Spring 2024

Aligning College and Career Readiness Expectations: Bridging the Gap between State Education Systems, Colleges, and Businesses

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BIS 437

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May 3, 2024

Abstract

This paper investigates the discrepancy between what states consider college and career readiness and what colleges and businesses expect from high school graduates. It explores the legislative history of education and defines the term "college and career readiness," along with its evaluation methods. The research breaks down the expectations of high school graduates from states, colleges, and businesses, identifies possible reasons for the misalignment, and analyzes its implications for colleges, businesses, and the country. The paper then proposes ways to align expectations better, including integrating career and technical education, improved professional development and study skills, and active learning techniques that can be applied in the classroom.

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Introduction

There needs to be more clarity between state education systems' definitions of college and career readiness and colleges' and businesses' actual expectations. To bridge this gap, it is necessary to determine the states' expectations, how they evaluate readiness, the expectations of colleges and businesses, and the possible reasons for any differences. Once these factors are identified, steps can be taken to improve alignment between these expectations.

In today's fast-paced and ever-changing world, students must acquire the knowledge and skills necessary to succeed in the 21st century. The education system plays a significant role in preparing students for this future, and educators across the United States strive to achieve this goal. To this end, schools have implemented College and Career Readiness standards that set clear educational objectives for students and teachers (Fitzgerald, 2018).

By focusing on these standards, students have a path to work toward achieving specific learning objectives that will enable them to succeed. These objectives include academic proficiency, critical thinking, problem-solving, communication, and collaboration skills (Conley, 2008). Students who possess these skills are better equipped to navigate the complexities of the modern world and succeed in their personal and professional lives (Mattern et al., 2014).

Moreover, college and career readiness standards help educators to design learning experiences that are more relevant and engaging for students. By aligning their teaching practices with these standards, teachers can ensure their students receive the knowledge and skills necessary to thrive. Furthermore, college and career readiness standards provide a framework for measuring student progress and identifying areas of improvement. This ensures that students receive the support they need to succeed academically and professionally (Gordon, 2003).

Misalignment of Expectations

Every year, thousands of high school graduates are still determining what the future holds for them. Many of these young adults do not have the proper skills to land a job that can provide for themselves and, in essence, equate to a suitable career (Detgen et al., 2021). Career and college readiness is a phrase recently tossed around the high school scene. It is defined as a student having the adequate skills, knowledge, and training to succeed in their future endeavors in hopes of fruitful results (Conley, 2012). This is an open-ended definition of college and career readiness and leaves room for assumptions about what is necessary after high school to have a successful career. In recent years, businesses and colleges have reported that young adults coming out of high school and into college or the workforce must gain the appropriate skills to succeed (Conley, 2007). This leaves a disconnect between what the states and schools define as college and career-ready and what businesses and colleges expect from these young adults. The misalignment of these ideals leaves students ill-prepared for their future and does not set them up for success. To bring to light the discrepancies in the definition of college and career readiness in the present education system, it is vital to address the current definition and criteria, the issues

with student preparation, and what colleges and businesses genuinely expect from these up-and-coming young adults (Conley, 2007).

Current college and career readiness definitions overlook important factors identified through conclusive post-secondary research. This is a significant shortcoming that affects the ability of today's high school students to be fully prepared. Students' interests and goals must be considered to determine whether they are ready for college and their careers, as they influence the knowledge and skills required for success. Relying solely on a single test score is not an accurate assessment strategy. Instead, a more specialized and adapted approach is needed to measure these necessary skills (Conley, 2012). According to Conley (2012), success should be the extent to which students succeed in their chosen field of post-secondary education or training rather than simply a standardized test score.

Legislation Regarding Vocational Education and College and Career Readiness

While the Constitution of the United States does not provide for federal support of education, the federal government has considered vocational education in the country's best interest, starting with the Morrill Act of 1862, which set up land-grant colleges to educate people in agriculture and mechanical arts (Foster & Threeton, 2023; Gordon, 2003). A brief history of federal regulations will grant an understanding of steps that the federal government has taken to make sure that everyone in the United States has the opportunity to become trained and acquire skills that not only help them develop a successful career but also help ensure that the United States can compete in the global markets and economy.

The Smith-Hughes Act of 1917 was the first vocational education act, as stated by Gordon in 2003 and Threeton in 2007. This act had several provisions that distinguished vocational education from other parts of the high school curriculum. Establishing a vocational education board was one of the provisions required for each state to receive federal funds. This led to many states having separate vocational education boards apart from the state Board of Education. This separation in governmental structures created the perception that vocational education was distinct from comprehensive education (Gordon, 2003).

The George-Reed Act of 1929, signed by President Calvin Coolidge, and the George-Ellzy Act of 1934, signed by President Franklin D. Roosevelt, allocated additional funds to vocational education in agriculture, home economics, trade, and industrial education. The George-Dean Act of 1936 added marketing and teacher education to the occupations that could access federal funds. The George-Barden Act of 1946 added additional funding for vocational education while limiting federal funds allocated to purchase equipment to 10% of the total money granted. In 1956, the George-Barden Act was amended to add practical nursing and fishery occupations to the list of occupations whose education could be funded using federal funds (Gordon, 2003).

In response to the launch of the Soviet Union's Sputnik I satellite in 1957, the United States passed the National Defense Education Act of 1958. This was the first federal education act that stressed the importance of science, mathematics, foreign languages, and technical competencies. Provisions for improving instruction in science, math, foreign languages, and technical competencies; improving state statistical services, guidance counseling, testing services, and training institutes; funds for higher education, student loans, and fellowships; and

funding to maintain vocational education for technical occupations that are necessary to the national defense were among those included in the National Defense Education Act (Gordon, 2003).

Fear that technological changes would leave heads of households unable to provide for their families led to the Manpower Development Training Act of 1962. This act authorized funds to train the economically disadvantaged who were not being served in regular vocational programs. States identified potential jobs and employee training needs. They then contracted courses and experiences to train people to meet these needs. Priority was given to the under- or unemployed workers (Gordon, 2003).

According to Gordon (2003), 1963 was the most significant for vocational education in the legislature since the 1917 Smith-Hughes Act was passed. The Perkins-Morse Bill, better known as the Vocational Education Act of 1963, was signed into law by President Lyndon B. Johnson. The objectives of the act were varied. The overarching intent of the act was to ensure the availability of vocational training and retraining for everyone in the community, regardless of age, that was suited to their needs, interests, and abilities. The conditions for the allocation of funds included enhancing the current programs, offering part-time jobs to young people who required financial support to complete their studies, and creating programs for individuals in the community who face academic, socioeconomic, or other challenges that hinder them from succeeding in traditional vocational education programs. The funds were distributed to the states using a formula based on population types and age groups (Foster & Threeton, 2023; Gordon, 2003; Threeton, 2007)

The Vocational Education Act was amended in 1968 and 1976. These amendments provided greater access to funding to accommodate economic and social demands (Foster & Threeton, 2023). The Vocational Education Amendments of 1968 replaced all previous federal legislation regarding vocational education except the Smith-Hughes Act. The 1968 amendments broadened the definition of vocational education to align better with general education, emphasizing it as part of postsecondary education. The Vocational Education Amendments of 1976 ensured that states improved their planning by including agencies and utilizing available resources.

The Manpower Development Training Act was replaced by the Comprehensive Employment Training Act (CETA) in 1973. One of the significant changes in the new act was that decision-making was shifted from the federal government to local or state governments. Additionally, the funding patterns underwent substantial changes. Funding now came from prime or CETA sponsors, which provided various training and employment opportunities. CETA was then replaced by the Job Training Partnership Act (JTPA) in 1982. JTPA intended to provide training and programs to prepare unskilled adults and youth to enter the workforce, even those with financial or other barriers to accessing training (Gordon, 2003).

The Carl D. Perkins Act of 1984 had two primary goals—social and economic. The social goal was to provide equal vocational education opportunities to all adults, while the economic goal was to prepare adults for job opportunities and enhance the labor force's skills. This act amended the Vocational Education Act of 1963 and replaced the amendments of 1968 and 1976. The focus of federal funding was shifted from expansion to program improvement, with particular attention given to at-risk populations (Foster & Threeton, 2023; Gordon, 2003).

The 1980s brought a significant push to reform vocational education, focusing mainly on secondary education. In 1983, President Ronald Reagan tasked the National Commission on Excellence in Education to produce a report titled "A Nation at Risk: The Imperative for Educational Reform." According to the report, the United States lost ground in international economic competition because of its poor education system. The report pointed out that the low performance and standards of the American education system were to blame for this decline. This report led to many reforms and restructuring, such as lengthening the school day, increasing credit requirements in subjects like English, mathematics, science, and social studies needed for high school graduation, and raising college entrance requirements.

In 1990, President George Bush signed the Carl D. Perkins Vocational and Applied Technology Education Act, which marked a shift in vocational education. The new name, Vocational and Applied Technology Education, emphasized the importance of skills and education needed to succeed in the technologically advanced, global workforce. Perkins II, as it came to be known, amended and expanded the Carl D. Perkins Act of 1984. It set forth a three-pronged approach that included integrating vocational and academic education, coordinating educational sectors in preparing individuals for the workforce, and enhancing connections between education and the workplace. Perkins II changed how funding was allocated by providing funds directly to local education agencies and requiring states to develop performance and achievement measures for secondary and postsecondary vocational education programs. (Foster & Threeton, 2023; Gordon, 2003).

1998, the Carl D. Perkins Vocational and Technical Education Act, later known as Perkins III, was passed. The main objective of Perkins III was to establish greater accountability

at the state level, focusing on improving academic and technical performance. This act aimed to integrate academics in career and technical education and enhance postsecondary placement outcomes (Foster & Threeton, 2023).

No Child Left Behind Act of 2002 (NCLB) was the reauthorization of the Elementary and Secondary Education Act and was signed by President George W. Bush. It provided federal block grants to states that established annual assessments, demanded progress, showed improvement in poorly performing schools, enacted consequences for failure, and protected home and private schools. It provided initiatives to promote literacy and improved teacher training. It implemented limitations on teachers who were teaching outside of their field of study and offered high-quality textbooks to schools (Bush, 2001)

Threeton (2007) summarizes that the Carl D. Perkins Act of 2006 intended to enhance the focus on responsiveness to the economy while increasing accountability in integrating academic and technical standards. The goal of Perkins IV was to prepare students for employment in a changing workplace while providing them with the fundamentals they needed for further study. This raised the standards for career and technical education educators, requiring them to demonstrate technical expertise in their discipline and mastery of academic subjects aligned with their curriculum.

The Workforce Innovation and Opportunity Act (WIOA) was enacted in 2014 to aid individuals seeking employment. WIOA aims to improve access to education, training, and services to enable job seekers to succeed in the labor market. The objective is to connect employers with employees whose skills align with their needs, making them more competitive in the global economy (Cushing et al., 2019).

Every Student Succeeds Act (ESSA) was signed by President Barack Obama in 2015. It granted states the autonomy to create their own college and career readiness standards that worked best for them. The act requires rigorous academic and skills training programs focused on in-demand jobs, especially science, technology, engineering, and mathematics (STEM). ESSA emphasizes a well-rounded education that ensures students are prepared to enter college without needing remedial courses (Cushing et al., 2019).

The current act in place for Career and Technical Education is the Strengthening Career and Technical Education for the 21st Century Act of 2018, also known as Perkins V. Perkins V aims to promote student access to improved career and technical education programs. The legislation established in Perkins V reauthorized federal funding, provided more authority to state and local governments, and strengthened the connections between the Every Student Succeeds Act and the Workforce Innovation and Opportunity Act (WIOA). (Foster & Threeton, 2023).

Defining College and Career Readiness

A working definition of college and career readiness must be established to understand the discrepancies between what states consider college and career readiness and what colleges and businesses expect. A simple definition of college and career readiness is the skills, knowledge, and abilities a person should possess to succeed in post-secondary education (such as college or vocational training) and their chosen career path (Conley, 2012). The statement's definition needs to be clarified and can be interpreted in different ways. It is essential to consider whether the definition of college readiness is the same as that of career readiness. Additionally,

we must consider the skills, knowledge, and abilities required to prepare a student for college and career and whether they are the same for every student.

It is necessary to acknowledge that the definition of college and career readiness is a constantly moving target. As we have seen in the previous section, laws regarding education are continually evolving, so any definition of college and career readiness must consider the legislature's current standards and assessments to be meaningful.

While there is some overlap between college readiness and career readiness definitions, they are not the same (Camara & Quenemoen, 2012; Conley, 2012). College readiness focuses on academic skills like math, reading, writing, critical thinking, problem-solving, and research. (Marciniak et al., 2020). College readiness refers to the level of preparation a high school graduate has to enroll in a college-level, credit-bearing general education class and succeed without needing remedial courses. To achieve this, students must have a comprehensive understanding of the coursework and be proficient enough to succeed in the next level of the course. They should be able to grasp the presented content knowledge and extract the lessons that the course intends to convey (Conley, 2007).

Achieving career readiness involves more than just possessing academic knowledge. It encompasses a diverse array of skills and attitudes that are essential for success in various workplaces and professions. Career readiness constitutes a fusion of knowledge, skills, and attitudes that empower individuals to attain their career targets and contribute to their organizations. To adequately prepare for a successful career, one must hone skills such as proficient communication, cooperation, flexibility, technological literacy, and professional demeanor (Marciniak et al., 2020; Conley, 2012). Marciniak et al. (2020) define career

preparedness as "the attitudes, knowledge, competencies, and behaviors necessary to deal with expected and unexpected career transitions and changes."

Readiness and preparedness are often used interchangeably in college and career readiness discussions (Camara, 2013), but there is a subtle difference. Readiness generally refers to being fully prepared or equipped to handle a situation or task. On the other hand, preparedness emphasizes the actions taken to achieve readiness, such as planning, training, and acquiring necessary skills or resources (Camara & Quenemoen, 2012). Either preparedness or readiness should help improve the odds for and ensure greater student success (Camara, 2013). Readiness and preparedness are related concepts, but they emphasize slightly different aspects of readiness for a particular situation or goal. Similarly, while college readiness and career readiness share some common elements, they each have their distinct focus.

Traditional definitions of college and career readiness were based on high school grade point average (GPA), where students ranked among their peers, what level classes they took in high school, and what they scored on their SAT or ACT. These cognitive factors can indicate whether a student will succeed in college (Westrick et al., 2015) but do not provide a complete picture. Noncognitive or soft skills, such as attitude, personality, and conscientiousness, can also predict college and career readiness. (Mattern et al., 2014)

Considering cognitive and noncognitive factors is essential when evaluating college and career readiness standards. While cognitive factors, such as intelligence, are often easier to measure, noncognitive factors, such as motivation and anxiety, also play a significant role in a student's success. These noncognitive factors, such as interest, goals, and the need to achieve, are contributing factors when they align with a student's primary study area. Therefore, it is crucial

to recognize them when evaluating a student's readiness for college and career. (Mattern et al., 2014).

Conley (2012) identified four keys that overlap college and career readiness. The first of the key requirements for college-level thinking is the development of cognitive strategies. These strategies include the ability to form hypotheses, problem-solve, identify, collect, organize, and analyze sources of information, and evaluate work products in various formats. Developing these cognitive skills is crucial for success in college. The second key is Key Content Knowledge, the knowledge base gained from core content areas - how well a person understands the structures of the core content and how well they can retain and recall the information. This key area includes technical knowledge, career aspirations, and the effort one will put forth to learn the new content. The third key area is Key Learning Skills and Techniques, which consists of student ownership of their learning and specific learning techniques. Can a student set goals, know how long it will take to reach them, and have the stamina to achieve their goal? The fourth key is Key Transition Knowledge, or the know-how to move forward to either college or a career after high school, what classes need to be taken in high school to be admitted into a college, what certifications need to be earned to start a career, and how to apply for financial aid.

College and career readiness does not and should not look the same for every student (Fleming, 2016). According to Asch (cited by Barnes & Slate, 2013), “college prep has become a one-size-fits-all approach to secondary education, and some students simply do not fit.” “High schools should be designed, and curriculum should be structured to help all students graduate, including students who plan to earn an occupational certificate, attain an associate degree, or complete a four-year bachelor’s degree” (Barnes & Slate, 2013, p. 6). Conley (2012) states that

not every student needs the same proficiency in all areas. A student's interests and postsecondary plans should influence the knowledge and skills required to be considered for postsecondary education or training. A single test score cannot take this into account (Fleming, 2016).

How College and Career Readiness is Evaluated

College and career readiness evaluation is essential for high school students in the United States. Evaluations give students, parents, and educators vital information to help plan for success. Evaluations give students the information they need to make informed career choices and assess their progress in developing career knowledge and skills. Students should be able to use this information to understand what is required for specific careers and what steps they need to take to get there (Klein, 2019).

The prevailing method for measuring college readiness involves analyzing high school course selection patterns, which include the course titles, perceived difficulty level, and the number of credits required for graduation. This data is then combined with the grades achieved by the students in those courses (Conley, 2007).

There are issues with using these standards as indicators of college readiness. "The nature and quality of the courses students take are ultimately what matters, and few real measures of course quality exist currently" (Conley, 2007, p. 7). Also, measuring academic performance using grade point averages has limitations because grading scales differ between school districts and states. High school class ranking is also not perfect because a student's rank is only relative to other students in that school, and curriculums vary between schools. (Westrick et al., 2015)

In addition to evaluating courses and grade point averages, schools also use college entrance exams such as ACT and SAT to assess college readiness. A benchmark score is established, and any student who scores above it is deemed college ready (Conley, 2007). These standardized admissions test scores offer a standard measure to compare student readiness (Westrick et al., 2015).

The No Child Left Behind Act, enacted into law by President Bush in 2002, set accountability guidelines that required states to develop and implement rigorous standardized tests in reading and math. While the focus of the No Child Left Behind Act was grades 3-8, there were five guidelines that high schools had to abide by. States had to set yearly growth goals and objectives, students had to be tested in reading, mathematics, and science at least once during grades 10 – 12, graduation rates had to be included in yearly growth goals, graduation rates had to be calculated on the number of students who received their diploma in the standard number of years, and teachers who taught in core subjects had to be highly qualified (Barnes et al., 2010).

Assessments of high schools due to No Child Left Behind showed that high schools were failing to prepare students for postsecondary education. Some of the areas that high schools were failing to succeed in were no growth in college admission test scores, high dropout rates, large numbers of students who were not prepared for college, and 50% of students who did attend college were enrolled in remedial classes (Barnes et al., 2010).

Under the Every Student Succeeds Act, states were required to include at least one indicator of student success other than test scores. Indicator options include participating in dual enrollment, reaching a specific ACT or Advanced Placement test score, meeting requirements for

acceptance into state colleges, earning an industry-recognized certification, proving military readiness, and participating in a work-based learning program (Klein, 2019).

Advocates and state officials believe that specific measures can help schools be accountable for preparing their students for college or a career making a living wage. Parents generally prioritize postsecondary and work readiness and consider them indicators that their children are ready for the next step in life. While schools are providing data that students are prepared for college and careers, some experts are worried that few states are following up with students after graduation to evaluate whether the indicators being evaluated accurately indicate future success (Klein, 2019).

Most states have chosen to give students options that they can use to prove they are postsecondary-ready. Students often have the choice to provide evidence of either college or career readiness. However, college and career readiness looks different for every state. While there are common elements- courses taken, college entrance exam scores, industry-recognized certifications- each state can choose what definition will work best for its residents. This lack of standardization has led some experts to believe that diversity benefits our country. In contrast, some people are concerned that there will not be enough precise data to determine the effectiveness of college and career readiness accountability measures or the need for future adjustments. (Klein, 2019).

Projects are being developed to assess alternative achievement standards (Camara, 2013). These tests would evaluate the noncognitive skills that Conley advocates, which are part of his four keys to college and career readiness (Conley, 2012).

State and High School Expectations

With the passing of the Every Student Succeeds Act, states were given more flexibility to set their expectations of high school seniors to demonstrate that they were postsecondary ready. Most states allow students to choose between being college-ready and career-ready. Students can use multiple indicators to defend their position of being postsecondary-ready. They can reach their testing benchmark, receive an industry-recognized certification, show they are military-ready, or meet the standards to be accepted into state-run colleges or universities (Conley, 2012).

However, academic proficiency is the area of high school achievement that is most emphasized. This is demonstrated through the testing done in math, reading, writing, science, and social studies (Barnes et al., 2010). The goal of the K-12 education system is to have students graduate with the knowledge and skills to be successful in any postsecondary endeavor they choose (Fleming, 2016).

More states are starting to implement robust career and technical education systems by introducing career clusters and career pathways. Career clusters align classroom learning with industry expectations for career success. Career clusters are commonly used to organize instruction and learning experiences in educational institutions such as community and technical colleges, career academies, work-based learning programs, small learning communities, magnet schools, charter schools, and high schools that are restructuring around career themes. “A career pathway is a model that articulates learning requirements for careers. Career pathways are partnerships among secondary, community college, college/university, and the business/industry communities. These pathways facilitate the learning process for students and lead to an industry-recognized credential, licensure, and/or degree.” (Sibert et al., 2007, p. 38) Students are tested at

the end of the pathway to check knowledge, understanding, and retention of the materials they were exposed to. Passing this end-of-pathway assessment is one way to be considered career ready.

Texas was one of the first states that required their school districts to report to their state board of education, Texas Education Agency (TEA), on six college readiness indicators: 1) Advanced Placement exam scores, 2) dual credit course enrollment, 3) Standardized Assessment Test (SAT), critical reading and math test scores, ACT English and math test scores, or the Texas Assessment of Knowledge and Skills (TAKS) English/Language arts (ELA) and mathematics exit exam, 4) advanced coursework in science, math, and foreign language, 5) scores from state college readiness assessments, and 6) the percentage of college-ready graduates in each high school based on the first four indicators (Barnes et al., 2010). More states are starting to follow similar structures.

College and Business Expectations

Colleges and businesses look for similar skills in recent graduates. They both seek individuals who can think critically, take initiative, possess self-awareness, communicate effectively with their team or classmates, and analyze and solve problems (Savitz-Romer & Rowan-Kenyon, 2020).

"College is the first place we expect young people to be adults, not large children" (Conley, 2007, p. 6). Students must comprehend the expectations set for them in a college course. They should be able to handle the content knowledge presented and learn essential lessons from the course. In college, information is presented much faster than in high school, so

students must be able to adapt to this change. Additionally, professors expect students to actively participate in class discussions, express their ideas, and support their arguments (Conley, 2007).

"Because college is truly different from high school, college readiness is fundamentally different than high school competence" (Conley, 2007, p. 6). A professor of mathematics at Johns Hopkins University has raised concerns about college students lacking a deep understanding of the techniques they learned in high school despite having the grades and test scores to be in college. Additionally, the professor noted that students often lack essential study habits and a solid foundation, making it challenging to complete college assignments (Hansen, 2023).

Colleges expect that their incoming students possess a certain level of college knowledge. This means that they should be able to understand and navigate the complexities of college admissions and selection procedures, apply for scholarships, loans, and other student aid, have the necessary skills to interact with their college professors, and be aware of the differences between secondary and postsecondary cultures (Hooker & Brand, 2010). "In short, the difference in expectations between high school and college are manifold and significant. Students must be prepared to use quite a different array of learning strategies and coping skills to be successful in college than those developed in high school. Current college readiness measures do not necessarily capture these many dimensions of readiness well" (Conley, 2012).

According to the National Association of Colleges and Employers (NACE) report, employers list written communication skills as the fourth most essential skill employees should possess, followed by verbal communication skills ranked sixth (NACE, 2014, as cited by Coffelt et al., 2019). New college graduates require diverse skills, including soft skills, analytical

abilities, digital literacy, customer orientation, critical thinking, problem-solving, communication, continuous learning, and judgment (Bruett, 2006; Ferreira et al., 2022). Companies that want to compete globally need employees with cross-cultural competency, a global mindset, and the ability to work with diverse cultures (Bruett, 2006).

Causes of Misalignment of Expectations

High school is a fundamental stepping stone in a student's academic life and career choices. However, the high school education students receive today potentially underserves them in preparing for college and the workforce. As we examined earlier in this paper, legislation regarding education in this country is constantly changing. Just as the legislature changes, so do college and business expectations. This makes it hard for state educators to hit the moving target, leaving teachers struggling to keep up with expectations and students falling behind (Desimone et al., 2019).

As expectations evolve, teachers need high-quality professional development to learn new procedures and how to achieve newly mandated goals in their classrooms. These professional trainings are critical because many teachers' preservice and college programs may not include current standards and pedagogy. Professional development is imperative for implementing educational policies that require changes to professional practices (Pak et al., 2020).

Numerous challenges are associated with receiving and providing high-quality professional development. Many school districts and individual schools experience high teacher attrition rates. The constant influx of new teachers means that material instruction must be

repeated multiple times a year. This frustrates longtime teachers who receive the same training multiple times and do not get to advance in training and experience the latest ideas. Repeating lessons leads to fragmented delivery since not all teachers receive training in the intended order.

Another challenge that classroom teachers face is knowing what rigorous college instruction looks like. This could stem from not having experienced it themselves or from college instruction evolving since they attended. Teachers also need to be aware of what local industries in the area are looking for in new hires so they can help prepare students for the workforce (Pak et al., 2020).

High school students are expected to graduate, enroll in college, and earn a bachelor's degree. This is touted as the only way for someone to move up culturally and socially. However, more students are graduating high school with a diploma without the knowledge and skills that will allow them to succeed in either college or a career (Barnes & Slate, 2013). “Even though the school promotes the dream of college, it fails to provide a high school experience that prepares students for postsecondary studies” (Bottoms, 2020, p. 25). “For many, a diploma is simply a certification of good attendance” (Fleming, 2016, p. XXVII). This is demonstrated by the fact that while approximately 79% of high school juniors plan to attend college, nearly 40% of these students will not progress past their first year, and less than one-third will finish an associate degree within 150% of the standard time required (Mokher & Jacobson, 2021).

Why are such a significant number of students struggling? According to *College-Readiness and Academic Preparedness: The Same Concepts?* (Barnes et al., 2010), the problem starts with high-stakes standardized testing, strict accountability measures, and harsh punishments enacted with the passing of the No Child Left Behind Act. A one-size-fits-all

mentality was created by measuring college readiness using a centralized curriculum and high-stakes standardized testing that excluded creative and critical thinking (Zhao, 2006, as cited by Barnes et al., 2010). High-stakes testing and punitive accountability harm student learning, widen achievement gaps, and reduce graduation rates. (Barnes & Slate, 2013).

Due to the strict consequences of the No Child Left Behind Act, teachers were forced to prioritize content that would lead to higher scores on state-mandated standardized tests. (Barnes et al., 2010). "Teachers became dispensers of knowledge who filled student vessels with that knowledge to be regurgitated on high-stakes testing" instead of being able to help students understand and internalize the strategies so that they could become confident, autonomous, self-regulatory critical thinkers (Slate et al., 1993, 1998, 1997/98, as cited by Barnes et al., 2010). High-stakes testing emphasizes test-taking skills, leaving students ill-prepared for college. (Barnes & Slate, 2013) When schools prioritize passing standardized tests, their curriculum can become misaligned with college requirements. (Conley, 2007). Noddings pointed out, "Simply stating what students must know and be able to do is not enough to ensure the desired outcome. When standardization is taken to mean universalization, the result may well be lower achievement for many students" (Noddings, 2010, p. 29).

In many states, the requirements to earn a high school diploma have become more rigorous, but this has yet to improve college performance among students significantly. This lack of progress indicates that it will be challenging to enhance college success by merely increasing the number of courses without ensuring a proper understanding of the course material. Even though high school grade point averages have risen, college outcomes have fluctuated and even decreased. According to studies, what was considered a "C" average 30 years ago now

corresponds to a "B" average in today's high schools. The failure rates for certain entry-level college classes are nearly 50%. This high failure rate could have several underlying causes, including inadequate foundational knowledge, poor college-level instruction, insufficient critical thinking skills, and substandard study habits (Conley, 2007).

Recent research suggests that first-year college students struggle because high school students in the United States spend less time studying than their peers in other countries. Moreover, their time studying is often less effective because they have not developed strong study skills and effective time-management strategies (Barnes et al., 2010). Students need to develop new learning strategies and coping skills to succeed in college, which may differ from those they used in high school. Unfortunately, no assessments available can accurately evaluate these college and career readiness indicators. (Conley, 2007).

While the goal of 21st-century education is to prepare students for college and careers, increased curricular requirements and accountability measures emphasize college readiness (Barnes & Slate, 2013). However, more emphasis needs to be placed on the value of career and technical education, industry certification, and licenses (Association for Career and Technical Education [ACTE], n.d.; Bottoms, 2020; Mokher & Jacobson, 2021).

Even though career readiness is part of the standards set forth under the Every Student Succeeds Act, "… only about 1 in 20 public high schools offer serious vocational training because of the incorrect perception of a growing pay gap between the college-educated person and the noncollege-educated person" (Fitzgerald, 2018, p. 5) It is shown, however, that career and technical education provides a way for current students to forge a pathway that leads to higher graduation rates, higher education through both technical schools and colleges, and

meaningful 21st-century jobs that give them the means to provide for themselves and their families (Bottoms, 2020; Fitzgerald, 2018; Threeton, 2007)

For students to be successful in career readiness, they must first have an idea of what career they are trying to be successful in. Personal planning allows students to understand themselves and their environment. They can then explore career options that fit their interests and skills. Without career counseling, students can feel confused and overwhelmed (Astuti et al., 2020). Less than 45% of high school students reported feeling confident about college and career readiness. Of the students surveyed, 55% indicated that they were not sure how to apply for college, 46% did not know what careers matched their interests, and 55% did not know how to pursue the career they were interested in and had not received any guidance from their school (Horrillo et al., 2021; YouthTruth Student Survey, n.d.). 21% of students report never receiving assistance, and 48% reported not receiving assistance until the 11th grade (Bottoms, 2020).

Even with improved college and career readiness rates accompanying career and technical education, there is still a stigma associated with technical schools - they are only for the students who could not make it in the REAL high school. This stigma springs, at least partially, from schools historically tracking low-performing, minority, and low-socioeconomic students through technical pathways. This has played into the stigma that career and technical education is not as good as general education classes and is only for those who cannot afford college. Students are not the only ones affected by these stereotypes. Schools, too, are hesitant to encourage students from these segments to pursue a technical education because of appearances (Bettencourt et al., 2021).

Due to reluctance to track specific demographics into career and technical education, funding for these programs is often reduced. (Bettencourt et al., 2021). Many schools focus their resources on students planning to attend a four-year college (Mokher & Jacobson, 2021), which limits what the technical schools can accomplish. Due to a lack of resources, many career and technical education programs cannot provide students with secondary training and workforce options that align with their chosen pathway (Bettencourt et al., 2021). This causes many programs to fail to properly integrate authentic academic and career preparation (Bettencourt et al., 2021).

Career and technical education encounter challenges similar to those experienced in general education. Teachers require high-quality professional development to meet the latest teaching expectations and methodologies. Without proper training, many teachers find it challenging to shift from procedural-based instruction, which involves guiding students step by step, to a more engaging format. To stimulate critical thinking skills, students must be given complex, multi-day assignments that require careful planning and execution.

Implications of Misalignment of Expectations

The United State’s current education system is experiencing significant shortcomings in producing a skilled and college-educated workforce capable of driving the country's economic growth. According to a report by ACT, education is a significant contributor to the economy's growth rate, supported by a study conducted on gross domestic product (GDP) growth rate in 50 countries over 40 years. The study found that each additional year of education increased the GDP growth rate by approximately 0.37%, emphasizing the importance of education for both individuals and the country as a whole (Hanushek & Woessman, 2008).

The United States' future economic growth and global competitiveness are at risk due to the education system's inability to produce enough skilled and college-educated workers. According to different national and international academic performance assessments, our students are not performing as well as their global counterparts (Bruett, 2006). As a result, there is an urgent need to invest in education and create opportunities for individuals to acquire the necessary skills and knowledge to drive the country's economic prosperity.

In 2018, the United States created 46.8 million new jobs, of which 63% required a college degree or postsecondary credential. However, current statistics show a significant gap in the workforce's educational attainment, with only 41% of adults in the United States having a college degree. This creates a shortfall of approximately 3 million skilled workers who could have contributed to the country's economic growth if the education system had performed as intended (Mattern et al., 2014).

Based on state-level NAEP data from the past three decades, the study aimed to test the fundamental idea that adopting more demanding standards would improve student achievement. The findings suggest that adopting more rigorous standards, the foundation of the latest standards-based reform has yet to improve student achievement during the first seven years (Song et al., 2022).

Even high-achieving students face problems with college readiness. Research suggests that school experience can often diminish academic talent instead of developing it. According to a study by the Fordham Institute, 30 to 50 percent of advanced students who scored in the 90th percentile or above in elementary school lost their edge as they progressed through middle and high school. These high-performing students are not receiving the academic challenge needed

and do not develop the necessary study skills to succeed in college. While experts discuss the global achievement gap, few address the issue of how to raise the ceiling for students who are already above the floor (Hansen, 2023).

Career and technical education has been shown to increase high school graduation and attendance rates while decreasing dropout rates. Students in these programs are more likely to start working right after high school or pursue shorter training options, such as certification, technical schools, or community college, to acquire the skills they need to advance in their chosen careers. If they decide to attend a four-year institution, it will be more specialized in their career choices, resulting in many becoming productive members of society in less time and with less debt (Bettencourt et al., 2021).

Around 40% of the students admitted to colleges need remedial classes, which can increase the time they take to graduate. This inadequate or inappropriate preparation incurs a hidden cost of about $1 billion annually in college-related expenses due to an extended time to complete the degree (Conley, 2007). The cost of each unprepared and disconnected 16-year-old to society is over $1,000,000 throughout their lifetime (Horrillo et al., 2021).

Steps for Better Alignment of Expectations

To meet the evolving expectations in education, teachers require high-quality professional development to learn new classroom expectations and strategies and how to achieve them. These training programs are crucial because many teachers' pre-service and college programs do not include current standards and teaching methods. These professional

developments are essential for implementing educational policies requiring professional practice changes. (Pak et al., 2020).

Schools and districts can improve college readiness by implementing comprehensive professional development programs for teachers, administrators, and counselors. According to Conley (2007), such programs should incorporate the "four facets of college readiness" or key cognitive strategies. Schools must shift their focus from GPA and credit accumulation to preparing students for college by emphasizing learning. This requires schools to use specific techniques and interventions that help students develop academic behaviors - such as self-regulation, awareness, and study skills - necessary to succeed in entry-level, credit-bearing college courses (Barnes et al., 2010).

Effective professional development includes five features. The first feature is content focus. These activities center on the subject matter and how students learn the content. Second, there needs to be active learning activities so teachers can observe or be observed, give and receive feedback, and analyze sample student work. Third, the training must be consistent with the school curriculum and goals while introducing state reforms or new policies. It is crucial to ensure that training stays on topic so teachers feel their time was used effectively. Fourth, Professional development must be ongoing throughout the year with at least 20 hours of content connection. The fifth feature is collective participation. Groups of teachers from the same grade, subject area, or school work together during training to achieve a common goal (Pak et al., 2020).

One way to improve the quality of professional development is to establish teacher networks comprised of teachers who teach the same subject. Such networks enable teachers to

exchange information and ideas and keep their peers who have missed training sessions current. Additionally, professional development opportunities can be offered online, making it convenient for teachers who missed a session to make up for the missed content (Pak et al., 2020).

Increasing high school and college completion rates will not solve the skills gap. Students are graduating from high school and college without the knowledge and skills to be successful, and high school graduates are entering college without the skills needed, which colleges do not have the time to teach (Mattern et al., 2014).

Because many of the fastest-growing jobs require some form of postsecondary education, schools and districts cannot continue to measure college readiness solely on GPA and standardized test scores (Barnes et al., 2010). The current United States education system requires high-stakes testing, controlled by stringent accountability measures, to evaluate college readiness. However, this approach may not necessarily guarantee academic preparedness, and it remains challenging for most high school graduates to achieve college readiness (Barnes et al., 2010). According to Roderick et al. (2009), college readiness goes beyond academic strategies and behavioral skills. It recognizes the importance of social capital in gaining access to and succeeding in college. To achieve this, the educational curriculum should encourage students to take increasing responsibility for their learning as they approach college-level education (Conley, 2007).

Assessments drawn from various educational resources can provide evidence of a student's preparedness for graduation. A structure for assessing college readiness involving a set

of end-of-course exams and a presentation of artifacts can provide more comprehensive information about a student's understanding than a standardized test (Conley, 2007).

Intellectual growth in students should be promoted by providing challenging academic content and systematically developing their cognitive skills during their four years of high school (Conley, 2007). For students to grow and achieve readiness, it is vital to provide feedback that acknowledges their strengths and highlights areas for improvement across a broader range of skills. This feedback should serve diagnostic and developmental purposes and be given to students early and consistently. Waiting until high school to offer feedback is often too late to address most skill gaps, as many students may veer off course earlier in their academic journey. (Bettencourt et al., 2021)

The key to achieving a goal is to know what that goal is. It is recommended that students start planning their college and career readiness path between the 8th and 10th grades (Bhat & Stevens, 2021; Mattern et al., 2014). This helps students choose appropriate courses to enroll in according to their interests. When students are interested in and enjoy the subject matter they are studying, it leads to better attendance, increased participation in class, higher grades, and higher graduation rates. This is because they feel their learning is relevant to their interests and goals. (Astuti et al., 2020; Mattern et al., 2014) Early college and career readiness planning help students successfully transition after graduation (Bhat & Stevens, 2021).

A student must know the available options to set a goal successfully. Not knowing the choices can lead to feelings of uncertainty and being overwhelmed. Trained teachers and counselors can help students explore career and job training opportunities through individualized career counseling. This process allows the students to understand their strengths, weaknesses,

and preferences. Additionally, students can learn the importance of positive work habits to achieve their goals (Astuti et al., 2020). When planning for postsecondary education, it is essential to consider the needs of first-generation college students, as these families may not have prior experience navigating college requirements (Bhat & Stevens, 2021).

Individual planning is crucial to students' success. For it to be effective, these essential components must be considered. First, the student should have the autonomy to make their own choices based on their interests. Second, the student's family should be a strong support system for them. Lastly, school programs and counselors should collaborate to provide valuable advice and suggestions (Astuti et al., 2020).

Individual planning services should comprise three essential components: academic skills, such as study skills and the ability to create a pathway; career opportunities, such as work experience and positive work habits; and social-personal skills, such as developing positive self-concepts and effective social skills (Astuti et al., 2020). Pathways to Your Future is a college and career readiness program developed by 4-H to provide youth with the resources and opportunities to align their ”spark” with potential careers. It includes a family pre-program, a financing and budgeting workshop, and take-home materials. Approximately 4.4 million youth aged 16-24 are involved in the program through school or youth organizations (Horrillo et al., 2021).

School counselors are advised to spend 80% of their time providing direct and indirect student services. These services include conducting assessments and advising sessions to help students select a career path. During this process, counselors evaluate students' abilities, interests, skills, and accomplishments to chart potential career trajectories. However, due to the

national student-to-counselor ratio of 455:1 in 2016-17, these services are often provided in groups. Engaging in career development activities as a group can help students build connections with each other, which can aid in their personal growth and development. Students can communicate their career ambitions and create a story about their professional journey by participating in such activities. This can make it easier for them to transition into their chosen careers. (Bhat & Stevens, 2021). Students should also understand that career development is a lifetime process that will develop with experience and training (Astuti et al., 2020).

Another essential part of college and career readiness is knowing what to do to get into college or the workforce. College knowledge is "an understanding of the complex college admissions and selection processes, the options available to help pay for postsecondary education, the academic requirements for college-level work, and the cultural differences between secondary and postsecondary education" (Hooker & Brand, 2010, p. 77). Academic preparedness is one piece of the college-readiness puzzle, but college-ready is more than college-eligible (Hooker & Brand, 2010)

College knowledge is becoming a more prevalent part of college and career readiness. Many families know that postsecondary education is important but need help accessing it. First-in-family students may face the problem that no one in their family knows how to navigate the college system. Part of college knowledge is giving high school students opportunities to complete college-level work, visit a college campus, and understand how college culture differs from high school (Hooker & Brand, 2010).

Career and Technical Education is an educational approach that provides young individuals with academic, technical, and employability skills. This approach helps students

better prepare for further education and the workforce. Career and technical education replaces traditional vocational education, which focuses on introductory courses and job training, with more rigorous and integrated programs (Brand et al., 2013). These programs have been shown to decrease dropout rates, encourage enrollment in postsecondary education, and enable students to earn dual credits, industry certifications, or technical endorsements alongside their high school diplomas. This enhances graduation rates and postsecondary success (Brand et al., 2013; Mokher & Jacobson, 2021).

Career and technical education aims to challenge the perception of vocational schools as pathways to low-skill jobs without opportunities for further education. By integrating career and technical education-specific measures into accountability systems, states can underscore the value of these skills alongside traditional academic competencies, encouraging continued investment in career and technical education programs. (Brand et al., 2013). At the secondary level, career and technical education is delivered through various models, including career and technical education-themed high schools, schools within schools, or pullout programs where students participate in off-campus part-day programs (Brand et al., 2013).

According to Bettencourt et al. (2021), career and technical education should not be treated as separate from college preparation. Students who choose a career and technical education pathway in high school should still be exposed to college knowledge. Students may not plan to attend a four-year college right after high school. However, they may still aim to attend certification and license programs, technical college, community college, or finish a four-year career-specific degree later.

High-quality career and technical education serves the objectives of college and career readiness by offering engaging learning options that appeal to students. It ensures that coursework meets academic standards and postsecondary expectations while addressing the specific skills required in various career pathways. Through applied, contextual learning, students grasp the relevance of their studies to their future careers and life goals (Brand et al., 2013).

We must offer students challenging and authentic assignments within career and technical education classes to equip them for high-quality employment opportunities and further education (McQuillan et al., 2020). This might require some career and technical education teachers to reconsider their current assignment structures, engaging students in the broader spectrum of knowledge and skills (Bottoms, 2020).

To enrich students' learning experiences, a teacher or instructor can organize field trips and job shadowing opportunities. Additionally, involving actual employers to evaluate student projects and providing practice interview sessions can offer valuable real-world insights and skills that enhance students' preparedness for their future endeavors (Bottoms, 2020). Finding unique ways to interact with collaborators who are too busy or too far away for in-person meetings, such as teleconferencing or online internships, will also enrich students' learning experience and may be necessary if the school is in a rural area (Singmaster, 2023).

Collaborative partnerships among secondary education, higher education, and the business sectors are integral components of numerous college and career readiness policies, as noted by Malin and Hackman (2017). A prime example of such partnerships involves educators from high schools and community colleges working together to synchronize curriculum and establish dual credit or dual enrollment programs. These initiatives aim to facilitate a seamless

transition from high school to college. Notably, dual enrollment policies are gaining traction nationwide, reflecting a growing commitment to bridging the gap between secondary and postsecondary education (Malin et al., 2017)

Post-secondary institutions, including colleges, should actively engage with career and technical education students to bolster support for their post-secondary and career and technical education pathways. It is crucial to broaden perspectives beyond the notion that a four-year college is the sole option for career and technical students. Technical schools and community colleges offer valuable alternatives, providing instruction in numerous industry certifications and post-secondary training programs (Bettencourt et al., 2021).

Fostering robust partnerships with local businesses and industries is essential in career and technical education. These partnerships can offer students valuable hands-on training opportunities, job shadowing experiences, and exposure to various career opportunities. By expanding these collaborative efforts, post-secondary institutions can better equip students for success in their chosen fields and facilitate smoother transitions into the workforce (Bettencourt et al., 2021; McQuillan et al., 2020; Singmaster, 2023).

By granting greater authority to local school districts, the government empowered them to tailor educational offerings to meet the specific needs of their communities, including incorporating local industries into career and technical education programs. This decentralization of power enables districts to develop initiatives that align closely with the demands and opportunities within their local job markets (Desimone et al., 2019).

School districts can establish partnerships with businesses and organizations to enhance career and technical education programs by leveraging their knowledge of local industries and workforce demands. These collaborations can lead to developing relevant curricula, providing resources and equipment, and facilitating student internships, apprenticeships, or job placement opportunities (Desimone et al., 2019; Singmaster, 2023).

Career and technical education operates on four core principles: alignment with labor market needs, collaboration among educational institutions, employers, and industry partners, accountability for improving academic outcomes and building technical skills, and innovation through systemic reforms in state policies and practices (Brand et al., 2013).

States can support successful career and technical education implementation by sharing research on its effectiveness, providing certification options for industry experts as instructors, offering professional development for teachers, engaging workforce stakeholders in setting statewide college and career readiness expectations, aligning content standards with career and technical education clusters, fostering collaborative learning communities, and strengthening relationships between schools, districts, and institutions of higher education (Brand et al., 2013).

The Career Clusters Initiative has been implemented to help students prepare for their desired careers and post-secondary education. The initiative has created a common language used by school counselors, teachers, and administrators, which has also been adopted by workforce development to eliminate confusion as clients move between different systems. Nebraska has created a comprehensive online portal for students to manage their education and careers. Alabama has achieved a lower unemployment rate in all 67 counties, especially in rural areas, with a reduced rate of almost 50%. The state has forged partnerships with businesses and

the government, resulting in record economic development, and is focused on providing students with the necessary skills before graduation. Every career and technical program in the state will earn a Business and Industry Certification, indicating that the same evaluation process used to assess career and technical programs is used to evaluate companies. Such an education ensures a smooth transition to post-secondary, occupational education, and training (Sibert et al., 2007).

Work-based learning allows students to get first-hand experience working in the career that they are studying. Stone (2023) states that authentic work-based learning involves four key elements. The first element is the Partnership Agreement. This agreement outlines the expectations for each partner involved in the work-based learning program, including the employer, participant (student), and school. It clarifies roles, responsibilities, and objectives. The second element is Authentic Work Experience. Students engage in genuine or authentic work experiences supervised and mentored by industry professionals. This hands-on involvement allows students to gain practical insights and skills relevant to their chosen occupation or career. The third element is the Structured Learning Component. The work-based learning program includes a structured learning component that connects theoretical knowledge with practical workplace skills. This component ensures that students understand the relevance of academic concepts to real-world applications and fosters the development of essential employability skills. The fourth element is Assessment and Recognition. The program culminates in a third party's assessment of students' skills, ensuring alignment with industry standards and credentialing requirements. This recognition validates students' achievements and progress along their chosen career pathways.

Work-based learning occurs in authentic workplace settings populated by adults engaged in their careers. It aims to develop three skills: technical skills specific to an occupation, personal effectiveness, foundational workforce competence (employability skills), and applied academic skills. It is a continuum that ranges from less intensive experiences like industry tours to more immersive, authentic experiences. It can positively impact attendance, graduation, and attendance by exposing students to various career options and helping them align their interests and abilities with potential occupations (Stone, 2023).

One significant aspect of work-based learning is occupational socialization, wherein students learn organizational and occupational practices and develop social capital with supervisors, mentors, and other professionals. This aspect cannot be replicated solely within a school environment (Stone, 2023).

However, there are obstacles and limitations to providing authentic work-based learning, including logistical challenges and resource constraints. To improve work-based learning, steps such as implementing a comprehensive K-12 career development approach culminating in authentic Work-based learning experiences, engaging business leaders to advise on these initiatives, and providing support and professional development opportunities for career and technical education teachers involved in coordinating work-based activities can be implemented (Stone, 2023).

Giani (2023) outlines various strategies for enhancing students' earnings and career prospects upon entering the job market. These strategies include career exploration in schools, youth apprenticeship programs, stackable credentials, and selective accountability systems.

Career exploration plays an essential role in middle and high schools. Schools should prioritize identifying students' potential rather than just focusing on their academic achievements. To help students discover their interests and strengths, schools should conduct aptitude tests to uncover potential abilities in areas that students may perceive as weaknesses (Giani, 2023).

Youth apprenticeship programs offer an ambitious approach to provide students with real-world experience that allows them to apply classroom lessons and build a professional network. These programs can be integrated into summer, after-school, or early-release programs, allowing students to earn money while learning and gain a head start on their careers (Giani, 2023).

Students can boost their qualifications by earning stackable credentials to improve their chances of finding employment. By taking additional courses and certifications, students can build on their existing qualifications and gain new skills, ultimately leading to better job opportunities. Educators and parents must support and motivate students to pursue these opportunities, as they can significantly impact their future career prospects (Giani, 2023).

State accountability systems must be more selective when determining which high school Industry-Recognized Credentials should count in their College and Career Readiness indicators. While these credentials have shown weak correlations with short-term employment and earnings, those in Agriculture, Business, and Health Services have been positively associated with college enrollment and persistence. To enhance their credibility and signal to employers that students possess relevant skills, industry-recognized credentials should be aligned with industry standards, and active industry professionals should be involved in their evaluation.

Overall, raising awareness of available industry-recognized credentials within career and technical education pathways, ensuring alignment with industry standards, and providing opportunities for real-world experience through apprenticeships are vital strategies for enhancing students' prospects and wages as they enter the workforce (Giani, 2022).

Study skills are one of the skills that college professors say students are missing. A currently popular site for studying is Quizlet.com. According to their website, Quizlet.com, students use a study method called spacing.

Research demonstrates that students who opt for more frequent and early quizzing tend to earn higher grades, indicating the effectiveness of spaced retrieval practice in supporting student achievement. The concept of spacing in studying refers to the distribution of study sessions over time, with studies showing that greater spacing leads to better long-term retention than massed or closely packed study sessions (Hartwig & Malain, 2022). Despite the benefits, students often underutilize spacing by spreading their study over relatively few days, highlighting a gap in understanding the efficacy of this method. One reason for this underutilization is the lack of awareness among students about the effectiveness of spaced study. Additionally, some students perceive spaced study as more challenging than mass studying, failing to recognize that difficulties can enhance learning. Another barrier to implementing spaced study is the lack of available time, as students may feel overextended with other commitments. However, the research emphasizes the importance of spaced study, suggesting that it is not merely a matter of investing more time but adopting a strategic approach to studying for improved academic outcomes (Hartwig & Malain, 2022).

Indeed, studies indicate better retention and recall occur when study sessions are spaced, allowing the information to be recalled later. One effective method to achieve this is mixing new problems and information with material covered earlier. This interweaving of content reinforces previously learned concepts and enhances the brain's ability to retain and retrieve information over time (Hartwig & Malain, 2022). By integrating new and old material, learners engage in a more varied and cognitively challenging process, strengthening their overall understanding and memory of the subject matter (Rohrer & Pashler, 2007). This approach contrasts with massed practice, where learners focus exclusively on one topic or problem at a time, leading to shallower encoding and limited long-term retention. Therefore, incorporating spaced practice and interweaving techniques into study sessions can significantly improve learning outcomes by promoting more profound understanding and durable memory traces (Hartwig & Malain, 2022).

Active learning is broadly defined as any pedagogical technique that engages students in the overall learning process, unlike traditional lecture, where students are passive recipients of information and knowledge (Ishiyama, 2012). There are three basic categories related to active learning. Collaborative learning occurs and is evaluated as a group or social effort instead of a solitary effort. Cooperative learning uses the same group or social learning effort, but the student is individually assessed. Problem-based learning introduces a problem that must be solved. Problem-based learning may be evaluated as a group or individual assignment. All three classroom-based techniques encourage social learning over individual learning (Ishiyama, 2012).

Cooperative learning is a proven method used for over 40 years to enhance learning. It involves students working in groups to achieve a common goal or outcome. This approach emphasizes that individual contributions and efforts are accountable for the group's success.

Although it requires increased participation from teachers and students, implementing cooperative learning can be challenging and may lead to frustration among upper-level learners. However, despite these obstacles, there are significant gains overall when incorporating cooperative learning into the classroom. Not only does it enhance academic achievement, but it also fosters the development of social skills essential for effective collaboration (Ishiyama, 2012).

Various studies have observed significant achievement gains through cooperative learning, indicating its value as a teaching strategy. However, some barriers to implementing cooperative learning may include limited classroom space and the need to adhere to rigid curriculum requirements. Nonetheless, given its positive impact on learning outcomes, schools should continue incorporating cooperative learning strategies to enhance student learning and foster collaborative skills (Ishiyama, 2012).

Discussion methods play a crucial role in classroom settings, facilitating learning of important school subject matter and the development of reasoned participation skills (Ishiyama, 2012; Michaels et al., 2007). Teachers serve as conversation guides, instructing students not only to articulate their thoughts but also to listen actively and contemplate their responses while respecting the opinions and ideas of others. Effective implementation of Accountable Talk fosters the gradual evolution of new forms and norms of discourse over time (Michaels et al., 2007). As a result, students from diverse backgrounds learn to engage in meaningful dialogue, actively listen to one another, build upon shared ideas, and contribute constructively to complex deliberative practices. Active learning requires students to discuss new concepts. Research has

shown that discussion in the classroom helps students gain a more complete understanding of new concepts by having them pause and reflect on them. Discussion-based learning helps students prepare for independent learning and develop communication skills, while problem-solving helps students develop higher-order thinking; both are necessary as they move out of the classroom and into careers. (Ishiyama, 2012).

Abeysekera and Dawson (2015, p. 3, as cited by Price & Walker, 2019) define the flipped classroom as a set of pedagogical approaches that aim to transform traditional teaching methods. A flipped classroom approach to active learning is one in which the teacher's lectures are delivered via videos outside the classroom so that class time can be used for problem-solving and discussion-based learning. With this method, teachers become guides while the students work together to gain an in-depth understanding of the information. This structure grants students the flexibility and control to study lecture material at their own pace, enhancing their learning experience (Price & Walker, 2019). This frees teachers to give one-on-one instruction to struggling students, thus allowing for differentiation in the classroom (Lo & Hew, 2017; Price & Walker, 2019).

The flipped classroom heavily depends on technology, with students needing to watch videos before class. This can be a concern for students who need access to the internet or computers at home. However, this can be overcome by allowing students time in the classroom to view lessons or by having students download content to their computer or flash drive before leaving school (Lo & Hew, 2017).

With the flipped classroom model relying heavily on video-based instruction, it can be very time-consuming for teachers to create or find videos for their students. Suggestions for

overcoming this are for teachers to slowly implement the flipped classroom concept over time, splitting instruction between in-class and online. Once created, content can be reused from one school year to the next, making a gradual introduction less demanding on the teacher's time (Lo & Hew, 2017).

Another obstacle that needs to be overcome is student understanding. There must be student/teacher communication in the beginning. Students need to be able to express their concerns. Students need to know expectations and procedures to succeed in a flipped class. Teachers must ensure students understand how to learn in a flipped classroom. Even students at the top of the class may need the skills to succeed in this learning environment; therefore, teachers must demonstrate what they expect from the students (Lo & Hew, 2017).

The effectiveness of the flipped classroom approach in improving accessibility may vary depending on the institutional priorities. Although some studies have not found evidence of improved performance or hindrance, students have perceived the approach positively. They have found the subject matter less challenging and more engaging, which has enhanced their accessibility to the materials. Even though this study was conducted at the college level, the findings suggest that the benefits of the flipped classroom approach could apply to high school settings, potentially improving students' engagement and comprehension of the curriculum. (Price & Walker, 2019).

Stories have been used for centuries as a powerful tool for communication. They can convey complex ideas and act as catalysts for thought and action, transcending time and culture. Storytelling is an effective teaching method that can enhance learning outcomes by fostering

analytical thinking, equipping students with communication skills, and enabling them to translate data into actionable recommendations (McDougal et al., 2021).

Active learning methods are being increasingly embraced to create interactive and engaging learning environments, which have been shown to improve learning and retention. Although the evidence collected in this paper focuses on marketing, the effectiveness of storytelling as a teaching method extends across various subjects and disciplines. Students who engage in storytelling activities sharpen essential skills such as communication, critical thinking, and problem-solving, which can improve their career readiness. Persuasion, research, and creative problem-solving are crucial for success in their academic pursuits and future careers (McDougal et al., 2021).

Project-based learning is a curriculum designed to immerse students in real-world problems by capitalizing on their interests. Project-based learning encourages students to engage in authentic and relevant challenges, motivating them to understand the content. The approach gives students autonomy, allowing them to choose how they approach and solve problems, promoting intrinsic motivation and perseverance (Craig & Marshall, 2019).

Project-based learning is particularly effective in STEM education because it emphasizes deep, meaningful learning over surface memorization. While immediate measures of factual knowledge and procedural understanding may not show significant gains, evidence highlights project-based learning's efficacy in promoting deep and applied STEM learning. Students exposed to the project-based learning science curriculum outperform national averages on standardized exams, indicating its effectiveness in practical application. Although project-based learning may not yield significant gains in math, it does not impede the mastery of fundamental

skills and concepts. Project-based learning emerges as a powerful educational approach that engages students and cultivates their critical thinking, problem-solving, and application skills across various disciplines (Craig & Marshall, 2019).

Vygotsky (1962, 1978, as cited by Mercer & Howe, 2012) argued that language acquisition and use significantly impact children's thinking processes. Sociocultural pioneers built on this foundation and proposed a reevaluation of the role of talk in the classroom to enhance student engagement and learning outcomes. They emphasized the transformative potential of high-quality talk among students and teachers, highlighting its ability to foster reasoning skills and improve academic performance, particularly in secondary education settings. Teachers are critical in facilitating student participation and improving educational outcomes through interactional strategies (Mercer & Howe, 2012).

Research suggests that open-ended questions significantly improve learning outcomes compared to closed yes/no questions. Open questions assess knowledge and cultivate more profound understanding and reasoning skills by guiding students' reasoning processes toward correct answers. Furthermore, it has been observed that combining hands-on activities with meaningful discussions yields the most positive effects on learning (Mercer & Howe, 2012).

Reflective questioning is an effective tool for reviewing material, promoting learning, developing understanding, and preparing students for independent learning. However, teachers must ensure comprehension, provide instruction, and correct misconceptions using open-ended questions (Mercer & Howe, 2012).

Group activities that require collaborative problem-solving and discussion contribute to students' learning and development. Engaging in meaningful dialogue enables students to articulate their thoughts, resolve differences of opinion, and take ownership of their learning. Students who interact with peers outside the teacher's immediate control are more likely to engage in open, extended discussions and arguments, empowering them to become active and independent learners (Mercer & Howe, 2012).

Conclusions

There is a mismatch between the expectations of high school graduates set by states and what businesses and colleges expect. The reasons behind this mismatch are many. One of the primary causes is the ever-changing education legislation, which makes it difficult for state educators to keep up with evolving expectations. The focus on high-stakes standardized testing and punitive accountability measures, such as those enacted with the passing of the No Child Left Behind Act, has resulted in a one-size-fits-all approach that fails to encourage creative and critical thinking (Song et al., 2022).

The implications of these misalignments affect students by leaving them underserved and lacking the skills and knowledge they need to be successful postsecondary. Teachers struggle to keep up with the evolving expectations of their state, colleges, and businesses. The economy, too, is affected when there are not enough skilled and trained workers to allow companies to

compete in the global market. Furthermore, high-stakes testing and punitive accountability can harm student learning, thus widening the misalignments by reducing graduation rates.

The lack of high-quality professional development opportunities for teachers, especially in career and technical education, makes it hard for them to keep up with the ever-changing expectations and methodologies. Finally, the lack of funding for these programs limits the resources available to provide students with authentic academic and career preparation.

The definition of college and career readiness varies across states, and it is crucial to consider the necessary skills, knowledge, and abilities required to prepare a student for college and career, as they may differ for each student. For this paper, we defined college and career readiness as the skills, knowledge, and abilities an individual should possess to succeed in post-secondary education, whether college, vocational training, or their chosen career path. This includes academic proficiency, critical thinking, problem-solving, communication, collaboration, and non-cognitive skills such as attitude, personality, and conscientiousness. It takes combining knowledge, skills, and attitudes to enable individuals to achieve their career goals and contribute to their organizations (Conley, 2012).

Assessing whether a student is ready for college and a career involves considering many factors. These factors include the courses they choose to take in high school, the grades they achieve, their scores on college entrance exams, any industry-recognized certifications they may have earned, and other indicators such as military readiness or acceptance into state-run colleges or universities (Barnes et al., 2010).

The primary method for measuring college readiness is by analyzing the student's high school course selection patterns, the perceived difficulty level of those courses, and the number of credits required for graduation, combined with the grades they achieve in those courses (Barnes & Slate, 2013).

In addition to these traditional measures, assessments are now being developed to evaluate noncognitive skills such as attitude, personality, and conscientiousness, which are also important factors for college and career readiness. It is worth noting that college and career readiness assessments vary from one state to another, and there is a lack of standardization. This has raised concerns about accountability measures and the need for future adjustments (Klein, 2019). College and career readiness standards help educators create learning experiences that are more engaging and relevant to students, enabling them to acquire the knowledge and skills they need to succeed academically and professionally (Fleming, 2016).

Improving the alignment of expectations in education involves several steps, including providing high-quality professional development for teachers (Pak et al., 2020). It also consists of individual planning services for students focusing on academic, career, and social-personal skills (Astuti et al., 2020). Another essential step is raising awareness of available industry-recognized credentials within career and technical education pathways (Giani, 2023).

In addition to these steps, bridging the gap between state education systems, colleges, and businesses is crucial. This can be done by determining the states' expectations, evaluating readiness, understanding the expectations of colleges and companies, and identifying reasons for any differences. These steps aim to improve the alignment of expectations in education and better prepare students for college and the workforce (Detgen et al., 2021).

References

Alliance For Excellent Education. (Oct 2012). *The role of language and literacy in college- and career-ready standards: Rethinking policy and practice in support of English language learners* [Policy Brief]. all4ed.org. http://all4ed.org/wp-content/uploads/2013/06/LangAndLiteracyInStandardsELLs.pdf

Association for Career and Technical Education. (n.d.). *Leveraging career development services to expand student engagement in career and technical education* [whitepaper].

Astuti, B., Veronica, N., Purwanta, E., Novita, D., & Risquyian, L. H. (2020). Individual student planning model to develop career readiness in high school. In *Proceedings of the International Conference on Educational Research and Innovation (ICERI 2019)Advances in social science, education and humanities research: Proceedings of the International Conference on Educational Research and Innovation (ICERI 2019)* (1st ed., pp. 61–64). https://doi.org/10.2991/assehr.k.200204.012

Barnes, W., & Slate, J. R. (2013). College-readiness is not one-size-fits-all. *Current Issues in Education*, *16*(1). http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1070

Barnes, W., Slate, J. R., & Rojas-LeBouf, A. (2010). College-readiness and academic preparedness: The same concepts? *Current Issues in Education*, *13*(4). http://cie.asu.edu/

Bettencourt, G. M., George Mwangi, C. A., Green, K. L., & Morales, D. (2021). But, do I need a college degree?: Understanding perceptions of college and career readiness among

students enrolled in a career and technical high school. *Innovative Higher Education*, *47*(3), 453–470. https://doi.org/10.1007/s10755-021-09585-3

Bhat, C., & Stevens, M. M. (2021). College and career readiness group interventions for early high school students. *The Journal for Specialists in Group Work*, *46*(1), 20–31. https://doi.org/10.1080/01933922.2020.1856250

Bottoms, G. (2020). The voice of cte success. *Techniques*, *95*(3), 18–25.

Brand, B., Valent, A., & Browning, A. (2013). *How career and technical education can help students be college and career ready: A primer* [Report - Descriptive]. College and Career Readiness and Success Center.

Bruett, K. (2006). Why American business demands twenty-first century skills: An industry perspective. *New Directions for Youth Development*, *2006*(110), 25–30. https://doi.org/10.1002/yd.163

Bush, G. W. (2001). *No child left behind* [Opinion Papers].

Camara, W. (2013). Defining and measuring college and career readiness: A validation framework. *Educational Measurement: Issues and Practice*, *32*(4), 16–27. https://doi.org/10.1111/emip.12016

Camara, W., & Quenemoen, R. (2012). Defining and measuring college and career readiness and informing the development of performance level descriptors (PLDs). . *Partnership for Assessment of Readiness for College and Careers*.

Coffelt, T. A., Grauman, D., & Smith, F. M. (2019). Employers' perspectives on workplace communication skills: The meaning of communication skills. *Business and Professional Communication Quarterly*, *82*(4), 418–439. https://doi.org/10.1177/2329490619851119

Conley, D. T. (2007). *Redefining college readiness* (NJ1).

Conley, D. T. (2008). Rethinking college readiness. *New Directions for Higher Education*, *2008*(144), 3–13. https://doi.org/10.1002/he.321

Conley, D. T. (2012). A complete definition of college and career readiness. *Educational Policy Improvement Center (NJ1)*.

Craig, T. T., & Marshall, J. (2019). Effect of project-based learning on high school students' state-mandated, standardized math and science exam performance. *Journal of Research in Science Teaching*, *56*(10), 1461–1488. https://doi.org/10.1002/tea.21582

Cushing, E., English, D., Therriault, S., EdD., & Lavinson, R. (March, 2019). Developing a college- and career-ready workforce: An analysis of ESSA, Perkins V, IDEA, and WIOA. *ERIC*. Retrieved June 1, 2023, from https://eric.ed.gov/?id=ED602409

Desimone, L. M., Stornaiuolo, A., Flores, N., Pak, K., Edgerton, A., Nichols, T., Plummer, E. C., & Porter, A. (2019). Successes and challenges of the “new” college- and career-ready standards: Seven implementation trends. *Educational Researcher*, *48*(3), 167–178. Retrieved July 1, 2023, from https://doi.org/10.3102/0013189x19837239

Detgen, A., Fernandez, F., McMahon, A., Johnson, L., & Dailey, C. (2021). Efficacy of a college and career readiness program: Bridge to employment. *The Career Development Quarterly*, *69*(3), 231–247. https://doi.org/10.1002/cdq.12270

Ferreira, C., Robertson, J., & Pitt, L. (2022). Business (un)usual: Critical skills for the next normal. *Thunderbird International Business Review*, *65*(1), 39–47. https://doi.org/10.1002/tie.22276

Fitzgerald, K. A., Ed.D. (2018). *The value of career and technical education in addressing college and career readiness and the ill-prepared workforce*. Independently published.

Fleming, K. J., Ph.D. (2016). *(re)defining the goal: The true path to career readiness in the 21st century* (2nd ed.). CreateSpace Independent Publishing Platform.

Foster, J., & Threeton, M. (2023). Demonstrating the principles of cte. *Techniques - Association for Career and Technical Education*, *98*(2), 46–.

Giani, M. (2022). How attaining industry-recognized credentials in high school shapes education and employment outcomes. *Thomas B. Fordham Institute*.

Giani, M. (2023). Industry-recognized certifications for college- and career-readiness. *Phi Delta Kappan*, *104*(6), 12–17. https://doi.org/10.1177/00317217231161521

Gordon, H. R. (2003). *The history and growth of vocational education in America, second edition* (2nd ed.). Waveland Pr Inc.

Hansen, E. T. (March 15, 2023). Top students, too, aren't always ready for college. *Gale In Context: Opposing Viewpoints,*. Retrieved April 14, 2023, from https://doi.org/link.gale.com/apps/doc/A322900919/GPS?u=kctcshocc&sid=bookmark-GPS&xid=ff0cfb89. Accessed 14 Apr. 2023

Hanushek, E. A., & Woessman, L. (2008). The role of cognitive skills in economic development. *Journal of Economic Literature*, 607–668.

Hartwig, M. K., & Malain, E. D. (2022). Do students space their course study? Those who do earn higher grades. *Learning and Instruction*, *77*. https://doi.org/10.1016/j.learninstruc.2021.101538

Hooker, S., & Brand, B. (2010). College knowledge: A critical component of college and career readiness. *New Directions for Youth Development*, *2010*(127), 75–85. https://doi.org/10.1002/yd.364

Horrillo, S. J., Smith, M. H., Wilkins, T. R., Diaz Carrasco, C. P., Caeton, N. W., McIntyre, D., & Schmitt-McQuitty, L. (2021). A positive youth development approach to college and career readiness. *Journal of Youth Development*, *16*(1), 74–99. https://doi.org/10.5195/jyd.2021.966

Ishiyama, J. (2012). Frequently used active learning techniques and their impact: A critical review of existing journal literature in the United States. *European Political Science*, *12*(1), 116–126. https://doi.org/10.1057/eps.2012.3

Klein, A. (2019). How are states measuring college-and-career readiness? It's a hodge-podge; Still some soft spots in how they apply it. *Education Week*, *38*(19), 15–15. Retrieved April 14, 2023, from https://saalck-murraystate.primo.exlibrisgroup.com/permalink/01SAA_MSU/mlcin9/cdi_gale_infotracacademiconefile_A572416196

Lo, C., & Hew, K. (2017). A critical review of flipped classroom challenges in k-12 education: Possible solutions and recommendations for future research. *Research and Practice in Technology Enhanced Learning*, *12*(1). https://doi.org/10.1186/s41039-016-0044-2

Malin, J. R., Bragg, D. D., & Hackmann, D. G. (2017). College and career readiness and the every student succeeds act. *Educational Administration Quarterly*, *53*(5), 809–838. https://doi.org/10.1177/0013161x17714845

Marciniak, J., Johnston, C. S., Steiner, R. S., & Hirschi, A. (2020). Career preparedness among adolescents: A review of key components and directions for future research. *Journal of Career Development*, *49*(1), 18–40. https://doi.org/10.1177/0894845320943951

Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hansen, M. A., Gambrell, J., Casillas, A., & Bobek, B. (2014). *Broadening the definition of college and career readiness: A holistic approach. act research report series, 2014 (5)* (ED555591). https://eric.ed.gov/?id=ED555591

McDougal, E. R., Syrdal, H. A., Gravois, R., & Kemp, A. F. (2021). The power of story: Using storytelling to increase students' confidence and competence in applying marketing

concepts. *Marketing Education Review*, *31*(2), 119–124. Retrieved July 11, 2003, from 10.1080/10528008.2020.1853573

McQuillan, N., Wightman, C., Moore, C., McMahon-Beattie, U., & Farley, H. (2020). Developing resilient graduates to be future workplace leaders. *Higher Education, Skills and Work-Based Learning*, *11*(1), 214–227. https://doi.org/10.1108/heswbl-11-2019-0162

Mercer, N., & Howe, C. (2012). Explaining the dialogic processes of teaching and learning: The value and potential of sociocultural theory. *Learning, Culture and Social Interaction*, *1*(1), 12–21. https://doi.org/10.1016/j.lcsi.2012.03.001

Michaels, S., O'Connor, C., & Resnick, L. B. (2007). Deliberative discourse idealized and realized: Accountable talk in the classroom and in civic life. *Studies in Philosophy and Education*, *27*(4), 283–297. https://doi.org/10.1007/s11217-007-9071-1

Mokher, C. G., & Jacobson, L. (2021). Beyond academic preparation for college: The role of high schools in shaping postsecondary plans for underprepared students. *Leadership and Policy in Schools*, *21*(4), 938–958. Retrieved July 4, 2023, from https://doi.org/10.1080/15700763.2021.1885719

Noddings, N. (2010). Differentiate, Don't standardize. *Education Week*, *29*(17).

Pak, K., Desimone, L. M., & Parsons, A. (2020). An integrative approach to professional development to support college- and career- readiness standards. *Education Policy Analysis Archives*, *28*(111). https://doi.org/10.14507/epaa.28.4970

Price, C., & Walker, M. (2019). Improving the accessibility of foundation statistics for undergraduate business and management students using a flipped classroom. *Studies in Higher Education*, *46*(2), 245–257. https://doi.org/10.1080/03075079.2019.1628204

Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness for all: The challenge for urban high schools. *The Future of Children*, *19*(1), 185–210. https://www.jstor.org/stable/27795040

Rohrer, D., & Pashler, H. (2007). Increasing retention without increasing study time. *Current Directions in Psychological Science*, *16*(4), 183–186. Retrieved January 18, 2024, from https://doi.org/10.1111/j.1467-8721.2007.00500.x

Savitz-Romer, M., & Rowan-Kenyon, H. T. (2020). Noncognitive skills, college success, and career readiness: What matters and to whom? *About Campus: Enriching the Student Learning Experience*, *25*(1), 4–13. https://doi.org/10.1177/1086482220906161

Sibert, B., Rowe, A., & McSpaddei, P. (2007). The career clusters initiative: Three states outline implementation progress. *Techniques*, *82*(6), 36–40.

Singmaster, H. (2023). Strong partnerships support global skills development. *Techniques*, 36–41.

Song, M., Garet, M. S., Yang, R., & Atchison, D. (2022). Did states' adoption of more rigorous standards lead to improved student achievement? Evidence from a comparative interrupted time series study of standards-based reform. *American Educational Research Journal*, *59*(3), 610–647. https://doi.org/10.3102/00028312211058460

Stone, J. R., III. (2023). What is authentic work-based learning? *Techniques*, 18–23. https://doi.org/acteonline.org

Threeton, M. D. (2007). The Carl D. Perkins career and technical education (cte) act of 2006 and the roles and responsibilities of cte teachers and faculty members. *J Ind Teach Educ*, *44*(1).

Westrick, P. A., Le, H., Robbins, S. B., Radunzel, J. R., & Schmidt, F. L. (2015). College performance and retention: A meta-analysis of the predictive validities of act®scores, high school grades, and ses. *Educational Assessment*, *20*(1), 23–45. https://doi.org/10.1080/10627197.2015.997614

YouthTruth Student Survey. (n.d.). *Learning from student voice: College and career readiness.* http://www.youthtruthsurvey.org/college-and-career-readiness

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