make modifications to policies but leave the development of administrative procedures to the administration and staff of CJHSD.

A final legal consideration that would impact the success of this change policy is how the proposed changes in the local roles of educators and counselors impact any employment, labor or other contracts in place at the district level. If no explicit conflicts exist between the planned changes and existing contracts, there would not be a legal standing by which staff could contest the changes to these roles, though opinions and actions related to the changes could influence future relationships, contracts and other legal aspects. However, if specific legal language related to working conditions, job descriptions or other aspects of the roles of counselors and teachers would be violated in making this change, legal options for renegotiating or otherwise making changes to this language would need to be pursued.

Political Analysis

A political analysis of policy focuses on considerations related to how the effort will be received, its pros and cons and the implications of its actions. In the consideration of this policy

change, such analyses overlap with many other analyses previously made through different lenses, and while the political implications of changes can be numerous and diverse, I will consider three primary aspects of this political change, including the reallocation of resources, the redefined role of educators and the shift of power.

The reallocation of resources is a political change that considers the changes previously discussed throughout the economic and legal analysis through a different lenses. The full implementation of this policy would require the expenditure of hundreds of millions of dollars in support of counselors being integrated into career orientation courses. In this policy proposal, at the local level, adoption and implementation of this policy is not intended to result in an overwhelmingly difficult political position as, by design, the increase in expenditures is accompanied by an increase of state and federal revenue. However, this does result in a more challenging position at the state and federal level as the funding of this initiative becomes subject to considerations within the political conversations related to budgets, taxes and revenues and funding allocations across all programs and initiatives. Lawmakers would need to make the political decisions as to whether new revenues would need to be raised and whether current revenue designated to other initiatives would need to be reduced in order to fund this new program.

In considerations both at the macro statewide and national level as well as at a micro classroom level, this policy carries political implications tied to changing roles and perceptions of educators. One such change relates to the potential increase in awareness that our students are not being adequately prepared by our education system to access college and careers. Such a result may develop a politically charged narrative that our teachers and counselors are underprepared and ineffective in their abilities to supporting the needs of our students.

Regardless of the truth behind this claim and despite the aim of this policy to better support staff, students and schools through the creation of innovative and collaborative environments in which students can benefit from the individual strengths of multiple educators, it carries the risk of bringing greater scrutiny and criticism to public education and raising potential opposition to the policy change.

A second political factor relates reduction of isolationism of teachers and counselors, which was discussed in the educational analysis and the expected role of educators. While the creation of this collaborative model and reduction of isolationism was framed in a positive perspective as a way to improve teaching and learning via the educational analysis, when viewed through a political lens, the reduction of isolationism would challenge some teachers' beliefs of their role in schools and could be seen as an intrusion to their professional autonomy and privacy (Grimmett & Crehan, 1992; Ostovar-Nameghi & Sheikhahmadi, 2016). If such a political possibility is not controlled, it could have a detrimental impact on teacher morale and performance and reduce the effectiveness of teaching and learning.

A final political factor, and one that will continue to be discussed from a different lens within the analysis of moral and ethical factors relating to this policy, relates to the potential upset to the status quo regarding political and economic opportunity and power within our society if this policy is successful in elevating learning experiences and career outlooks for all students. Our current public education system has its foundations in the needs of society more than 100 years ago, when there was a much greater need for the majority of students to transition into jobs requiring them to "work with their hands" and "not with their heads" (Wagner, 2008, p. xxiv), creating a system that by design did not support all students in achieving their full education and career potential, access to the 21st century skills or the decision-making necessary

for high levels of career success. By design, some gained access to these skills and opportunities and some did not (Wagner, 2008). This difference in education design for those who will succeed at high levels and those who will not was further amplified by decades of governmental policies and legacies of discriminatory practices by those with political power, leading to segregation within our schools and communities (Frankenberg & Orfield, 2012; Ravitch, 2014) and creating massive gaps in educational and postsecondary opportunities based on social status (Darling-Hammond, 1998).

This change policy deliberately tries to address these opportunity and achievement gaps by providing all students with experiences to explore and prepare for their futures based on their strengths and interests and not on societal-defined norms. By addressing these inequities in education and postsecondary opportunities, the current system of political and socioeconomic power may be upset. In this goal of increasing power and influence for those who have traditionally been oppressed, power and influence from those with privilege likely will be reduced. Such intended outcomes of this change policy have dramatic political implications and intentions to address needs of social justice and reform.

Moral and Ethical Analysis

A moral and ethical analysis of policy focuses on how efforts impact the common good of society and individuals. As part of this analysis, I will consider impacts on both individual students as well as the community as a whole.

Research has demonstrated that current traditional high school models are ineffectively structured to support students in their career decision making. While in current counseling efforts students do choose courses and select postsecondary majors, they are too often misaligned with student career aspirations, strengths and interests (DeFeo, 2015; Sheehy, 2013). This policy

seeks to provide intentional, course-embedded supports to allow all students to appropriately make these connections and find purpose in their educational opportunities. The model and policy is not about locking students into paths or forcing them into careers, but rather empowering them with the knowledge to make their own decisions best aligned with their skills and interests and maximizing the learning opportunities available to them.

Research exists on and educators and leaders know of the benefits that increasing career decision-making supports provide to students as well as the lack of current effective efforts in doing so. This places community and educational leaders and other stakeholders in an ethical dilemma to take action, as by failing to do so they are acknowledging it is acceptable to allow individual current students to not maximize their own potential and career trajectory only to waste their personal investment of time, effort and educational capital on experiences that do not fit their needs or desires. Such a situation suggests an ethical mandate to promoting policy changes that will better support individual student career opportunities.

Extending beyond the mandate to support individual students and linking to a topic previously discussed in the political analysis, this effort also addresses needs related to social justice different community populations. In the United States, generations of students and families have been given deliberately limited opportunities based on social status through efforts leading to unequal access to education, housing segregation and other discriminatory practices, resulting in educational and economic achievement gaps (Darling-Hammond, 1998; Frankenberg & Orfield, 2012; Ravitch, 2014). In consideration of this fact, it was critical that this policy served as an aid to social justice, supporting efforts to promote access to high-quality, integrated career counseling regardless of what school students attend, their race, their socioeconomic status or any other personal factor. Students, families and communities in all neighborhoods,

schools and states should receive the maximum benefit education can provide. Furthermore, within newly enacted policies, historically oppressed populations and underserved schools should receive equitable consideration of their holistic needs.

Also encompassed in the development and promotion of this policy is the moral obligation of public education to directly support society's collective productivity. As publically funded institutions, schools carry a special obligation to be good stewards of their community's investment and provide a return on this investment by supporting learning outcomes that support its community's success. This is addressed within this change policy, as it not only aims to increase the economic productivity of the community's high school graduates but also close opportunity gaps within society that are endemic to some communities that have long limited individuals in their career opportunities through discrimination and lack of resources. Through systematic development of career awareness, this policy can reshape opportunities available to communities.

Implications for Staff and Community Relationships

The proposed policy to integrate counselors and teachers in career pathway orientation courses at scale across the nation will influence and impact relationships at multiple levels. The proposed changes are examples of what Heifetz, Grashow, and Linksy (2009) describe as adaptive challenges requiring "mobilizing people to tackle tough challenges and thrive" (p. 14). Adaptive challenges are complex, and solving them involves developing new environments, dreams, and abilities; combining old and new along with displacement, deregulation and rearrangement of what is already in existence; promoting experimentation leading to adaptation; and relying upon diverse viewpoints of individuals (pp. 15-17). Leading through formal authority is often insufficient in these changes as different factions with the community each want

different outcomes (Heifetz et al., 2009, 52-53), so making such changes relies on leveraging and changing relationships on multiple levels.

In solving such challenges, leaders must develop a "plan for generating a greater sense of urgency, understanding and ownership among teachers, parents, and the community" (Wagner et al., 2006, p. 138), and work strategically with stakeholders through preparing, envisioning and enacting the change. During these phases, stakeholders form new relationships, develop trust, identify the need and urgency for change, create a common goal and vision, adapt their ways to work collaboratively and enact the change (Wagner et al., 2006).

Throughout the following section, the relational implications of the adaptive change of integrating counselors and teachers in career pathway orientation courses will be examined and discussed with considerations to relationships involving education staff, family and community members and other stakeholders.

Staff Relationships

Within this change policy, relationships involving school staff members -- including teachers, counselors and school administration -- would change. To successfully implement the shift from the traditional, isolated career orientation model to one that successfully integrates the efforts of multiple staff members, new collaborative and trusting relationships across groups would be developed and the roles teachers and counselors play in schools and across classrooms would need to be adapted. Relationships would be impacted across the preparation, envisioning and enacting phases of this change work.

During the preparation phase, challenges and dysfunctions within and between existing roles and dynamics would need to be addressed to create new collaborative, constructive relationships upon which the change will be driven (Wagner et al., 2006, pp. 144-145). School

administration and teacher leaders in this effort would need to identify a baseline in the quantity and quality of the relationships and interactions they have with one another in addition to examining how effectively their broader staff are engaged in decision-making and change efforts.

As the change is being envisioned and developed, staff relationships would become more collaborative, levels of professional discourse would improve and discussions and efforts would focus on enhancing instructional and professional practice (Wagner et al., 2006, p. 153). Staff and administration would develop a deeper collective understanding of their assets and challenges related to their collective work and together would develop a clear set of goals and strategies to move the work forward. A collective sense of codependence and mutual accountability would be developed.

Once the policy is enacted, the isolationism experienced by teachers and counselors would be reduced as they would now actively co-develop and facilitate classroom learning activities. Professional relationships within and across groups would become more effective as trust and interactions would have improved, allowing individuals to be more open with one another about their professional practice and development (Wagner et al., 2006, p. 160).

Family and Community Relationships

In addition to influencing and changing relationships with staff and educators within the school building, relationships with members in the community -- including students, families, boards of education and other local community stakeholders -- also should be addressed as they would critically influence the success of this effort. According to Purinton and Azcoitia (2016), change efforts that focus on a school's community increase the school's connection with the culture and needs of its students and families, strengthen the opportunities and orientation to

learning provided to students at school and enhance a community's ability to support its own needs. Purinton and Azcoitia (2016) state it is critical for change leaders to "deliberately and proactively connect schools with their communities," develop "knowledge and experience from the community…[and] turn families into engaged and holistic supporters of the school mission" (p. 2). For this purpose, schools must form effective and meaningful partnerships, learn about the positive natures of their community, transcend cultural boundaries, identify barriers to engagement and bring the community together around the mission and vision of the school (Lindsey, Nuri-Robins, Terrell, & Lindsey, 2019; Purinton & Azcoitia, 2016).

To achieve these changes, schools must connect with their communities through five relational characteristics: affirmation, contribution, power, purpose and challenge (Purinton & Azcoitia, 2016, pp. 4-5). Affirmation indicates all individuals and groups in their community are valued and accepted, and valuing their voices and perspectives acts in support of all members (Purinton & Azcoitia, 2016, p. 4). Promoting affirmation within this change policy can be achieved by acknowledging the value all students and families have in the school community and through the promotion of career opportunities that support the diverse needs of all students and families in their discovery and pursuit of their futures.

Supporting community contribution can be achieved by valuing varied perspectives, intentionally forming connections around mutual work and creating tangible programs that involve and contribute to the community (Purinton & Azcoitia, 2016, p. 4). The local implementation of the career orientation change policy efforts can and should include the input of a broad base of family, industry and community members to ensure the initiative not only benefits from their collective voice but also addresses their collective needs.

The relational characteristic of power is supported by promoting relevancy and intentionally linking changes to the daily lives and experiences of members in the community and by elevating the voice of the underserved (Purinton & Azcoitia, 2016, p. 5). This change policy aims to elevate the career trajectories and socioeconomic dynamics for students and families and focuses on equity, economic mobility and empowerment. As previously discussed in the analysis of areas of need, this policy aims to influence the long-term distribution of social, economic and political capital across communities to more equitably distribute power across communities.

Developing a sense of community-wide purpose behind the change is an additional critical relational factor (Purinton & Azcoitia, 2016, p. 5). Such efforts allow the school to ensure the policy is grounded in the needs of the community. It would allow for school leaders to use this approach to draw from the assets and supports of the community behind the agreed-upon, purposeful, common goal -- resulting in greater success and impact.

Finally, change policy actions would acknowledge needs for accountability and promotion of a sense of accomplishment within the community (Purinton & Azcoitia, 2016, p. 5). By collectively defining, addressing and highlighting accomplishments related to this challenge and acknowledging the contributions of all stakeholders in this work, the broader community would increase their ownership of and support behind the initiative.

Other stakeholder Relationships

Industry and employers, postsecondary education institutions, legislators and policy advocates represent additional prominent stakeholder groups whose relationships would influence the relational characteristics of this work. Their roles and impact will be examined in the following sections.

Industry and employers. Employers and industry members have been vocal as to the need for improvements to be made to the career preparation system in our nation (EAB Global, 2018; The Conference Board, Corporate Voices for Working Families, Partnership for 21st Century Skills, & Society for Human Resource Management, 2006; Wagner, 2008). The proposed policy is in part driven as a direct response to challenges identified by these individuals, but also provides newly developed opportunities for them to become involved as part of the solution by supporting student career exploration in schools, elevating their future talent pipeline. A focus on improving career orientation courses provides a place for industry and employers to engage in schools and through this work, school-industry relationships can be elevated.

Postsecondary education institutions. The relationships between postsecondary educational institutions and K-12 schools would also be influenced as this effort would place a greater emphasis on career preparation, changing how students are prepared and orientation to postsecondary opportunities, potentially slowing the rate of college attendance (Education Advisory Board, 2018b) and replacing overwhelming "college-for-all" philosophy being promoted by high schools (Wager et al., 2006) with a greater emphasis on career planning and preparation. College admission and participation would become potential steps on a student's broader career path, rather than ultimate goals and destinations.

The distribution of student postsecondary attendance and student expectations of these institutions may also shift as students are differently prepared and engaged around planning for college and careers. Colleges, universities and postsecondary institutions who emphasize a traditional liberal arts educational approach that undervalues careers may require significant adaptation or face challenges in maintaining enrollments and relevance within the environments

of education and employment. Institutions with an aligned career philosophy may capitalize upon these changes and benefit from greater attendance. Overall, this change would influence the relationships and roles colleges and universities would take in the education to employment system. They would be influenced to increase collaboration with both high schools and employers, become less conservative and more responsive in their programming, and have more limited influence upon the high school education model as these systems would be more closely tied to the identified future needs of employers and their communities.

Legislators and policy advocates. The final group who would be relationally involved in the change policy would be legislators and education policy advocates. As discussed in the political analysis, changes to policy require compromise across broader political priorities and needs. In order to develop consensus and support behind any legislative and social changes, relationships with supporters of the work need to be leveraged and those in opposition addressed or overcome. Leaders behind this policy change would need to examine the existing political and social landscape and leverage existing relationships with legislators and policy advocates in support of the plans. Differences may need to be negotiated and compromises made in order to ensure that changes fit within the political landscape of broader priorities.

Overall, community and partner engagement would be critical in the successful implementation of the proposed policy to integrate counselors and teachers in career pathway orientation courses. Being an adaptive challenge, it would require leveraging and redeveloping relationships and community expectations as leaders developing inclusive and collaborative efforts that engage school staff, students, families, industry and employers and other stakeholders.

Overall, community and partner engagement would be critical in the successful implementation of the proposed policy to integrate counselors and teachers in career pathway orientation courses. Being an adaptive challenge, it would require leveraging and redeveloping relationships and community expectations as leaders developed inclusive and collaborative efforts which engage school staff, students, families, industry and employers and other stakeholders.

Conclusion

In this section, the information from CJHSD's career orientation model as well as other research findings were used as a basis for developing policies aimed towards integrating career pathway instruction and counseling in an effort to improve student career decision-making. Policies and actions to be made at the federal, state and local levels were examined through educational, economic, social, legal, political and moral and ethical lenses in addition to considering the implications the policy change would have on staff and community relationships. Ultimately, this proposal and analysis revealed the power and potential for taking action in support of the future success of our students and communities.

SECTION 8: CONCLUSION

Throughout this document, the state and needs of supporting student career decision-making through career orientation experiences were examined. Despite a significant call from industry and our communities for improved early career supports and preparation (Advance CTE, 2018; Bertram, 2017; Democratic Platform Committee, 2017; Education Advisory Board, 2018a; Education Advisory Board, 2018b; Ferguson & Lamback, 2014; Mesiala & Burke, 2016; Mobley, Sharp, Hammond, Withington, & Stipanovic, 2017; Republican National Committee, 2017), the quality and quantity of research within this field is limited (Argyropoulou, 2007;

Kelly & Lee, 2002; Tinsley, 1992), emphasizing a need for such research. Ultimately, my work aimed to address this need and influence the development of improved student career orientation experiences in an effort to effectively support and prepare students for career opportunities tied to the needs and opportunities in our communities.

To better understand and improve student career decision-making experiences, the following questions were central to my research:

(1) Whether and to what extent do career orientation courses impact student career decision-making?

(2) Whether and to what extent do the courses impact students' confidence in their career decision-making?

Additional questions included the following:

(1) At what rate do students in career orientation courses confirm their career decision-making?

(2) What factors within career orientation courses do students identify as impacting their career decision-making?

(3) What is the correlation between individual career exploration components within these orientation courses and student confidence in their career decision-making?

(4) What are identified best practices within career orientation courses for increasing student career decision-making?

Addressing each of these questions allowed for a deeper understanding of the influences of career orientation courses. They also identified ways in which courses and systems could be adjusted to improve student learning and career preparation.

The effects of orientation courses on student career decision-making were examined through review of literature in addition to completing research based upon CJHSD's Introduction to Health Careers orientation course. The review of literature identified the nature of career decision-making, how it has traditionally been supported in schools and what theorists suggest must be changed in the design and implementation of student learning experiences for them to be more effective. Broadly, this research revealed an overall failure of existing school models to effectively support the complex nature of career decision making and also called for modifications to existing career education systems to address this need.

Examining career orientation courses in CJHSD revealed how context, culture, conditions and competencies of the district influenced its ability to effectively support student career decision-making and identified how individual orientation course factors influence student career decision-making within an individual course. While the research revealed that through a career orientation course student career confidence levels increased, the findings also reinforced the conclusions of published research as key weaknesses and inefficiencies in current career orientation course models.

A notable finding from both published research and examination of the CJHSD model was related to the need for schools to integrate the development and implementation of career instruction and counseling activities. Based upon this finding, a comprehensive set of changes to policies at the federal, state and local levels was proposed, aiming to increase the collaborative development and implementation of career orientation courses by pathway teachers and counselors. These changes included federal realignment of policy and an expansion of funding related to Perkins V; state of Illinois adjustments to CTEI funding, CRRI indicators and PWR

Act frameworks; and local adjustment to curricular requirements related to required counseling and curricular programs.

Overall, the evaluation of career orientation courses and proposed policy changes have addressed my purpose and goal to examine and improve student career orientation experiences. Research-based opportunities for improving and scaling career orientation courses in an effort to positively impact student career decision-making in high schools have been revealed. By supporting and pursuing such efforts, the calls from industry and our communities for improved early career supports and preparation can be answered and the needs for students to graduate high school with confidence and preparation in their future careers can be supported.

In addition to the identification of promising actions to scale and improve career decision-making experiences for students, I have personally grown as a leader through this process. This effort has reinforced my belief in the need for schools to develop rigorous and relevant learning experiences which prepare students to be ready for college and careers. We must strive as educators to develop opportunities that connect all students to their learning and prepare them for success in our communities.

The process made me deeply consider the need to acknowledge and value the holistic nature of teaching and learning. It is critical for schools to align counseling and student services with curriculum and instruction. The different aspects of schools can't be isolated into silos, as our students' needs and learning do not exist in isolation. This consideration has been something I have taken immediate efforts to address professionally at both the district and building level to better support my own students' learning.

The examination of an organization through Wagner et al.'s (2006) 4 Cs of context, culture, competencies and conditions led me to much more deeply examine the influences on

change within my daily practice. By considering these along with the As-Is and To-Be state of an organization, one can not only look to individual initiatives and programs to address symptoms of challenging systems but actually examine ways to transformationally change the systems themselves.

Overall, throughout the entire process of examining the CJHSD system, reviewing research and planning efforts for advocacy and change, I found myself deeply reflecting upon the roles that educators have in supporting the relationships between our rapidly changing society and education systems charged to support it. As leaders of public schools, we are not only charged to facilitate the traditional functions of schools in our communities but also are obligated to be active advocates for their future successes. We must press to develop ways to better support student learning outcomes and decision making through the development of more relevant, better-connected learning environment than previously thought possible. We must support adaptive changes in our schools that move them past the status quo toward new outcomes. Our communities and nation are calling for schools to support shaping the students within today's classrooms to become the highly prepared and engaged workforce of tomorrow. Embarking on this work and the findings presented within this document can be central to supporting educational leaders and systems to address the call.

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Appendix A: Student Career Cluster Identification

Career Cluster	Identifiers at start of year		Identifiers at end of year	
Agriculture, Food & Natural Resources	3	1.5%	2	1.0%
Arts, A/V Technology & Communications	0	0.0%	3	1.5%
Architecture & Construction	1	0.5%	0	0.0%
Business Management & Administration	4	2.0%	2	1.0%
Education & Training	2	1.0%	6	3.0%
Finance	0	0.0%	1	0.5%
Government & Public Administration	1	0.5%	2	1.0%
Health Science	132	65.3%	132	65.3%
Hospitality & Tourism	8	4.0%	8	4.0%
Human Services	8	4.0%	6	3.0%
Information Technology	1	0.5%	2	1.0%
Law, Public Safety, Corrections & Security	5	2.5%	9	4.5%
Manufacturing	0	0.0%	0	0.0%
Marketing	1	0.5%	1	0.5%
Science, Technology, Engineering & Mathematics	7	3.5%	11	5.4%
Transportation, Distribution & Logistics	0	0.0%	1	0.5%
Undecided	29	14.4%	16	7.9%

Appendix B: Demographics by Student Cluster Change Group

	All Surveyed Students	All Groups	Group 1	Group 2	Group 3	Group 4
Total (N)	202	64	24	24	21	8
Gender						
Male	50	21	7	6	8	2
Female	152	43	17	18	13	6
Grade Level						
9	80	29	10	12	9	4
10	73	19	9	5	7	3
11	31	11	4	4	3	0
12	18	6	1	3	2	1
Race						
Hispanic/ Latino	101	35	13	9	14	5
Asian	19	6	2	3	1	0
Black or African American	2	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	1	0	0	0	0	0
White	73	21	7	12	6	3
More than one race indicated	6	2	2	0	0	0
Economically disadvantaged						
Yes	67	21	7	6	6	5
No	135	43	17	18	15	3

Appendix C: Chi-Square Results for Demographics by Student Cluster Change Group

	Gender	Grade Level	Race	Economically Disadvantaged
Group 1	$X^2(1,N=202)=$ 0.29, p=0.59	$X^2(3,N=202)=$ 0.76, p=0.86	$X^2(5,N=202)=$ 3.54, p=0.62	$X^2(1,N=202)=$ 0.20, p=0.66
Group 2	$X^2(1,N=202)=$ 3.22, p=0.07	$X^2(3,N=202)=$ 2.83, p=0.42	$X^2(5,N=202)=$ 2.33, p=0.80	$X^2(1,N=202)=$ 0.16, p=0.69
Group 3	$X^2(1,N=202)=$ 3.39, p=0.07	$X^2(3,N=202)=$ 0.11, p=0.99	$X^2(5,N=202)=$ 2.16, p=0.83	$X^2(1,N=202)=$ 0.02 ,p=0.88
Group 4	$X^2(1,N=202)=$ 0.06, p=0.81	$X^2(3,N=202)=$ 1.46, p=0.86	$X^2(5,N=202)=$ 1.17, p=0.95	$X^2(1,N=202)=$ 0.31, p=0.58

Appendix D: Chi-Square Results for Students Who Changed Career Clusters by School

and Teacher

	Teacher
Group 1	$X^2(4,N=202)=4.37$, p=0.36
Group 2	$X^2(1,N=202)=2.26$, p=0.69
Group 3	$X^2(1,N=202)=9.04$, p=0.06
Group 4	$X^2(1,N=202)=2.23$, p=0.69

Appendix E: Average Confidence at Start and End of Class by Demographic Group

	Number of Students	Before Class	After Class	Change
All students	202	3.5	4.0	+0.5
Gender				
Male	50	3.3	4.0	+0.7
Female	152	3.6	3.9	+0.3
Grade Level				
9	80	3.6	3.9	+0.3
10	73	3.6	4.0	+0.4
11	31	3.6	4.1	+0.5
12	18	2.9	4.0	+1.1
Race				
Hispanic/ Latino	101	3.3	3.8	+0.5
Asian	19	3.8	4.3	+0.5
Black or African American	2	4.0	4.5	+0.5
Native Hawaiian or Other Pacific Islander	1	3.0	3.0	0
White	73	3.7	4.1	+0.4
More than one race indicated	6	3.7	4.0	+0.3
Economically disadvantaged				
Yes	67	3.4	3.7	+0.3
No	135	3.6	4.1	+0.5

Appendix F: ANOVA Results - Average Confidence at Start and End of Class by

Demographic Group

		Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups	1.55	6	0.26	1.39	0.22
	Within Groups	35.88	192	0.19		
	Total	37.44	198			
Race	Between Groups	17.82	6	2.97	1.04	0.40
	Within Groups	548.05	192	2.85		
	Total	565.87	198			
Grade Level	Between Groups	9.13	6	1.52	1.70	0.12
	Within Groups	172.15	192	0.90		
	Total	181.28	198			
Economically Disadvantaged	Between Groups	1.38	6	0.23	1.03	0.41
	Within Groups	43.06	192	0.22		
	Total	44.44	198			

Appendix G: ANOVA Results - Average Confidence at Start and End of Class by Teacher

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.654	6	1.109	0.667	0.677
Within Groups	319.266	192	1.663		
Total	325.92	198			

Appendix H: Average Confidence at Start and End of Class by Cluster Identification

Group

	Number of Students	Before Class	After Class	Change
All students	202	3.5	4.0	+0.5
Group A	132	3.7	4.2	+0.5
Group B	70	3.2	3.6	+0.4
Group C	138	3.7	4.1	+0.4
Group D	108	3.9	4.2	+0.3
Group E	64	3.0	3.7	+0.7
Group F	24	2.8	3.9	+1.1
Group G	21	2.5	3.8	+1.3

Appendix I: ANOVA Results - Average Confidence at Start and End of Class by Cluster Group

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.922	6	3.487	1.604	0.144
Within Groups	1147.815	528	2.174		
Total	1168.736	534			

Appendix J: Confidence Gaps by Cluster Group

	Number of Students	Confidence Gap Before Class	Confidence Gap After Class	Change in Confidence Gap
All students	202	-0.4	-0.2	-0.2
Group A	132	-0.2	0.0	-0.2
Group B	70	-0.7	-0.6	-0.1
Group C	138	-0.2	-0.1	-0.1
Group D	108	N/A	N/A	N/A
Group E	64	-0.9	-0.5	-0.4
Group F	24	-1.1	-0.3	-0.8
Group G	21	-1.4	-0.4	-1.0

Appendix K: Student Reported Frequency of Career Related Experiences

		Number of Student Responses			
	Student average	Never (0)	Once (1)	A few times (2)	Many times (3)
Career Exploration Activities					
A career exploration activity including either a career focused presentation and/or discussion	2.3	4	15	109	73
Student career exploration research project	1.9	11	36	122	32
Student career related problem based learning activity	1.5	32	53	92	23
In class career speaker	2.3	5	14	92	87
Career related industry site visit or field trip	1.2	52	69	70	7
Embedded career related practicum and/or authentic work based learning experience	1.1	79	42	64	12
High School Pathway Awareness Activities					
Awareness about the available sequence of career pathway courses in health careers	1.9	12	27	127	25
Awareness about the available extracurricular career related activities (clubs, career days, career nights, etc) in health careers	1.3	60	34	77	19
Awareness about the available workplace learning opportunities (internships, practicums, work experiences, etc) in health careers	0.8	95	44	49	3
Awareness about the available early college credit opportunities in health careers	0.9	81	50	46	10
Awareness about the available industry credential opportunities in health careers	0.8	99	36	46	6
High School Pathway Planning Activities					
Health careers related goal setting for remainder of high school	1.8	31	29	74	47
Students create career portfolio related to high school health careers experiences	0.7	105	33	42	4
Postsecondary awareness activities					
Learning about postsecondary education options	1.2	61	40	64	13
Learning about postsecondary employment options	1.0	82	27	61	9
Postsecondary planning activities					
Postsecondary career goal setting	1.0	71	42	53	9
Postsecondary career portfolio creation	0.5	120	31	26	0

Appendix L: Average Student Reported Frequency of Career Related Experiences by Teacher

	All teacher average	Range	Student Average (School / Teacher)				
			Barton		Edwards	Farside	
			A	B	C	D	E
Career Exploration Activities							
A career exploration activity including either a career focused presentation and/or discussion	2.3	0.4	2.2	2.4	2.3	2.1	2.5
Student career exploration research project	1.9	0.3	1.9	1.9	2.0	1.7	2.0
Student career related problem based learning activity	1.5	0.3	1.7	1.6	1.4	1.4	1.6
In class career speaker	2.3	0.8	2.3	2.3	2.9	2.1	2.3
Career related industry site visit or field trip	1.2	0.6	1.3	1.0	1.6	1.1	1.1
Embedded career related practicum and/or authentic work based learning experience	1.1	1.3	0.5	0.5	1.7	1.3	1.8
High School Pathway Awareness Activities							
Awareness about the available sequence of career pathway courses in health careers	1.9	0.3	1.7	1.8	2.0	1.9	1.9
Awareness about the available extracurricular career related activities (clubs, career days, career nights, etc) in health careers	1.3	0.9	1.0	0.9	0.9	1.7	1.8
Awareness about the available workplace learning opportunities (internships, practicums, work experiences, etc) in health careers	0.8	0.5	0.5	0.7	0.6	1.0	0.5
Awareness about the available early college credit opportunities in health careers	0.9	0.3	0.9	1.0	1.0	0.8	0.7
Awareness about the available industry credential opportunities in health careers	0.8	0.6	0.7	0.5	0.6	1.1	0.6
High School Pathway Planning Activities							
Health careers related goal setting for remainder of high school	1.8	0.7	2.0	2.0	1.3	1.7	1.4
Students create career portfolio related to high school health careers experiences	0.7	0.5	0.4	0.7	0.5	0.9	0.6

Postsecondary awareness activities							
Learning about postsecondary education options	1.2	0.4	1.0	1.3	1.4	1.0	1.1
Learning about postsecondary employment options	1.0	0.5	0.8	1.2	1.3	0.7	0.8
Postsecondary planning activities							
Postsecondary career goal setting	1.0	0.1	1.0	0.9	1.0	1.0	0.9
Postsecondary career portfolio creation	0.5	0.3	0.3	0.5	0.3	0.6	0.3

Appendix M: Student Reported Influence of Career Related Experiences

	Average Degree of Influence	% of Responses		Count of Degree of Influence	
		Encouraged	Discouraged	Extreme	No influence
Career Exploration Activities	**1.4**	**73%**	**5%**	**--**	**--**
A career exploration activity including either a career focused presentation and/or discussion	1.6	79%	6%	26	30
Student career exploration research project	1.4	74%	7%	19	37
Student career related problem based learning activity	1.3	66%	7%	26	49
In class career speaker	1.8	91%	2%	48	14
Career related industry site visit or field trip	1.3	66%	5%	24	48
Embedded career related practicum and/or authentic work based learning experience	1.0	56%	4%	15	61
High School Pathway Awareness Activities	**1.2**	**62%**	**6%**	**--**	**--**
Awareness about the available sequence of career pathway courses in health careers	1.5	81%	5%	28	27
Awareness about the available extracurricular career related activities (clubs, career days, career nights, etc) in health careers	1.2	61%	5%	22	56
Awareness about the available workplace learning opportunities (internships, practicums, work experiences, etc) in health careers	1.0	56%	8%	11	53
Awareness about the available early college credit opportunities in health careers	1.2	57%	8%	19	50
Awareness about the available industry credential opportunities in health careers	0.9	49%	5%	11	61
High School Pathway Planning Activities	**1.1**	**59%**	**6%**	**--**	**--**
Health careers related goal	1.4	70%	7%	31	38

setting for remainder of high school					
Students create career portfolio related to high school health careers experiences	0.8	44%	6%	7	63
Postsecondary awareness activities	**1.0**	**56%**	**7%**	**--**	**--**
Learning about postsecondary education options	1.0	58%	5%	12	54
Learning about postsecondary employment options	1.0	53%	9%	12	54
Postsecondary planning activities	**0.8**	**48%**	**8%**	**--**	**--**
Postsecondary career goal setting	1.0	57%	8%	9	46
Postsecondary career portfolio creation	0.6	36%	7%	4	60

Appendix N: Degree of Influence of Career Activity by Student Demographic Group

	Number of Students	Degree of Influence					
		Activity #1	Activity #2	Activity #3	Activity #4	Activity #5	Activities 1-5
Gender							
Male	50	1.7	1.6	1.5	1.2	1.3	1.4
Female	152	1.9	1.6	1.6	1.5	1.4	1.6
Grade Level							
9	80	1.9	1.5	1.5	1.5	1.4	1.6
10	73	1.8	1.6	1.6	1.5	1.4	1.6
11	31	1.9	1.7	1.5	1.3	1.4	1.6
12	18	1.6	1.6	1.4	1.1	1.2	1.4
Race							
Hispanic/ Latino	101	1.7	1.6	1.5	1.5	1.4	1.5
Asian	19	2.0	1.7	1.7	1.4	1.5	1.7
Black or African American	2	1.0	2.0	2.0	2.0	3.0	2.0
Native Hawaiian or Other Pacific Islander	1	3.0	2.0	3.0	0.0	1.0	1.8
White	73	1.9	1.5	1.5	1.4	1.2	1.5
More than one race indicated	6	2.3	1.7	1.7	1.5	2.2	1.9
Economically disadvantaged							
Yes	67	1.8	1.6	1.6	1.6	1.5	1.6
No	135	1.8	1.5	1.5	1.4	1.3	1.5

Activity Key

Activity #1 - In class career speaker

Activity #2 - A career exploration activity including either a career focused presentation and/or discussion

Activity #3 - Awareness about the available sequence of career pathway courses in health careers

Activity #4 - Health careers related goal setting for remainder of high school

Activity #5 - Student career exploration research project

Appendix O: ANOVA Results for Degree of Influence of Activity by Student Demographic

Group

ANOVA - Differences by Gender

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	0.184	1	0.184	0.203	0.653
	Within Groups	181.38	200	0.907		
	Total	181.564	201			
Presentation/ Discussion	Between Groups	0.04	1	0.04	0.048	0.827
	Within Groups	168.059	200	0.84		
	Total	168.099	201			
Sequence of courses	Between Groups	0.672	1	0.672	0.719	0.398
	Within Groups	187.115	200	0.936		
	Total	187.787	201			
HS Goal Setting	Between Groups	1.101	1	1.101	0.904	0.343
	Within Groups	243.553	200	1.218		
	Total	244.653	201			
Research Project	Between Groups	0.02	1	0.02	0.023	0.88
	Within Groups	172.456	200	0.862		
	Total	172.475	201			

ANOVA - Differences by Grade Level

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	0.443	3	0.148	0.161	0.922
	Within Groups	181.121	198	0.915		
	Total	181.564	201			
Presentation/ Discussion	Between Groups	0.958	3	0.319	0.378	0.769
	Within Groups	167.141	198	0.844		
	Total	168.099	201			
Sequence of courses	Between Groups	1.087	3	0.362	0.384	0.764
	Within Groups	186.7	198	0.943		
	Total	187.787	201			
HS Goal Setting	Between Groups	0.641	3	0.214	0.173	0.914
	Within Groups	244.012	198	1.232		
	Total	244.653	201			
Research Project	Between Groups	0.281	3	0.094	0.108	0.956
	Within Groups	172.194	198	0.87		
	Total	172.475	201			

ANOVA - Differences by Race

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	10.69	5	2.138	2.452	0.035
	Within Groups	170.875	196	0.872		
	Total	181.564	201			
Presentation/ Discussion	Between Groups	1.308	5	0.262	0.307	0.908
	Within Groups	166.791	196	0.851		
	Total	168.099	201			
Sequence of courses	Between Groups	4.673	5	0.935	1	0.419
	Within Groups	183.114	196	0.934		
	Total	187.787	201			
HS Goal Setting	Between Groups	2.879	5	0.576	0.467	0.801
	Within Groups	241.774	196	1.234		
	Total	244.653	201			
Research Project	Between Groups	6.209	5	1.242	1.464	0.203
	Within Groups	166.266	196	0.848		
	Total	172.475	201			

ANOVA - Differences by race (re-tested only considering groups of over 5 members)

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	6.037	3	2.012	2.303	0.078
	Within Groups	170.375	195	0.874		
	Total	176.412	198			

ANOVA - Differences by Economically Disadvantaged Status

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	0.213	1	0.213	0.235	0.628
	Within Groups	181.351	200	0.907		
	Total	181.564	201			
Presentation/ Discussion (teacher)	Between Groups	1.251	1	1.251	1.5	0.222
	Within Groups	166.848	200	0.834		
	Total	168.099	201			
Sequence of courses	Between Groups	0.006	1	0.006	0.006	0.936
	Within Groups	187.781	200	0.939		
	Total	187.787	201			
HS Goal Setting	Between Groups	0.126	1	0.126	0.103	0.748
	Within Groups	244.527	200	1.223		
	Total	244.653	201			
Research Project	Between Groups	0.922	1	0.922	1.075	0.301
	Within Groups	171.553	200	0.858		
	Total	172.475	201			

Appendix P: Degree of Influence of Activity by Teacher

	Number of Students	Degree of Influence					
		Activity #1	Activity #2	Activity #3	Activity #4	Activity #5	Activities 1-5
Barton High School							
Teacher A	30	2.0	1.6	1.5	1.3	1.5	1.4
Teacher B	54	1.9	1.8	1.6	1.5	1.4	1.6
Edwards High School							
Teacher C	27	2.1	1.5	1.6	1.3	1.2	1.5
Farside High School							
Teacher D	70	1.6	1.5	1.6	1.5	1.3	1.5
Teacher E	21	1.6	1.5	1.5	1.3	1.4	1.5

Activity Key

Activity #1 - In class career speaker

Activity #2 - A career exploration activity including either a career focused presentation and/or discussion

Activity #3 - Awareness about the available sequence of career pathway courses in health careers

Activity #4 - Health careers related goal setting for remainder of high school

Activity #5 - Student career exploration research project

Appendix Q: ANOVA and Tukey Results for Degree of Influence of Activity by Teacher

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	8.806	4	2.201	2.51	0.043
	Within Groups	172.758	197	0.877		
	Total	181.564	201			
Presentation/ Discussion	Between Groups	5.732	4	1.433	1.739	0.143
	Within Groups	162.367	197	0.824		
	Total	168.099	201			
Sequence of courses	Between Groups	0.869	4	0.217	0.229	0.922
	Within Groups	186.918	197	0.949		
	Total	187.787	201			
HS Goal Setting	Between Groups	4.381	4	1.095	0.898	0.466
	Within Groups	240.272	197	1.22		
	Total	244.653	201			
Research Project	Between Groups	3.787	4	0.947	1.106	0.355
	Within Groups	168.688	197	0.856		
	Total	172.475	201			

Tukey post hoc test - Industry Speaker

Dependent Variable	(I) Teacher	(J) Teacher	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Industry Speaker - I	A	B	0.153	0.211	0.951	-0.43	0.73
		C	-0.071	0.249	0.999	-0.76	0.61
		D	0.439	0.202	0.194	-0.12	1
		E	0.492	0.265	0.344	-0.24	1.22
	B	A	-0.153	0.211	0.951	-0.73	0.43
		C	-0.224	0.224	0.855	-0.84	0.39
		D	0.286	0.17	0.444	-0.18	0.75
		E	0.339	0.241	0.624	-0.32	1
	C	A	0.071	0.249	0.999	-0.61	0.76
		B	0.224	0.224	0.855	-0.39	0.84
		D	0.51	0.215	0.128	-0.08	1.1
		E	0.562	0.275	0.248	-0.19	1.32
	D	A	-0.439	0.202	0.194	-1	0.12
		B	-0.286	0.17	0.444	-0.75	0.18
		C	-0.51	0.215	0.128	-1.1	0.08
		E	0.052	0.233	0.999	-0.59	0.69
	E	A	-0.492	0.265	0.344	-1.22	0.24
		B	-0.339	0.241	0.624	-1	0.32
		C	-0.562	0.275	0.248	-1.32	0.19
		D	-0.052	0.233	0.999	-0.69	0.59

Appendix R: Degree of Influence of Activity by Career Cluster Confidence Level

	Number of Students	Degree of Influence					
		Activity #1	Activity #2	Activity #3	Activity #4	Activity #5	Activities 1-5
Career Cluster Confidence at Beginning of Year							
Very Confident	35	2.1	1.8	2.1	1.8	1.7	1.9
Confident	65	2.0	1.6	1.6	1.5	1.3	1.6
Neutral	72	1.7	1.6	1.4	1.3	1.2	1.4
Not Very Confident	21	1.6	1.2	1.1	1.3	1.4	1.3
Not Confident at all	6	1.7	1.3	0.8	0.3	1.3	1.0
Career Cluster Confidence at End of Year							
Very Confident	58	2.1	1.9	1.9	1.8	1.7	1.9
Confident	94	1.7	1.5	1.5	1.4	1.2	1.5
Neutral	38	1.7	1.5	1.4	1.2	1.4	1.4
Not Very Confident	7	1.6	1.0	0.9	0.8	0.9	1.0
Not Confident at all	4	1.5	1.5	1.0	1.0	1.0	1.2

Activity Key

Activity #1 - In class career speaker

Activity #2 - A career exploration activity including either a career focused presentation and/or discussion

Activity #3 - Awareness about the available sequence of career pathway courses in health careers

Activity #4 - Health careers related goal setting for remainder of high school

Activity #5 - Student career exploration research project

Appendix S: ANOVA and Tukey Results for Degree of Influence of Career Cluster

Confidence Level

ANOVA - Beginning of the Year

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	5.414	4	1.353	1.549	0.19
	Within Groups	169.521	194	0.874		
	Total	174.935	198			
Presentation/ Discussion (teacher)	Between Groups	5.37	4	1.342	1.651	0.163
	Within Groups	157.716	194	0.813		
	Total	163.085	198			
Sequence of courses	Between Groups	19.454	4	4.864	5.824	0
	Within Groups	162.013	194	0.835		
	Total	181.467	198			
HS Goal Setting	Between Groups	14.052	4	3.513	3.006	0.02
	Within Groups	226.722	194	1.169		
	Total	240.774	198			
Research Project	Between Groups	8.184	4	2.046	2.467	0.046
	Within Groups	160.911	194	0.829		
	Total	169.095	198			

Tukey post hoc test

Dependent Variable	(I) Beginning of year Confidence Level	(J) Beginning of Year Confidence Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Sequence of courses	1	2	-0.429	0.423	0.849	-1.59	0.74
		3	-0.653	0.388	0.448	-1.72	0.42
		4	-0.841	0.39	0.201	-1.91	0.23
		5	-1.362	0.404	0.008	-2.47	-0.25
	2	1	0.429	0.423	0.849	-0.74	1.59
		3	-0.224	0.227	0.86	-0.85	0.4
		4	-0.412	0.229	0.378	-1.04	0.22
		5	-.933	0.252	0.003	-1.63	-0.24
	3	1	0.653	0.388	0.448	-0.42	1.72
		2	0.224	0.227	0.86	-0.4	0.85
		4	-0.188	0.156	0.749	-0.62	0.24
		5	-.709	0.188	0.002	-1.23	-0.19
	4	1	0.841	0.39	0.201	-0.23	1.91
		2	0.412	0.229	0.378	-0.22	1.04
		3	0.188	0.156	0.749	-0.24	0.62
		5	-0.521	0.192	0.055	-1.05	0.01
	5	1	1.362	0.404	0.008	0.25	2.47
		2	.933	0.252	0.003	0.24	1.63
		3	.709	0.188	0.002	0.19	1.23
		4	0.521	0.192	0.055	-0.01	1.05
HS Goal Setting	1	2	-0.548	0.5	0.809	-1.93	0.83
		3	-0.958	0.459	0.23	-2.22	0.31
		4	-1.049	0.461	0.158	-2.32	0.22
		5	-1.319	0.478	0.049	-2.63	0
	2	1	0.548	0.5	0.809	-0.83	1.93
		3	-0.411	0.268	0.543	-1.15	0.33
		4	-0.501	0.271	0.35	-1.25	0.25

		5	-0.771	0.298	0.077	-1.59	0.05
	3	1	0.958	0.459	0.23	-0.31	2.22
		2	0.411	0.268	0.543	-0.33	1.15
		4	-0.09	0.185	0.988	-0.6	0.42
		5	-0.361	0.223	0.487	-0.97	0.25
	4	1	1.049	0.461	0.158	-0.22	2.32
		2	0.501	0.271	0.35	-0.25	1.25
		3	0.09	0.185	0.988	-0.42	0.6
		5	-0.27	0.227	0.756	-0.89	0.35
	5	1	1.319	0.478	0.049	0	2.63
		2	0.771	0.298	0.077	-0.05	1.59
		3	0.361	0.223	0.487	-0.25	0.97
		4	0.27	0.227	0.756	-0.35	0.89
Research Project	1	2	0.048	0.422	1	-1.11	1.21
		3	0.194	0.387	0.987	-0.87	1.26
		4	0.103	0.389	0.999	-0.97	1.17
		5	-0.381	0.402	0.878	-1.49	0.73
	2	1	-0.048	0.422	1	-1.21	1.11
		3	0.147	0.226	0.966	-0.48	0.77
		4	0.055	0.229	0.999	-0.57	0.68
		5	-0.429	0.251	0.433	-1.12	0.26
	3	1	-0.194	0.387	0.987	-1.26	0.87
		2	-0.147	0.226	0.966	-0.77	0.48
		4	-0.092	0.156	0.976	-0.52	0.34
		5	-.575	0.188	0.021	-1.09	-0.06
	4	1	-0.103	0.389	0.999	-1.17	0.97
		2	-0.055	0.229	0.999	-0.68	0.57
		3	0.092	0.156	0.976	-0.34	0.52
		5	-0.484	0.191	0.088	-1.01	0.04
	5	1	0.381	0.402	0.878	-0.73	1.49
		2	0.429	0.251	0.433	-0.26	1.12
		3	.575	0.188	0.021	0.06	1.09
		4	0.484	0.191	0.088	-0.04	1.01

ANOVA - End of Year

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker	Between Groups	8.831	4	2.208	2.55	0.041
	Within Groups	169.717	196	0.866		
	Total	178.547	200			
Presentation/ Discussion	Between Groups	7.627	4	1.907	2.364	0.054
	Within Groups	158.075	196	0.807		
	Total	165.701	200			
Sequence of courses	Between Groups	17.519	4	4.38	5.104	0.001
	Within Groups	168.182	196	0.858		
	Total	185.701	200			
HS Goal Setting	Between Groups	13.271	4	3.318	2.826	0.026
	Within Groups	230.102	196	1.174		
	Total	243.373	200			
Research Project	Between Groups	9.231	4	2.308	2.799	0.027
	Within Groups	161.605	196	0.825		
	Total	170.836	200			

Tukey Post-hoc test

Dependent Variable	(I) End of Year Confidence Level	(J) End of Year Confidence Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Industry Speaker	1	2	-0.071	0.583	1	-1.68	1.53
		3	-0.132	0.489	0.999	-1.48	1.22
		4	-0.106	0.475	0.999	-1.41	1.2
		5	-0.569	0.481	0.761	-1.89	0.76
	2	1	0.071	0.583	1	-1.53	1.68
		3	-0.06	0.383	1	-1.11	0.99
		4	-0.035	0.365	1	-1.04	0.97
		5	-0.498	0.372	0.669	-1.52	0.53
	3	1	0.132	0.489	0.999	-1.22	1.48
		2	0.06	0.383	1	-0.99	1.11
		4	0.025	0.179	1	-0.47	0.52
		5	-0.437	0.194	0.165	-0.97	0.1
	4	1	0.106	0.475	0.999	-1.2	1.41
		2	0.035	0.365	1	-0.97	1.04
		3	-0.025	0.179	1	-0.52	0.47
		5	-.463	0.155	0.027	-0.89	-0.03
	5	1	0.569	0.481	0.761	-0.76	1.89
		2	0.498	0.372	0.669	-0.53	1.52
		3	0.437	0.194	0.165	-0.1	0.97
		4	.463	0.155	0.027	0.03	0.89
Presentation/ Discussion	1	2	0.5	0.563	0.901	-1.05	2.05
		3	0.053	0.472	1	-1.25	1.35
		4	0.032	0.458	1	-1.23	1.29
		5	-0.328	0.464	0.955	-1.61	0.95
	2	1	-0.5	0.563	0.901	-2.05	1.05
		3	-0.447	0.369	0.745	-1.46	0.57
		4	-0.468	0.352	0.673	-1.44	0.5
		5	-0.828	0.359	0.148	-1.82	0.16

	3	1	-0.053	0.472	1	-1.35	1.25
		2	0.447	0.369	0.745	-0.57	1.46
		4	-0.021	0.173	1	-0.5	0.45
		5	-0.38	0.187	0.256	-0.9	0.14
	4	1	-0.032	0.458	1	-1.29	1.23
		2	0.468	0.352	0.673	-0.5	1.44
		3	0.021	0.173	1	-0.45	0.5
		5	-0.36	0.15	0.12	-0.77	0.05
	5	1	0.328	0.464	0.955	-0.95	1.61
		2	0.828	0.359	0.148	-0.16	1.82
		3	0.38	0.187	0.256	-0.14	0.9
		4	0.36	0.15	0.12	-0.05	0.77
Sequence of courses	1	2	-0.107	0.581	1	-1.71	1.49
		3	-0.434	0.487	0.9	-1.77	0.91
		4	-0.622	0.473	0.682	-1.92	0.68
		5	-1.112	0.479	0.142	-2.43	0.21
	2	1	0.107	0.581	1	-1.49	1.71
		3	-0.327	0.381	0.912	-1.38	0.72
		4	-0.515	0.363	0.616	-1.51	0.48
		5	-1.005	0.371	0.056	-2.03	0.02
	3	1	0.434	0.487	0.9	-0.91	1.77
		2	0.327	0.381	0.912	-0.72	1.38
		4	-0.188	0.178	0.828	-0.68	0.3
		5	-.678	0.193	0.005	-1.21	-0.15
	4	1	0.622	0.473	0.682	-0.68	1.92
		2	0.515	0.363	0.616	-0.48	1.51
		3	0.188	0.178	0.828	-0.3	0.68
		5	-.490	0.155	0.015	-0.92	-0.06
	5	1	1.112	0.479	0.142	-0.21	2.43
		2	1.005	0.371	0.056	-0.02	2.03
		3	.678	0.193	0.005	0.15	1.21
		4	.490	0.155	0.015	0.06	0.92
HS Goal Setting	1	2	-0.214	0.679	0.998	-2.08	1.66
		3	-0.342	0.57	0.975	-1.91	1.23

		4	-0.596	0.553	0.818	-2.12	0.93
		5	-0.983	0.56	0.403	-2.52	0.56
	2	1	0.214	0.679	0.998	-1.66	2.08
		3	-0.128	0.446	0.999	-1.35	1.1
		4	-0.381	0.425	0.897	-1.55	0.79
		5	-0.768	0.434	0.393	-1.96	0.43
	3	1	0.342	0.57	0.975	-1.23	1.91
		2	0.128	0.446	0.999	-1.1	1.35
		4	-0.254	0.208	0.741	-0.83	0.32
		5	-.641	0.226	0.04	-1.26	-0.02
	4	1	0.596	0.553	0.818	-0.93	2.12
		2	0.381	0.425	0.897	-0.79	1.55
		3	0.254	0.208	0.741	-0.32	0.83
		5	-0.387	0.181	0.208	-0.89	0.11
	5	1	0.983	0.56	0.403	-0.56	2.52
		2	0.768	0.434	0.393	-0.43	1.96
		3	.641	0.226	0.04	0.02	1.26
		4	0.387	0.181	0.208	-0.11	0.89
Research Project	1	2	0.143	0.569	0.999	-1.42	1.71
		3	-0.316	0.477	0.964	-1.63	1
		4	-0.128	0.464	0.999	-1.4	1.15
		5	-0.586	0.469	0.723	-1.88	0.71
	2	1	-0.143	0.569	0.999	-1.71	1.42
		3	-0.459	0.373	0.735	-1.49	0.57
		4	-0.271	0.356	0.942	-1.25	0.71
		5	-0.729	0.363	0.267	-1.73	0.27
	3	1	0.316	0.477	0.964	-1	1.63
		2	0.459	0.373	0.735	-0.57	1.49
		4	0.188	0.175	0.818	-0.29	0.67
		5	-0.27	0.19	0.611	-0.79	0.25
	4	1	0.128	0.464	0.999	-1.15	1.4
		2	0.271	0.356	0.942	-0.71	1.25
		3	-0.188	0.175	0.818	-0.67	0.29
		5	-.459	0.152	0.023	-0.88	-0.04

	5	1	0.586	0.469	0.723	-0.71	1.88
		2	0.729	0.363	0.267	-0.27	1.73
		3	0.27	0.19	0.611	-0.25	0.79
		4	.459	0.152	0.023	0.04	0.88

Appendix T: Degree of Influence of Activity by Career Cluster Change Group

	Number of Students	Degree of Influence					
		Activity #1	Activity #2	Activity #3	Activity #4	Activity #5	Activities 1-5
Cluster Change Group							
1	24	1.4	1.4	1.3	1.4	1.3	1.4
2	24	1.6	1.1	1.1	1.0	0.7	1.1
3	21	1.8	1.5	1.6	1.4	1.2	1.5
4	8	2.0	1.0	1.7	1.6	1.0	1.5

Activity Key

    Activity #1 - In class career speaker

    Activity #2 - A career exploration activity including either a career focused presentation and/or discussion

    Activity #3 - Awareness about the available sequence of career pathway courses in health careers

    Activity #4 - Health careers related goal setting for remainder of high school

    Activity #5 - Student career exploration research project

Appendix U: ANOVA and Tukey Results for Degree of Influence by Cluster Change

Group

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Industry Speaker - I	Between Groups	5.17	3	1.723	1.613	0.192
	Within Groups	90.807	85	1.068		
	Total	95.978	88			
Presentation/ Discussion (teacher) - I	Between Groups	5.431	3	1.81	2.633	0.055
	Within Groups	58.456	85	0.688		
	Total	63.888	88			
Sequence of courses - I	Between Groups	5.544	3	1.848	1.842	0.146
	Within Groups	85.265	85	1.003		
	Total	90.809	88			
HS Goal Setting - I	Between Groups	2.38	3	0.793	0.7	0.555
	Within Groups	96.339	85	1.133		
	Total	98.719	88			
Research Project - I	Between Groups	8.089	3	2.696	4.129	0.009
	Within Groups	55.506	85	0.653		
	Total	63.596	88			

Tukey post hoc test for Student Career Exploration Research Project

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Activity 5	1	2	.721	0.21	0.005	0.17	1.27
		3	0.489	0.248	0.207	-0.16	1.14
		4	0.685	0.347	0.207	-0.23	1.59
	2	1	-.721	0.21	0.005	-1.27	-0.17
		3	-0.232	0.226	0.734	-0.82	0.36
		4	-0.037	0.332	1	-0.91	0.83
	3	1	-0.489	0.248	0.207	-1.14	0.16
		2	0.232	0.226	0.734	-0.36	0.82
		4	0.195	0.357	0.947	-0.74	1.13
	4	1	-0.685	0.347	0.207	-1.59	0.23
		2	0.037	0.332	1	-0.83	0.91
		3	-0.195	0.357	0.947	-1.13	0.74

Appendix V: Degree of Influence of Activity by Career Cluster Group

	Number of Students	Degree of Influence					
		Activity #1	Activity #2	Activity #3	Activity #4	Activity #5	Activities 1-5
Career Cluster Group							
A	132	2.0	1.7	1.7	1.5	1.5	1.7
B	70	1.5	1.3	1.2	1.2	1.1	1.3
C	138	1.8	1.7	1.6	1.5	1.5	1.6
D	108	1.8	1.4	1.4	1.2	1.2	1.4
E	64	1.4	1.4	1.3	1.4	1.3	1.4
F	24	2.2	1.8	1.7	1.6	1.6	1.8
G	21	1.8	1.5	1.6	1.4	1.2	1.5

Activity Key

Activity #1 - In class career speaker

Activity #2 - A career exploration activity including either a career focused presentation and/or discussion

Activity #3 - Awareness about the available sequence of career pathway courses in health careers

Activity #4 - Health careers related goal setting for remainder of high school

Activity #5 - Student career exploration research project

Appendix W: ANOVA and Tukey Results for Degree of Influence by Career Cluster

Group

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
In class career speaker	Between Groups	11.63	6	1.938	2.15	0.046
	Within Groups	476.84	529	0.901		
	Total	488.47	535			
Career Presentation/ Discussion	Between Groups	16.775	6	2.796	3.424	0.003
	Within Groups	431.934	529	0.817		
	Total	448.709	535			
Awareness of sequence of career pathway courses	Between Groups	22.933	6	3.822	4.187	0
	Within Groups	482.916	529	0.913		
	Total	505.849	535			
High School Goal Setting	Between Groups	12.82	6	2.137	1.711	0.116
	Within Groups	660.635	529	1.249		
	Total	673.455	535			
Research Project	Between Groups	16.265	6	2.711	3.239	0.004
	Within Groups	442.703	529	0.837		
	Total	458.968	535			

Tukey post hoc test

Dependent Variable	(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
In class career speaker	A	B	.444	0.14	0.028	0.03	0.86
		C	0.138	0.115	0.895	-0.2	0.48
		D	0.077	0.13	0.997	-0.31	0.46
		E	0.188	0.145	0.855	-0.24	0.62
		F	-0.155	0.211	0.99	-0.78	0.47
		G	0.202	0.233	0.977	-0.49	0.89
	B	A	-.444	0.14	0.028	-0.86	-0.03
		C	-0.305	0.139	0.3	-0.72	0.11
		D	-0.366	0.152	0.195	-0.82	0.08
		E	-0.256	0.165	0.714	-0.74	0.23
		F	-0.599	0.225	0.109	-1.26	0.07
		G	-0.241	0.246	0.958	-0.97	0.49
	C	A	-0.138	0.115	0.895	-0.48	0.2
		B	0.305	0.139	0.3	-0.11	0.72
		D	-0.061	0.129	0.999	-0.44	0.32
		E	0.05	0.144	1	-0.38	0.48
		F	-0.293	0.21	0.803	-0.91	0.33
		G	0.064	0.232	1	-0.62	0.75
	D	A	-0.077	0.13	0.997	-0.46	0.31
		B	0.366	0.152	0.195	-0.08	0.82
		C	0.061	0.129	0.999	-0.32	0.44
		E	0.111	0.156	0.992	-0.35	0.57
		F	-0.233	0.218	0.938	-0.88	0.41
		G	0.125	0.24	0.999	-0.59	0.83
	E	A	-0.188	0.145	0.855	-0.62	0.24
		B	0.256	0.165	0.714	-0.23	0.74
		C	-0.05	0.144	1	-0.48	0.38
		D	-0.111	0.156	0.992	-0.57	0.35
		F	-0.343	0.228	0.741	-1.02	0.33

		G	0.014	0.248	1	-0.72	0.75
	F	A	0.155	0.211	0.99	-0.47	0.78
		B	0.599	0.225	0.109	-0.07	1.26
		C	0.293	0.21	0.803	-0.33	0.91
		D	0.233	0.218	0.938	-0.41	0.88
		E	0.343	0.228	0.741	-0.33	1.02
		G	0.357	0.292	0.884	-0.51	1.22
	G	A	-0.202	0.233	0.977	-0.89	0.49
		B	0.241	0.246	0.958	-0.49	0.97
		C	-0.064	0.232	1	-0.75	0.62
		D	-0.125	0.24	0.999	-0.83	0.59
		E	-0.014	0.248	1	-0.75	0.72
		F	-0.357	0.292	0.884	-1.22	0.51
Career Presentation/ Discussion	A	B	.462	0.134	0.011	0.07	0.86
		C	0.079	0.11	0.992	-0.25	0.4
		D	-0.037	0.124	1	-0.4	0.33
		E	0.339	0.138	0.179	-0.07	0.75
		F	-0.004	0.201	1	-0.6	0.59
		G	0.336	0.222	0.735	-0.32	0.99
	B	A	-.462	0.134	0.011	-0.86	-0.07
		C	-0.383	0.132	0.06	-0.78	0.01
		D	-.499	0.144	0.011	-0.93	-0.07
		E	-0.122	0.157	0.987	-0.59	0.34
		F	-0.465	0.214	0.309	-1.1	0.17
		G	-0.126	0.234	0.998	-0.82	0.57
	C	A	-0.079	0.11	0.992	-0.4	0.25
		B	0.383	0.132	0.06	-0.01	0.78
		D	-0.116	0.123	0.965	-0.48	0.25
		E	0.261	0.137	0.481	-0.15	0.67
		F	-0.082	0.2	1	-0.67	0.51
		G	0.257	0.221	0.907	-0.4	0.91
	D	A	0.037	0.124	1	-0.33	0.4
		B	.499	0.144	0.011	0.07	0.93
		C	0.116	0.123	0.965	-0.25	0.48

		E	0.376	0.149	0.151	-0.06	0.82
		F	0.033	0.208	1	-0.58	0.65
		G	0.373	0.228	0.66	-0.3	1.05
	E	A	-0.339	0.138	0.179	-0.75	0.07
		B	0.122	0.157	0.987	-0.34	0.59
		C	-0.261	0.137	0.481	-0.67	0.15
		D	-0.376	0.149	0.151	-0.82	0.06
		F	-0.343	0.217	0.693	-0.98	0.3
		G	-0.003	0.237	1	-0.7	0.7
	F	A	0.004	0.201	1	-0.59	0.6
		B	0.465	0.214	0.309	-0.17	1.1
		C	0.082	0.2	1	-0.51	0.67
		D	-0.033	0.208	1	-0.65	0.58
		E	0.343	0.217	0.693	-0.3	0.98
		G	0.34	0.277	0.884	-0.48	1.16
	G	A	-0.336	0.222	0.735	-0.99	0.32
		B	0.126	0.234	0.998	-0.57	0.82
		C	-0.257	0.221	0.907	-0.91	0.4
		D	-0.373	0.228	0.66	-1.05	0.3
		E	0.003	0.237	1	-0.7	0.7
		F	-0.34	0.277	0.884	-1.16	0.48
Awareness of sequence of career pathway courses	A	B	.565	0.141	0.001	0.15	0.98
		C	0.111	0.116	0.963	-0.23	0.45
		D	-0.049	0.131	1	-0.44	0.34
		E	0.382	0.146	0.124	-0.05	0.82
		F	0.053	0.212	1	-0.57	0.68
		G	0.321	0.234	0.819	-0.37	1.01
	B	A	-.565	0.141	0.001	-0.98	-0.15
		C	-.454	0.14	0.021	-0.87	-0.04
		D	-.614	0.153	0.001	-1.07	-0.16
		E	-0.183	0.166	0.928	-0.67	0.31
		F	-0.512	0.226	0.263	-1.18	0.16
		G	-0.244	0.247	0.956	-0.98	0.49
	C	A	-0.111	0.116	0.963	-0.45	0.23

		B	.454	0.14	0.021	0.04	0.87
		D	-0.16	0.13	0.88	-0.54	0.22
		E	0.271	0.145	0.502	-0.16	0.7
		F	-0.058	0.211	1	-0.68	0.57
		G	0.209	0.234	0.973	-0.48	0.9
	D	A	0.049	0.131	1	-0.34	0.44
		B	.614	0.153	0.001	0.16	1.07
		C	0.16	0.13	0.88	-0.22	0.54
		E	0.431	0.157	0.09	-0.03	0.9
		F	0.102	0.22	0.999	-0.55	0.75
		G	0.37	0.241	0.726	-0.35	1.08
	E	A	-0.382	0.146	0.124	-0.82	0.05
		B	0.183	0.166	0.928	-0.31	0.67
		C	-0.271	0.145	0.502	-0.7	0.16
		D	-0.431	0.157	0.09	-0.9	0.03
		F	-0.329	0.229	0.781	-1.01	0.35
		G	-0.062	0.25	1	-0.8	0.68
	F	A	-0.053	0.212	1	-0.68	0.57
		B	0.512	0.226	0.263	-0.16	1.18
		C	0.058	0.211	1	-0.57	0.68
		D	-0.102	0.22	0.999	-0.75	0.55
		E	0.329	0.229	0.781	-0.35	1.01
		G	0.268	0.293	0.971	-0.6	1.14
	G	A	-0.321	0.234	0.819	-1.01	0.37
		B	0.244	0.247	0.956	-0.49	0.98
		C	-0.209	0.234	0.973	-0.9	0.48
		D	-0.37	0.241	0.726	-1.08	0.35
		E	0.062	0.25	1	-0.68	0.8
		F	-0.268	0.293	0.971	-1.14	0.6
Research Project	A	B	.424	0.135	0.03	0.02	0.82
		C	0.065	0.111	0.997	-0.26	0.39
		D	-0.036	0.125	1	-0.41	0.33
		E	0.329	0.14	0.223	-0.09	0.74
		F	-0.117	0.203	0.997	-0.72	0.48

		G	0.372	0.224	0.646	-0.29	1.04
	B	A	-.424	0.135	0.03	-0.82	-0.02
		C	-0.36	0.134	0.105	-0.76	0.04
		D	-.461	0.146	0.028	-0.89	-0.03
		E	-0.095	0.159	0.997	-0.57	0.37
		F	-0.542	0.216	0.16	-1.18	0.1
		G	-0.053	0.237	1	-0.75	0.65
	C	A	-0.065	0.111	0.997	-0.39	0.26
		B	0.36	0.134	0.105	-0.04	0.76
		D	-0.101	0.124	0.984	-0.47	0.27
		E	0.264	0.139	0.479	-0.15	0.68
		F	-0.182	0.202	0.973	-0.78	0.42
		G	0.307	0.224	0.816	-0.36	0.97
	D	A	0.036	0.125	1	-0.33	0.41
		B	.461	0.146	0.028	0.03	0.89
		C	0.101	0.124	0.984	-0.27	0.47
		E	0.365	0.151	0.19	-0.08	0.81
		F	-0.081	0.21	1	-0.7	0.54
		G	0.408	0.231	0.572	-0.28	1.09
	E	A	-0.329	0.14	0.223	-0.74	0.09
		B	0.095	0.159	0.997	-0.37	0.57
		C	-0.264	0.139	0.479	-0.68	0.15
		D	-0.365	0.151	0.19	-0.81	0.08
		F	-0.446	0.219	0.394	-1.1	0.2
		G	0.043	0.239	1	-0.67	0.75
	F	A	0.117	0.203	0.997	-0.48	0.72
		B	0.542	0.216	0.16	-0.1	1.18
		C	0.182	0.202	0.973	-0.42	0.78
		D	0.081	0.21	1	-0.54	0.7
		E	0.446	0.219	0.394	-0.2	1.1
		G	0.489	0.281	0.589	-0.34	1.32
	G	A	-0.372	0.224	0.646	-1.04	0.29
		B	0.053	0.237	1	-0.65	0.75
		C	-0.307	0.224	0.816	-0.97	0.36

		D	-0.408	0.231	0.572	-1.09	0.28
		E	-0.043	0.239	1	-0.75	0.67
		F	-0.489	0.281	0.589	-1.32	0.34

Appendix X: 4C's of CJHSD's "As-Is" State

"As Is" 4 C's Analysis for Career Pathway Orientation Courses in CJHSD

Context
- District goals, Redefining Ready!, and state legislation value college and career efforts.
- 21st century careers and citizenry require a new and different skill set.
- With college debt explosion, college is becoming a very expensive setting for career exploration.

Culture
- Consistently high level of academic expectation for students.
- Varied level of buy-in and support behind career pathways across buildings and departments.
- High level of local building control of academics.
- Flat organizational structure. Large amount of building- and teacher- level input into program development and operation.
- High level of community involvement in schools (industry and parent).
- Progressive, risk-taking efforts are highly Encouraged.
- Diminishing administrative/union trust and collaboration resulting in increased conflict around change.

Conditions
- High level of district support. Mixed level of building support.
- Building and district collaboration/curriculum development and prep time is provided to teachers. Not equally used.
  - Multiple preps for many orientation course teachers.
  - Data on student career decision making and courses is being collected but not widely distributed or used.
    - Best practices for orientation courses have not been discussed and are not being utilized.
    - Students complete orientation courses with mixed impact on career decision making.
      - Career pathway teacher leads and workgroups are identified. Activities and processes are not standardized. Meetings are not regularly scheduled.
        - Counselors have little or no role in career orientation course curriculum and development.

Career pathway orientation courses are ineffective in supporting student career decision making for all students.

Competencies
- Career pathway teachers come from different backgrounds and have different levels of experience and expertise as professionals in career areas as well as teaching in career pathway programs.
- Career pathway teachers generally have limited research based knowledge on supporting career decision making.
- District has some administrators and access to external experts in areas of career pathway education.
  - Counselors are experts in the areas of supporting career decision making.
    - District does not have set methods in place to evaluate and coach individuals in development/deployment of career pathway orientation courses.
      - Staff have varied ability to use and analyze student and course data.

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Appendix Y: 4C's of CJHSD's "To-Be" State

"To-Be" 4 C's Analysis for Career Pathway Orientation Courses in CJHSD

Context
- District, state, and federal policy and practice are fully aligned around Redefining Ready! and reflective of priorities to support college and career readiness and skills needed for 21st century careers and citizenry
- Career pathway models are aligned with post-secondary models in support of college affordability

Culture
- Students are equitably support in academic, social emotional, and college and career planning areas within an environment of high expectations for all.
- High level of buy-in, support, and urgency behind career pathways across buildings and departments.
- Communication, coordination, and collaboration between and amongst buildings and district are aligned and valued.
- Approaches and structures supporting the local needs of teaching and learning are supported.
- Organizational structure values collaboration and building- and teacher- level input.
- High level of community involvement in schools (industry and parent).
- Progressive, risk-taking efforts are highly encouraged.
- Unions and administration work together in an environment of trust and collaboration.

Conditions
- Aligned and developed supports exist behind career pathway efforts at district and building levels.
- Building and district collaboration/curriculum development and prep time are effectively used and supported.
  - Teachers are provided adequate time and attention to create dynamic career orientation courses.
  - Student and course data related to career decision making is collected and is widely effectively used to develop and differentiate courses and interventions.
    - Best practices for orientation courses are determined and used.
    - Career pathway teacher leads and workgroups have regular supported meetings with defined outcomes.
      - Services and supports from counselors are fully integrated into career pathway classrooms and curriculum development.

Career pathway orientation courses are highly effective in supporting student career decision making for all students.

Competencies
- Teachers with different backgrounds and expertise are fully professional developed to effectively teach and in career pathway programs.
- Faculty are experts in required knowledge and practice required to support student career decision making.
- District administrators are experts in career pathway education.
- District effectively leverages external experts in support of career pathway education.
  - Counselors expertise is fully developed and utilized in support of career decision making
  - District has developed methods to evaluate and coach individuals in development/deployment of career pathway orientation courses.
    - Staff and administration are prepared to use and analyze student and course data.

Appendix Z: Strategies to Move from As-Is to To-Be States in CJHSD

WAGNER'S 4C	AS-IS	STRATEGY	TO-BE
CONTEXT	District goals, Redefining Ready!, and state legislation value college and career efforts. 21st century careers and citizenry require a new and different skill set. With college debt explosion, college has become an expensive setting for career exploration.	Strategy #1: Advocate to develop federal, state, and local legislation and policy to align systems around college and career readiness and career pathway approaches which are fully supported and valued by postsecondary systems, allowing for actualization of student financial savings in higher education.	District, state, and federal policy and practice are fully aligned around Redefining Ready! and reflective of priorities to support college and career readiness and skills needed for 21st century careers and citizenry Career pathway models are aligned with postsecondary models in support of college affordability.
CULTURE	Consistent high level of academic expectation for students. Varied level of buy-in and support behind career pathways across buildings and departments. High level of local building control of academics. Flat organizational structure. Large amount of building- and teacher- level input into program development and operation.	Strategy #2: Diverse working groups of counselors, teachers, employers, and other stakeholders are developed and supported to create collective ownership of career pathway and academic programs. Strategy #3: Union/ administrative relationships are improved to fully align efforts and support behind pathway efforts.	Students are equitably support in academic, social emotional, and college and career planning areas within an environment of high expectations for all. High level of buy-in, support, and urgency behind career pathways across buildings and departments. Communication, coordination, and collaboration between and amongst buildings and district are aligned and valued Approaches and structures supporting the local needs of

			teaching and learning are supported.
	High level of community involvement in schools (industry and parent).		
			Organizational structure values collaboration and building- and teacher-level input.
	Progressive, risk-taking efforts are highly encouraged.		
			High level of community involvement in schools (industry and parent).
	Diminishing administrative/union trust and collaboration resulting in increased conflict around change.		
			Progressive, risk-taking efforts are highly encouraged.
			Unions and administration work together in an environment of trust and collaboration.
COMPETENCIES	Career pathway teachers come from different backgrounds and have different levels of experience and expertise as professionals in career areas as well as teaching in career pathway programs. Career pathway teachers generally have limited research based knowledge on supporting career decision making. District has some administrators and	Strategy #4: Counselors use their expertise in the codesign and coteaching of career orientation courses with pathway teachers.* Strategy #5: Professional development is provided to develop the competencies of all staff members in career pathway development and delivery and data analysis. *Co-listed in Conditions section	Teachers with different backgrounds and expertise are fully professional developed to effectively teach and in career pathway programs. Faculty are experts in required knowledge and practice required to support student career decision making. District administrators are experts in career pathway education. District effectively leverages external experts in support of career pathway

	access to external experts in areas of career pathway education. Counselors are experts in the areas of supporting career decision making. District does not have set methods in place to evaluate and coach individuals in development/deployment of career pathway orientation courses. Staff have varied ability to use and analyze student and course data.	below.	education. Counselors expertise is fully developed and utilized in support of career decision making District has developed methods to evaluate and coach individuals in development/deployment of career pathway orientation courses. Staff and administration are prepared to use and analyze student and course data.
CONDITIONS	High level of district support. Mixed level of building support. Building and district collaboration/curriculum development and prep time is provided to teachers. Not equally used. Multiple preps for many orientation course teachers. Data on student career decision making and courses is being collected but not widely distributed or used.	Strategy #4: Counselors use their expertise in the codesign and coteaching of career orientation courses with pathway teachers.** Strategy #6: Schedules are realigned to develop preparation, collaboration, and instructional times in support of development and delivery of pathway activities. Strategy #7: Best practice and data analysis/sharing methods are developed	Aligned and developed supports exist behind career pathway efforts at district and building levels. Building and district collaboration/curriculum development and prep time are effectively used and supported. Teachers are provided adequate time and attention to create dynamic career orientation courses. Student and course data related to career decision making is

	Best practices for orientation courses have not been discussed and are not being utilized.	and utilized in support of pathway development and delivery.	collected and is widely effectively used to develop and differentiate courses and interventions.
	Students complete orientation courses with mixed impact on career decision making.	**Co-listed in Competencies section above.	Best practices for orientation courses are determined and used.
	Career pathway teacher leads and workgroups are identified. Activities and processes are not standardized. Meetings are not regularly scheduled.		Career pathway teacher leads and workgroups have regular supported meetings with defined outcomes.
	Counselors have little or no role in career orientation course curriculum and development.		Services and supports from counselors are fully integrated into career pathway classrooms and curriculum development

Appendix AA: Strategies, Action Plan, and Levers for Change

STRATEGY	ACTION PLAN (Preparing, Envisioning, Enacting)	LEVERS (Data, Relationships, Accountability)
Strategy #1: Advocate to develop federal, state, and local legislation and policy to align systems around college and career readiness and career pathway approaches which are fully supported and valued by postsecondary systems, allowing for actualization of student financial savings in higher education.	<u>Preparing</u> Gather data on and develop case for support. Evaluate political systems of support and identify potential stakeholders and supporters/ <u>Envisioning</u> Develop a diverse consortium of stakeholders in support of change Adopt frameworks for change and new policy <u>Enacting</u> Develop policy and adopt legislation Communicate stories of success	<u>Data</u> Qualitative and quantitative data indicating current state of need Research and data on successful models and efforts <u>Relationships</u> School staff Community members Legislators and other politicians <u>Accountability</u> School leaders to community Public officials to constituents
Strategy #2: Diverse working groups of counselors, teachers, employers, and other stakeholders are developed and supported to create collective ownership of career pathway and academic programs.	<u>Preparing</u> Evaluate existing systems of support and structures of ownership <u>Envisioning</u> Develop case for support behind changing past practice Identify group participation Identify anticipated needs for success Engage formal and informal leaders and build support behind efforts <u>Enacting</u> Convene new working groups Provide continuous monitoring and support	<u>Data</u> Surveys on and evaluation of working groups Best practices on cross sector working groups <u>Relationships</u> Administration to staff Formal and informal leadership Community to school <u>Accountability</u> Staff to administration Peer-to-peer School to community

Strategy #3: Union/administrative relationships are improved to fully align efforts and support behind pathway efforts.	Preparing Evaluate existing union/ administration relationship Envisioning Engage union leadership in development and ownership of vision Enacting Support collective voice in pathway decision making	Data History of past records Student career data Relationships Union and administrative leadership Union leadership and union staff Administration to staff relationship Accountability Ethical obligations to students Employer/employee accountability Union obligation to membership
Strategy #4: Expertise of counselors and teachers is used in the design and delivery of career pathway classroom experiences.	Preparing Evaluate existing practice of pathway design and delivery Examine best practices for integrating decision-making supports into classroom environments Envisioning Develop leadership and development team Identify approach that meets district needs Enacting Staffing assignments are adjusted to Counselors and teachers co design pathway courses. Counselors co teach orientation courses with pathway teachers.	Data Student performance and decision-making data Research on counseling and career pathway best practices Relationships Teacher/counselor peer to peer Administrator and teacher/ counselor Accountability Ethical obligations to students Employer/employee accountability
Strategy #5: Professional development is provided to develop the competencies of all staff members in career pathway development and	Preparing Identify staff requirements to facilitate career pathway courses Evaluate competencies and weaknesses of staff Envisioning Engage stakeholders in professional development planning	Data Research on best practices Staff evaluations and identification of competencies Relationships External experts Teacher/counselor peer to peer Administrator and teacher/

delivery and data analysis.	Develop professional development plans Enacting Provide and evaluate professional development	counselor <u>Accountability</u> Employer/employee accountability Educator to student Teacher/counselor peer to peer
Strategy #6: Schedules are realigned to develop preparation, collaboration, and instructional times in support of development and delivery of pathway activities.	<u>Preparing</u> Perform time and schedule study Identify necessary needs for each type of task <u>Envisioning</u> Create schedule planning leadership team Develop format of new schedule <u>Enacting</u> Deploy new schedule Evaluate and revise	<u>Data</u> Research on best practices Data from time and schedule study <u>Relationships</u> CJHSD Community to School Administration to staff <u>Accountability</u> Employer/employee accountability Educator to student Teacher/counselor peer to peer
Strategy #7: Best practice and data analysis/sharing methods are developed and utilized in support of pathway development and delivery.	<u>Preparing</u> Evaluate current practices <u>Envisioning</u> Create cross group leadership team Develop mechanisms for identifying, testing, and sharing best practices <u>Enacting</u> Deploy and evaluate practices Share and communicate results	<u>Data</u> Evaluations and assessments <u>Relationships</u> Staff peer to peer Administrator and staff <u>Accountability</u> Employer/employee accountability School to student School to industry/community