Key Components of Readiness and Preparation for Postsecondary Education (PSE)

A K20 Center Literature Review

Abstract

College preparation can feel like a daunting process for any student, but especially for those who are first-generation college students or have limited financial resources. College and career readiness (CCR) literature offers many possibilities for ensuring students feel supported and prepared to enter college, but determining which skills consistently correlate to CCR and postsecondary enrollment can feel overwhelming. The present literature review synthesizes current research and makes recommendations for focusing on and promoting postsecondary readiness during middle and high school years, particularly for at-risk students. We find highly collaborative, supportive educator and family environments that foster a college-going culture and provide opportunities for students to complete college application elements with support and engage in quality extracurricular activities that can bolster college and scholarship applications.

Keywords: CCR, postsecondary preparation, postsecondary readiness, at-risk students, standards

Key Components of Preparation and Readiness for Postsecondary Education (PSE)

For students, successfully preparing for, applying to, attending, and completing postsecondary education (PSE) in preparation for their chosen career is both an aspirational and practical endeavor given the economic implications of a college education. College graduates on average have a 65% to 86% higher income (Ma & Pender, 2023; U.S. Bureau of Labor Statistics, 2024), are less likely to be unemployed, and will make nearly $400,000 to $1.2 million more across their lifetimes than those with only a high school diploma (Abel & Deitz, 2014; Ma & Pender, 2023). With these economic benefits in mind, promoting CCR and supporting students through a period of exploration and time-sensitive tasks can contribute to increased postsecondary readiness.

More specifically, applying for college is as much an exercise in building understanding, motivation, and self-efficacy because students generally need to complete a series of steps in a time-sensitive sequence. High school seniors, especially those who are first-generation college students, often do not enroll in college because they do not have access to support related to enrollment procedures and financial guidance (Ricks & Warren, 2021). Students certainly benefit from the knowledge of how, when, and why to take specific actions to prepare for college enrollment. This, partnered with the belief that they can succeed and feel a sense of belonging in a postsecondary environment, might be drastically different from their current home and school environments. Though students may clearly see the potential benefits of continuing their education after high school, without the right preparation, short-term challenges can easily get in the way of long-term goals. For example, in schools with high student-to-counselor ratios, it may be difficult for counselors to provide proper, individualized guidance. Moreover, for first generation college students, parents may feel ill-prepared to help their children navigate the application process and collegiate life. Therefore, it becomes imperative for college support programs, like GEAR UP, to understand the steps and practices that will lead students to postsecondary readiness.

Even if students successfully navigate the steps to college enrollment, there is sometimes a misalignment between high school and college standards that requires students to take remedial or developmental coursework as part of their PSE (Jimenez & Sargrad, 2018; Melguizo & Ngo, 2020). This can negatively impact students' motivation as they learn that the high school diploma they thought equated to

college readiness did not meet the mark. Instead, students are faced with the additional time and cost of remedial work as gatekeepers to college-level coursework (Kane et al., 2020).

Conversely, students who are prepared for college but did not receive adequate secondary support may find themselves academically undermatching with universities that are less selective than what they are qualified for (Muskens et al., 2020; Smith et al., 2013). However, Bleemer's (2024) analysis of high-GPA, low-SAT scoring students showed that students benefit from attending more selective universities regardless of assumptions about their ability to match with these institutions. Specifically, students who would have otherwise been accepted at less-selective California universities were ten percent more likely to be placed with a more selective university when accounting for Eligibility in the Local Context. As a result of more selective placement, low-SAT-scoring students earn their bachelor's degree faster and with larger wage gains by their late 20s (Bleemer, 2024). Therefore, results indicate that encouraging students to enroll at their most selective option can improve their likelihood of success and positive financial outcomes. Furthermore, students who undermatch tend to be from urban or rural areas and are often those who do not take Algebra I in eighth grade (Crevar & Kirksey, 2023; Kirksey et al., 2023), highlighting potential disproportionalities for which students are more likely to be academically undermatching with more selective institutions (Smith et al., 2013), as well as environmental constraints on preparing students for postsecondary opportunities (Griffin & Allen, 2006).

Consequently, the present paper reviews literature to date regarding postsecondary readiness in order to develop standards for postsecondary readiness that account for important differences in students' cultural backgrounds and access to academic and financial resources. We review trends concerning postsecondary readiness and preparation for students, schools, and families beginning in middle school and continuing throughout high school to synthesize research about how to prepare and support students to successfully identify, enroll, and persist in a higher education or postsecondary program that will prepare them for their career goals. Finally, we suggest a postsecondary readiness framework by which preparatory actions can be classified for helping middle schools, high schools, and CCR programs design appropriate and effective interventions that will address the wide range of activities that students and their families need to successfully develop postsecondary readiness.

Defining and Operationalizing Postsecondary Readiness

Postsecondary readiness has been defined and measured in a variety of ways, but is generally defined as the degree to which students are prepared to succeed in college, often based on meeting a specific benchmark (Duncheon & Relles, 2019; Klasik & Strayhorn, 2018). Still, other definitions define postsecondary readiness as the degree to which students feel confident in their ability to complete their degree as opposed to meeting a particular benchmark or outcome. Together, these conceptualizations suggest that both meeting certain benchmarks for readiness as well as perceiving one's readiness are important components of postsecondary readiness. Additionally, postsecondary readiness is built upon the notion that students need to be prepared for life following high school beyond being academically eligible to enroll in postsecondary institutions (Conley, 2017). Based on the debate of whether the term CCR isolates the two terms into distinct and different parts (Koppich et al., 2017), we chose to refer to CCR in the present review as postsecondary education (PSE) readiness to ensure that the focus of this review is on entry into education beyond high school followed by entry into the workforce.

Many CCR programs have traditionally focused on academic skills as benchmarks for PSE readiness. However, there are many other skills, mindsets, behaviors, and areas of knowledge that researchers have identified as important for preparing students for postsecondary education and, ultimately, success in their chosen careers (Carey, 2019; Duncheon & Relles, 2019; Martinez & Everman, 2017). These are actions on the part of students, families, and educators. Students need to be able to not only envision themselves in college but link that vision with their long-term goals, dreams, and daily life (Carey, 2024). To see themselves as successful, college material and capable of improving their lives, students must know what opportunities

exist, how to navigate them, and that they belong anywhere they want to be. Additionally, it is imperative that schools are clear in how they bridge secondary coursework to postsecondary expectations and readiness. Otherwise, students may feel more prepared than they actually are and face identity threats regarding their belongingness and fitness for postsecondary institutions, which contribute to difficulties adapting their identity to align with the postsecondary world (Duncheon & Relles, 2019). Teachers need to find a balance between setting high standards and understanding students' socio-emotional needs (Martinez et al., 2022). Schools can holistically prepare students by creating a college-going culture, helping them become aware of barriers and how to overcome them, supporting families, promoting timely actions toward readiness, and developing skills and attitudes along with general knowledge.

For the purposes of the present synthesis and proposed framework, we utilize the definition of postsecondary readiness articulated by Hooker and Brand (2010). Accordingly, postsecondary readiness is defined as:

> *being prepared to successfully complete credit-bearing college coursework or industry certification or enter the workforce without remediation, having the academic and non-cognitive skills and personal resources necessary to persist and progress in postsecondary education or the workforce, and having identified career goals and the necessary steps to achieve them. Readiness also requires the developmental maturity to thrive in the increasingly independent worlds of postsecondary education and careers, the cultural knowledge to understand the expectations of the college environment and labor market, and the employer-desired skills to succeed in an innovation-based economy. (p. 76)*

Important to this definition are the overarching focus on wide-ranging postsecondary opportunities, the emphasis on including non-academic skills and resources, students' developmental maturity, and the cultural knowledge and environmental adaptations students ready for postsecondary education display. Thus, the comprehensive nature encompasses many facets of conceptualizing postsecondary readiness that impact how this construct is measured and operationalized, allowing for the development of a more robust and multidimensional framework of standards and guidelines concerning PSE readiness.

College-Going Culture

An important aspect of developing PSE readiness, college-going culture is generally measured at the school level (Martinez & Everman, 2017) and impacts how students form pre-postsecondary identities that influence students' identity adaptation to postsecondary institutions (Duncheon & Relles, 2019). Defined by Knight and Duncheon (2020), college-going culture refers to a school-level cultural environment that prepares students to aspire to and succeed in postsecondary education. Consequently, the two most frequently used categories into which researchers have categorized college-going culture interventions are academic preparation and college knowledge (Knight & Duncheon, 2020). College knowledge involves the development of college aspirations and familiarity with the non-academic aspects of PSE, such as cultural norms and procedures for admission (Hooker & Brand, 2010; Knight & Duncheon, 2020), whereas academic preparation interventions focus on improving students' academic performance on test scores, coursework, and relevant postsecondary readiness metrics of student achievement (Knight & Duncheon, 2020; Wearne, 2018). Although these foci generally encompass important school-level factors for fostering college-going attitudes in students, results of assessing college-going culture as impacted by the larger school climate suggest the importance of evaluating school climate specific to school safety and extracurricular programming for influencing the likelihood that students will enroll in and graduate from PSE (Knight & Duncheon, 2020). Therefore, college-going cultures focus primarily on interventions associated with academic preparation and fostering aspirations for PSE with evidence that conceptualizations should further integrate assessing the larger school climate for the effectiveness of college-going culture interventions and programming.

Schools have facilitated a college-going culture by encouraging and providing access to rigorous coursework, holding high expectations for students with individualized support, and fostering social supports that develop social and emotional learning (SEL) (Knight & Duncheon, 2020; McKillip et al., 2013). Specifically,

schools may prepare students by offering and encouraging students to enroll in AP or dual enrollment courses, which are designed to hold students to high expectations (Darling-Hammond et al., 2014). Additionally, academic-focused services and events such as college campus visits, educational field trips, and providing resources about postsecondary institutions to students have been found to have a positive, significant impact on students' expectations for college-going and for building a college-going culture through GEAR UP programs (Kim et al., 2024). While academic preparation has been strongly associated with predicting students' postsecondary readiness (Knight & Duncheon, 2020), focusing on both academics and social supports is particularly beneficial when developing a college-going culture for schools where going to college, and other postsecondary institutions, is not the norm (McKillip et al., 2013; Kim et al., 2024).

Furthermore, college-going cultures are more likely to be successful when they are culturally relevant (McKillip et al., 2013). Knight and Marciano (2013) define a culturally relevant, schoolwide, college-going culture as one that acknowledges and integrates students' cultural backgrounds across learning, especially during what the authors (2013) refer to as college-going processes. College-going processes include elements of both promoting college knowledge and the academic preparation discussed previously as facets of college-going cultures (Knight-Manuel et al., 2019). Emphasizing a culturally-relevant college-going culture can be particularly valuable for promoting postsecondary readiness in Latino and Black students (Knight-Manuel et al., 2019). In practice, teachers and counselors can honor cultural needs while promoting goal setting and college preparatory practices (Martinez et al., 2022; Paolini, 2019), but all members of a school community share in the work of building a schoolwide, culturally relevant, college-going culture (Knight-Manuel et al., 2019).

Administrators help establish a college-going culture by focusing on these priorities and fostering a shared vision among educators and staff. Educators are the single greatest determining factor in student success (Nguyen et al., 2020) whether they promote PSE readiness or serve as deterrents (Martinez et al., 2022). Specifically, educators set the tone through student-centered instruction, during which they can normalize PSE by providing rigorous yet supportive coursework and information about postsecondary options. In doing so, educators are able to celebrate their students' strengths and successes. Educators alone do not shoulder the burden of students obtaining a postsecondary education (Knight & Duncheon, 2020). Communities should work together with a goal of postsecondary readiness (Ozuna et al., 2016). The school is collectively responsible for creating a positive, safe school climate and a postsecondary readiness culture (Knight and Duncheon, 2020). Counselors also strengthen postsecondary readiness by providing academic, social, emotional, and vocational support for all students (Paolini, 2019). That is why it is important for the school to have a strong shared vision (Knight-Manuel et al., 2019). Students benefit from strong ties to dedicated educators who believe in them and are committed to helping them through the college preparation process (Koppich et al., 2017). Schools that lack staff with dedication and consistency, such as those with high teacher turnover, can struggle to maintain a strong college-going culture (Martinez et al., 2022). Schools that support teachers and work to limit turnover allow teachers the time and opportunities to develop positive, long-lasting relationships with students in their buildings.

A Categorization Framework for Postsecondary Readiness Topics

It is important to recognize that while a lot of the focus is on academic or cultural components of PSE readiness, there are elements that do not easily fall into these two categories, such as nonacademic skills (Monahan et al., 2020, Ozuna et al., 2016), which suggests the need for a more expansive framework of PSE readiness activities. Academic skills alone are not enough to promote postsecondary readiness (Lindstrom et al., 2020). Social skills, communication skills, character traits, and personality traits, in addition to attitudes, make an impact on students interacting with other people (Lindstrom et al., 2020). Conley (2017) points out that readiness models should be focused on elements that are actionable and proposes a four-part readiness model that involves content knowledge, cognitive strategies, learning skills and techniques, and transition knowledge and skills. His model places emphasis on knowledge, skills, attitudes, and behaviors that all or most

students can build upon or develop to enhance their potential for postsecondary success with the idea that growth in these areas can help to counteract factors such as low socioeconomic status, which has been shown to negatively affect postsecondary outcomes but over which students themselves have little or no control.

Additionally, assumptions guiding the U.S. Department of Education's (USDE) Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) promote PSE readiness (Kim et al., 2024). GEAR UP programs, which are grounded in educational partnerships, offer an ongoing curriculum for cohort students ranging from 7th to 12th grade that includes learning about college and investing financially in students and schools to facilitate PSE readiness, enrollment, and success (Lunceford et al., 2017). This focus on readiness is meant to address inequities in K–12 education. As such, GEAR UP programs stress a community-engaged approach to building a college-going culture for schools and districts that persists long after the grant funding expires. Therefore, guiding elements of GEAR UP programs should be considered when building a robust framework concerning PSE readiness.

Support for students' postsecondary readiness should extend beyond high school and into their transitions to postsecondary institutions. For example, when schools offer dual enrollment to students, partnering with local higher education institutions is crucial so that counselors have support in managing recruitment and retention of students in dual enrollment courses (Witkowsky & Clayton, 2020). Colleges can also offer support to dual enrollment students through programs such as mentoring or tutoring by current college students (Witkowsky & Clayton, 2020). Increasing student engagement can specifically impact the transition to PSE and improve educational persistence through postsecondary education (Kuh et al., 2008). This more comprehensive outlook requires examining a variety of PSE readiness components and barriers to PSE success.

Knowledge, Skills, and Attitudes

While there are some components of preparing for postsecondary education that students must simply check off their list, most require at least some element of learning. Drawing from learning theory, the framework of knowledge, skills, and attitudes can be applied to help categorize the different things that students need to learn as they prepare for postsecondary education. Schools can help students develop productive habits that can sustain them through college, including note-taking and keeping a calendar to independently track their work (Martinez et al., 2022). Students have reported feeling unprepared to self-regulate their learning in college and manage the heavier workload that comes with reading and assignments (Koppich et al., 2017). Conley (2017) describes readiness programs as involving students' performance in various subjects, attitudes toward learning, thinking skills and strategies, mindset and motivation, and ability to carry out the transition from high school to a new learning environment. Employing a knowledge, skills, and attitudes framework can help schools and other organizations design PSE preparedness programs that break down these components into right-sized learning goals that address knowledge, skills, and attitudes to help students transition effectively from high school to postsecondary education. Communities of researchers, educators, and parents can also encourage students to use the data around them to identify personal needs. Being able to use the data around them helps students transition from secondary to postsecondary education. This is particularly helpful when students have access to the data shared between schools and communities (Fox & Balfanz, 2020). School counselors are encouraged to implement interpersonal and relational skills into the curriculum (Paolini, 2021). Interpersonal skills such as cooperation, the ability to be assertive, responsibility, and empathy are essential for success in the classroom (Nagaoka et al., 2013). Classmates often help students build social skills and a sense of classroom culture (Roksa et al., 2020). This open communication allows students to ask for help when needed (Nelson, 2016). This has a direct impact on student success as poor social or relational skills are often associated with negative outcomes. Developed relational skills help students with problem solving, setting realistic goals, and strengthening their self-efficacy so they are more prepared for a postsecondary experience (Paolini, 2021).

Timing and Sequencing

For students' greatest benefit, CCR conversations, activities, and general preparedness need to begin in middle school or earlier, well before students are starting to think about applying to postsecondary programs (Radcliffe & Bos, 2011). Some CCR components are more prescriptive and are best completed prior to a student reaching a particular grade level or milestone. These can include everything from course enrollment and college acceptance to standardized testing and applying for scholarships. Other CCR components are more open-ended and might continue over time, such as self-management. A research study of high school and college students showed that students who can successfully self-regulate their learning through emotions, focus, and plan out how and where to study, are more successful at applying learning strategies that affect achievement (Ben-Eliyahu & Linnenbrink-Garcia, 2015). Schools are expected to teach self-management skills to students of all ability levels to increase students' independence for postsecondary pathways (Novak et al., 2024).

Study skills are another area in which teachers can provide students with postsecondary preparedness (Lindstrom et al., 2020). Study skills correlate to topics of time management, note taking, preparing for and taking tests, and working in small groups (Martinez et al., 2013). Students should be able to apply study skills to coursework and high school graduation requirements (Lindstrom et al., 2020). These important skills, along with organizational skills, help create well-rounded students (Lindstrom et al., 2020). These skills then transfer to postsecondary and career success (Lindstrom et al., 2020).

Time management is an essential component of self-regulated learning (Wolters & Brady, 2021). Time management in online classes includes how many hours a student regularly devotes to the online class and how the student stays on task and avoids distractions while studying. Time management involves active effort from the student indicating how they plan to utilize the course schedule for due dates, complete course activities and assignments on time, and meet multiple deadlines for course activities (Martin et al., 2020).

However, gratification is often delayed in postsecondary education (Bembenutty, 2022). Delayed gratification requires an individual to choose between two competing alternatives that are available to them, and subjectively determine which choice is more valuable (Bembenutty, 2022). This cost-benefit analysis ends in a subjective choice that is determined by individuals' values, interests, personality, and how they perceive immediate and distant rewards.

Students' reactions and reflections about lessons can also be helpful in developing skills such as critical thinking, awareness of personal biases, and the ability to plan for future steps (Yaacob et al., 2021). As students engage in reflections, they are able to collaboratively share knowledge and increase self-development (Yaacob et al., 2021). This reflection can be helpful in online learning, especially as students develop technical competencies such as asking questions or asking for assistance (Martin et al., 2020).

Other aspects of postsecondary preparation, including extracurricular activity preparation, volunteerism, essay writing, and acquiring letters of recommendation, are somewhat open-ended tasks that can happen at several possible times during a student's middle or high school career. Program designs need to take into account that some of the preparation tasks that students will undertake require a substantial or long-term effort, and some might involve prerequisite knowledge, planning, or preparation (Klasik, 2012). Creating a timeline based on PSE requirements can help ensure that students do not fall behind academically, which could result in remedial work or undermatching.

Academic Skills

Academic preparation is strongly associated with students' postsecondary success and often focuses on test scores, rigorous coursework, and setting high achievement expectations for students (Knight & Duncheon, 2020). It is imperative that schools are clear in how they bridge secondary coursework to postsecondary experiences. Otherwise, students may feel more prepared than they actually are and face negative outcomes as a result (Duncheon & Relles, 2019). Equitably offering honors, AP, and dual credit courses and informing

both students and families of the benefits of these courses early in the educational process is key to ensuring all students have the educational background necessary to enter PSE. Offering these options helps students earn college credit in high school where they have support of counselors and teachers. In addition to earning college credit, these courses expose students to college-level rigor and contribute to positive self-efficacy that increases students' likelihood of success in college coursework (Giani et al., 2023).There is a difference between having the qualifications to apply for college and having the readiness skills to be successful in college life (Koppich et al., 2017). Both are necessary for postsecondary success. High schools must have a dual purpose of ensuring students meet graduation requirements while engaging students in coursework that is more aligned with postsecondary success (Hooker & Brand, 2010).

Students tend to benefit from a wide variety of quality learning experiences that cause them to learn more about themselves as people and about their personal interests and aspirations. Often, these learning experiences go beyond traditional reading, writing, speaking, and listening (Gibbs Grey, 2022). By allowing students to creatively explore their interests, students can interact with learning in more meaningful ways. For example, Marciano et al. (2020) noted that creating career-oriented "album art" or poems composed of words that come to mind when students think about PSE were helpful experiences for students. By supporting college readiness and acknowledging moments of possibility in their work with students via culturally relevant teaching practices and sociocultural learning activities, teachers and schools can help students negotiate the barriers to college readiness and form college-going identities (Marciano et al., 2020).

At the same time, changes to high school graduation requirements can confuse students regarding the coursework necessary to prepare them for postsecondary opportunities. For example, changes to mathematics curriculum due to the widespread adoption of Common Core Standards has led to changes in mathematics course graduation requirements, with only 11 of the Common Core Standards currently aligned to existing coursework (Plunk et al., 2014). Changes to graduation requirements for high school students are occurring in many states, such as the new high school diploma referred to as "Diploma Plus" being developed and offered to students in Indiana, which requires more evidence and coursework promoting college readiness (Appleton, 2024). In Oklahoma, it was announced in May 2024 that high school students will now need to take an additional mathematics course in lieu of a required fine arts and foreign language for graduation as a means of promoting career readiness (Raache, 2024). The Oklahoma update goes into effect beginning in the 2025–2026 school year regardless of which grade students are in, requiring educators and counselors to advise both current and incoming students regarding this change during 2024–2025 school year. These changing requirements could derail or create confusion for what students need to do to stay on track for graduation.

Moreover, findings concerning changes to increased graduation requirements have produced mixed results. Allensworth et al. (2009) found that Chicago Public Schools' increased requirement of Algebra I for 9th grade students decreased the discrepancies between 9th grade coursework by race and ethnicity, and increased the overall math credits earned by 9th graders. In fact, coursework in Algebra II, Algebra III, and Pre-Calculus or Calculus has been indicative of students' PSE readiness (Green et al., 2021; Welch et al., 2017), making any changes to these requirements or expectations for high school graduation impactful to students' PSE readiness and success. On the other hand, analyses of increased math and science graduation requirements through the 1980s and 1990s found that increased graduation requirements increased the probability that students would drop out of school, yet analyses of college-level outcomes varied by student subpopulation with mixed results (Plunk et al., 2014). Moreover, it has been argued that state-level increases to graduation requirements create issues of equity because changes "could disadvantage some students in the short term, especially those from resource-poor districts that may struggle to implement large-scale curricular changes" (Plunk et al., 2014, p. 231). Such disadvantages could include how well students are being prepared for their postsecondary institutions of choice based on how their coursework requirements are adjusted to meet high school graduation guidelines.

Aligning High School and Postsecondary Curricula. One potential barrier to students' achievement of postsecondary goals is finding that their high school coursework did not sufficiently prepare them for college-level coursework. Establishing dialogue between high school teachers and postsecondary faculty can be one way to address this issue (Bosworth et al., 2014). If high school teachers are aware of what might be expected of their students in future courses, they could consider modifications to their course content or structure that might offer better preparation. Likewise, counselors can encourage students to enroll in coursework that aligns with college admission requirements and sufficiently prepares them for college-level coursework (Paolini, 2019). A school- or district-wide discussion might also be necessary in instances where it is found that there are significant gaps in the curricula that should be addressed.

Students develop sensemaking of postsecondary readiness from schools, home, and community; students do not always understand how postsecondary institutions use GPA, courses, and admissions tests and often seek help to understand how to prepare for postsecondary options (Duncheon, 2021). Schools can prepare secondary students for college by disseminating knowledge about skills needed for college coursework, which can be facilitated by offering high school to college transition programs to give students the opportunity to complete college-level coursework before high school graduation (Carnevale & Smith, 2016). For example, Texas has seen rapid increases in community college baccalaureate programs across the state (Crevar & Kirksey, 2023). These programs have shown evidence of increasing the likelihood of students enrolling in community college, attaining a bachelor's degree, and earning a degree in an occupation receiving immense growth, especially for students from rural and urban school districts, disabled students, and male students (Crevar & Kirksey, 2023; Kirksey et al., 2023). Thus, the importance of educators understanding how knowledge builds from middle school to postsecondary education is crucial for building college-going cultures that are culturally relevant and responsive to postsecondary admissions (Hooker & Brand, 2010; Knight-Manuel et al., 2019). Educators' understanding of how knowledge builds from middle school to postsecondary pathways expands their ability to facilitate postsecondary readiness activities beginning in middle school that promote an academic mindset focused on postsecondary opportunities in developmentally appropriate ways (Johnson et al., 2023; Savitz-Romer & Bouffard, 2012). In so doing, all educators and staff must share accountability for fostering a college-going culture, communicating vertically and laterally to ensure that all faculty are incorporating culturally relevant college talk (Knight-Manuel et al., 2019).

Building an Academic Mindset. Carey (2019) advocates for advancing policies to address common dilemmas that students, particularly those who are marginalized, face as they pursue postsecondary goals. Programs must address not only students' actual academic barriers but also their perceived barriers such as believing they are not cut out for school or postsecondary education. Students must believe that they are prepared and belong in these environments in addition to being prepared academically (Carey, 2018, 2019). These findings suggest the need for postsecondary preparation programs to address students' mindset in addition to their knowledge and behaviors. Developing a growth mindset can help students continue to seek success in the face of barriers or academic challenges (Silver, 2012), although growth mindset interventions should be implemented with caution based on a recent meta-analysis of such interventions that reported nonsignificant effects of a growth mindset on students' academic achievement (Macnamara & Burgoyne, 2023). Still, students should prioritize optimism, which aids them in persevering and rising above adversity despite their personal challenges or circumstances (Paolini, 2015). Optimism, in this way, builds students' resilience to make it through difficulties and challenges as they prepare for postsecondary pathways (Paolini, 2015). Conley and French (2014) refer to students' ownership of learning, which involves elements of motivation and engagement, goal orientation, self-efficacy, metacognition, and persistence as important factors for students' success. When students are supported and encouraged to develop an academic identity and mindset, they begin to see themselves as capable of continuing their education past high school (Athanases et al., 2016; Duncheon & Relles, 2019). These actions foster students' beliefs about their own capabilities, which can change how they approach problem solving and combat self-doubt concerning their

capacity to be successful in postsecondary education (Boaler, 2019). Parents also help guide their students toward independence and maturity. When parents encourage their students to solve problems on their own, or explore their own interests, they can help increase self-esteem and independence, though this may vary based on culture (Benito-Gomez et al., 2020). Parent involvement can also lead to an increase in school performance and positive well-being (Benito-Gomez et al., 2020).

When developing an academic mindset, students should investigate and reflect on their epistemic beliefs (Dandotkar et al., 2022), or their beliefs and expectations about knowledge and knowing. Building upon research on non-cognitive factors that influence student learning similar to growth and fixed mindsets, understanding students' epistemic beliefs has been associated with greater overall GPA and mathematics achievement among other student learning outcomes (Dandotkar et al., 2022). Epistemic beliefs are composed of five major categories of beliefs about knowledge: speed, structure, construction, success, and objectivity (Schommer, 1990). Although all are important categories, understanding one's own knowledge structure, or "the organization of domain concepts stored in long-term memory" (Kim et al., 2019, p. 107), enhances students' metacognitive capacities for learning and can reduce misunderstandings within an existing knowledge structure (Kim et al., 2019). Specifically, students' reflections on their knowledge structure as it compares with an expert's knowledge structure on a reading assignment has been shown to increase students' writing performance related to the reading (Kim et al., 2019). In other words, students' reflections on their knowledge structures through the learning process increase engagement with content and metacognitive strategies that engage students in the development of their own learning. Such metacognition and explorations of structures of knowledge further develop students' ownership of their learning (Conley & French, 2014).

Additionally, it's beneficial for students to ask questions and be curious through their learning for building student ownership of learning. Inquiry-based learning is one avenue of student-centered learning that gives students ownership over their learning by giving them control over the learning process, encouraging them to collaborate and work with peers, providing space to reflect on their learning, and allowing them to challenge ideas and ask questions to develop their knowledge (Khasawneh et al., 2023). Engaging students in inquiry throughout the learning process aids in their ability to think critically and solve complex problems, allowing them to think for themselves and make sense of their learning and surroundings. Students should develop an orientation for and engage in inquiry regularly for greater learning outcomes and PSE preparation (Khasawneh et al., 2023), and educators should encourage students to be active participants in their learning. In fact, research has shown that students' academic achievement in college algebra is significantly higher when content was learned through inquiry as compared to traditional lecture-based learning (Khasawneh et al., 2023).

Curiosity, a component of inquiry, should also be encouraged in students, along with imagination for promoting scientific ways of thinking. Specifically, scientific thinking has been operationally defined as "mental activities used by communities of people to identify key questions about natural and social phenomena, gather and analyze evidence pertaining to those questions, and construct explanations to support deeper understanding and effective problem solving" (Lombardi et al., 2024, p. 72). Scientific thinking is responsible for the innovation the world has seen today (Lombardi et al., 2024) with artificial intelligence, machine learning, and much more. Encouraging curiosity, then, contributes to growing students' scientific ways of thinking, creating enhanced analytical and problem-solving capacities, which are important skills for many postsecondary pathways.

Additionally, levels of students' curiosity have been shown to be predictive of help-seeking behaviors, performance outcomes, and self-regulated learning (Shin, 2024). Moreover, maintaining a degree of curiosity can protect students from negative outcomes when their self-efficacy is low by facilitating their interest and achievement in the content or lesson (Shin, 2024). A recent meta-analysis of experimental research on imagination in education reported positive learning outcomes when compared to traditional studying or

learning, including significant, positive associations with information transfer and retention from imaginative education experiences (Mguidish et al., 2024), emphasizing the value of imagination and curiosity for positive learning experiences and outcomes as well as increased self-regulated learning.

High school students are encouraged to engage in self-regulated learning (SRL) to understand postsecondary students' academic performance, learning, and achievement (Wolters & Brady, 2021). SRL involves students taking an active and purposeful role in their learning, studying, or academic engagement. Before entering postsecondary education, students are encouraged to develop a variety of skills such as reflection via questioning, relating, reasoning, and imagining solutions to personal and classroom problems. However, this is difficult as many students (at least 45%) struggle with the fundamental aspect of reflection and what it means (Bellaouane et al., 2024). The ability to reflect can help improve academic performance, build confidence, overcome challenges, take responsibility for studies, successfully manage employment, and make career choices (Bellaouane et al., 2024).

Middle and High School Course Selection. Students preparing for postsecondary education must plan well in advance to ensure that they are taking a set of courses that will prepare them to reach their goals. Rigorous eighth grade course selection has been associated with better outcomes in high school and increased likelihood of matriculation into postsecondary education (Guevara-Cruz, 2018; Crevar & Kirksey, 2023). School counselors may be best positioned to help students make appropriate course selections (Paolini, 2019). School faculty and leadership should also regularly evaluate the courses and curricula offered to ensure that they are meeting students' needs (Darling-Hammond et al., 2014). It is important that students understand how course selection connects with their postsecondary goals (Carey, 2024). Otherwise, students may graduate high school not knowing that they missed opportunities to be better prepared to reach their goals.

Bosworth et al. (2014) suggest that curricula should be not only rigorous to help students develop the academic skills they will need to prepare for postsecondary activities, but also engaging, to help keep students interested and invested in their education. One way to encourage greater engagement and connection to career goals is through authentic learning experiences connected to real-world applications (Osher et al., 2020). Schools that raise the overall rigor or standards for courses should also be prepared to ensure that the students who are least academically prepared for such a change have the supports they need to adapt to the changes and not be at risk of dropping out of school or not graduating on time (Jacob et al., 2017). Moreover, wide-ranging minimum course requirements across postsecondary institutions requires high schools, educators, and counselors to continually familiarize themselves with requirements as they prepare students for college admission to postsecondary institutions.

AP Courses, Dual-Credit Courses, and Early Enrollment. Beyond traditional high school curricula, students can experience college-level coursework in various ways while still attending high school. Schools may offer Advanced Placement (AP) courses or partner with a college to offer dual-credit courses or early enrollment programs. Beyond giving students a head start toward fulfilling college requirements, participating in advanced coursework can also help traditionally underserved students begin to see themselves as college material and realize that cost does not have to be a barrier (Moe, 2022). Such programs can also ease the transition into full-time higher education after high school by providing an initial exposure to college-level work in an environment with academic and financial supports designed to help students succeed (Moe, 2022). For example, teachers may offer tutoring to AP students to help ensure they pass their exams and earn college credit (Martinez et al., 2022). In dual college enrollment programs, students might attend school at their high school site for part of the day and at a community college site for part of the day. By high school graduation, students may have completed or made significant progress toward an associate's degree (Abraham et al., 2014).

At the same time, AP courses can have negative consequences for some students, having the opposite effect and deterring students from rigorous coursework and/or postsecondary education, in some cases. In an experimental assignment of AP coursework to high school students in 23 schools, Conger et al. (2023) reported

no evidence of differences on scores on college entrance exams—the SAT or ACT—between students who took AP science coursework as compared to those who did not. The same study also found that students in the AP science treatment group often did not take the AP science exam, and those who took the exam did not earn scores eligible for college credit. AP science coursework did heighten the institutional quality that students aspired to for PSE; however, there was little evidence that heightened aspirations led to students enrolling in these postsecondary institutions (Conger et al., 2023). In a similar study, AP science courses were reported to reduce students' confidence for succeeding in PSE while increasing students' stress levels (Conger et al., 2021). Although results indicated that students improved their science skills and increased their interest in STEM (Conger et al., 2021), the simultaneous negative effects of AP courses suggest that there may be decreased benefits of AP coursework for students of lower socioeconomic status and marginalized students (Conger et al., 2023). Nevertheless, evidence remains that AP coursework is an effective means of preparing students for PSE (Moe, 2022) that could result in college credits that facilitate students' likelihood of postsecondary success.

Dual enrollment that is embedded in the high school itself could provide the needed supports to bridge high school and college work expectations. It can come as a shock to college students that they are responsible for their own learning and have less monitoring than they did in high school (Koppich et al., 2017). Having a support system during dual enrollment may set these students up for greater success if schools give scaffolded supports and teach strategies for independent study. Students may not realize that class time is spent differently in college than in high school with less time to work in class (Koppich et al., 2017). The concept of office hours and how to reach out to instructors for clarification or help may be new to students as well if they are not familiar with college expectations or norms (Jack, 2019). Dual enrollment provides a pathway for students to ease into collegiate life while still having high school-level supports and coaching. Students who participate in even a small number of dual-credit classes are more likely not only to graduate from high school, but also enroll in and attend a four-year college (An & Taylor, 2019; Hughes et al., 2012; Lee et al., 2022). This is in contrast to additional career technical education work in high school that has not yet been shown to link to college enrollment (Gottfried & Plasman, 2018). Guiding students to the right coursework is key in college preparation. Furthermore, teaching students about self-advocacy and empowerment can benefit students' ability to advocate for their education needs, as college often requires a level of self-advocacy that students may not have practiced before.

Early college programs can also provide students the opportunity to experience college while in secondary school. Students who participate in dual-credit classes are more likely to not only graduate from high school, but to also attend a four-year college and are less likely to need basic college classes (Hughes et al., 2012). Students that take even just a couple of dual-credit courses while in high school are more likely to have higher college enrollment rates after high school graduation (Lee et al., 2022).

Online Learning. Online learning is increasing at a fast rate (Bell & Federman, 2013). In 2010, 31% of college students were enrolled in at least one online course (Bell & Federman, 2013). Online learning, sometimes referred to as e-learning, has proven to be an effective means of delivering postsecondary education (Bell & Federman, 2013). This refers to any and all forms of instruction that are supported electronically (Bell & Federman, 2013). Online learning has many benefits such as access, pacing, and flexibility with schedules (Bell & Federman, 2013). Online learning is not just limited to the course. It can be used to help students collaborate digitally, share finished projects digitally, and create more interactive ways for students to participate (Bell & Federman, 20013). Even high school students can enroll in an online course to help them complete classes that do not fit into their school schedules. High school students can take a course online for the first time or retake a course they have previously failed (Hart et al., 2019). Research shows that high school students tend to pass online retake courses with a C or higher (Hart et al., 2019), though there is some debate on the quality of online learning and its effects (Heinrich & Darling-Aduana, 2021). A research study showed that there is a connection between upper-class students retaking courses online and an increase in

graduation rates in the school district as well as in postsecondary enrollment (Heinrich & Darling-Aduana, 2021). Though, taking courses online is not without issues. Several barriers to taking online courses have been identified, including infrastructure, technical skills, student motivation, time, prerequisite skills, and lack of social interaction (Muilenburg & Berge, 2005). Based on a research study, lack of social interaction was the most important barrier to students enrolled in online courses followed by administrative issues (Muilenburg & Berge, 2005). Students who feel more confident and comfortable with using technology for online learning have fewer barriers (Muilenburg & Berge, 2005).

Test-taking. While the emphasis on college entrance exam scores has been in flux in recent years, many students preparing for postsecondary education will still be applying to programs that require or recommend that they take a standardized test, such as the ACT or SAT. Both the ACT and the SAT are accepted as college entrance exams and include sections on reading, writing, and mathematics (Claybourn, 2024). The SAT is broken down into two sections, while the ACT has four sections (Claybourn, 2024). Colleges recommend that students take either one of these tests for admission. In order to prepare, students should take practice tests, which can help lower test anxiety (Claybourn, 2024). It is imperative that students and families are aware of both testing options, as well as which tests specific schools or scholarships look to for admissions or award eligibility. Teachers and counselors can act as advocates and advisors to ensure students understand the options and benefits of both tests. Programs such as the National Merit Scholarship Program have very specific requirements, which students could fail to qualify for if not made aware of the requirements. School counselors can provide support to students by hosting workshops on financial aid, scholarships, and grants (Bryan et al., 2015; Paolini, 2019).

Questions remain about the equity of outcomes of high stakes testing and if those tests accurately reflect the ability to succeed in PSE (Koppich et al., 2017). Similarly, retaking a college entrance exam like the SAT may not always improve a student's score (Goodman et al., 2020), requiring educators and counselors to support students when considering whether it is beneficial to retake the SAT or ACT. School counselors play an important role in ensuring that students are aware of testing requirements for their postsecondary programs of interest and deadlines for signing up for tests and reporting scores (Paolini, 2019). Because many colleges award merit-based scholarships based on standardized test scores, students' scores can influence the number of scholarships they are awarded (Klasik, 2013).

PSE Knowledge

There are many other skills, mindsets, behaviors, and areas of knowledge in addition to traditional academic subjects that researchers have identified as important to help prepare students for a postsecondary education and, ultimately, success in their chosen career (Carey, 2019; Duncheon & Relles, 2019; Martinez & Everman, 2017). Schools can holistically prepare students by creating a college-going culture, helping them become aware of barriers to postsecondary education and how to overcome them, supporting families, promoting timely actions toward readiness, and developing skills and attitudes along with general knowledge. Campus visits are another way to create a college-going culture, as they give students a taste of college and allow them to imagine themselves in these environments, and provide opportunities to increase college knowledge (Kim et al., 2021). College knowledge involves the development of college aspirations and awareness of and familiarity with college's non-academic aspects, such as cultural norms and the procedures for admission (Knight & Duncheon, 2020). The entire school staff should engage in coordinated collaboration to support students (Hines et al., 2019), and schools should include opportunities for educators and staff to engage in professional development or coaching related to postsecondary readiness and college knowledge in order to increase collaborative culture, develop a college-going culture at school, and increase the likelihood of college talk between students and school staff (McClafferty et al., 2002). Additionally, families should understand the benefits that come with their child attending a PSE institution as well as the financial costs (Carey, 2019).

Students with disabilities are less likely to pursue a postsecondary career; this is impacted by the fact that they receive less postsecondary support than students without disabilities (Novak et. al, 2024). This is a joint effort between families, teachers, counselors, and the community to help all students prepare for a postsecondary pathway (Novak et al., 2024). Information about how postsecondary institutions support students with disabilities is lacking; this leads to families being unaware of the possibilities for their students (Kelley & Prohn, 2019). Postsecondary institutes can share opportunities for addressing accommodations with students and their families to help students be successful (Kelley & Prohn, 2019). As students prepare for postsecondary education, students with disabilities must also understand how to self-advocate and disclose their disability to receive accommodations in PSE settings. These self-advocacy skills are essential for students to effectively disclose their disability and identify necessary accommodations (Kartovicky, 2020). Increased self-advocacy often aligns with increased self-exploration as students explore their strengths, limitations, preferences, and how their disabilities impact their academic performance (Kartovicky, 2020). Increased self-advocacy will allow students with disabilities to collaborate with counselors to find disability resources on campus and be knowledgeable of their resources.

Along with self-advocacy, students must also develop help-seeking strategies. Academic help-seeking includes various behaviors one can engage in to improve one's understanding or performance when one is struggling (Payne et al., 2023). These behaviors can be adaptive or maladaptive. Adaptive help-seeking strategies occur when students recognize that they need help and are aware of the helping resources. For example, if a student is struggling in a course, they can recognize that and find available tutoring options on campus. Maladaptive help-seeking strategies occur when students seek help when it is not needed or when they avoid academic help (Payne et al., 2023). For example, first-generation students may have issues seeking academic help if post-secondary culture misaligns with their cultural backgrounds, which could hinder help-seeking. If those students get support from someone they deem to be a cultural match, they are more likely to accept their help (Payne et al., 2023). Often, the decision to seek help was course- and context-dependent with decision making occurring while an individual was stuck on a problem when deciding whether or not to engage in formal help seeking (Payne et al., 2023).

Relationship Building. For aspiring postsecondary students, building strong relationships connects them with others who can help guide, motivate, and contribute to their educational and eventual career success. Such relationships might be with trusted adults, at home or at school, or with other students who are a few years ahead of them on their postsecondary journeys (Ozuna et al., 2016). Students who build relationships with teachers, counselors, and school staff tend to have a more positive look on postsecondary pathways (Lindstrom et al., 2020; Martinez et al. 2022). By building new connections and strengthening existing relationships with others who are invested in their success, students can both strengthen their support systems and develop social capital. Social capital can serve to inform, guide, motivate, and otherwise contribute to students' education-related decisions and eventual outcomes. For example, it can provide students with key information about when and how to complete specific postsecondary preparatory steps and help students select a postsecondary program that is a good match for their qualifications and career goals (Hill & Wang, 2015). Just as an employee and a leader develop rapport and trust, educators may develop those attitudes with students. In doing so, educators are better able to gauge their students' abilities, be flexible with deadlines, and assess students' levels of preparedness. Additionally, counselors can form partnerships with local businesses that can present career options to students and provide experiences such as internships and externships (Paolini, 2019).

In addition to social capital at the community level, family cultural capital is influential in providing opportunities to gain preparatory insights and support from family members when preparing for and attending postsecondary education. In fact, parents have shown to be "crucial" (p. 574) sources of emotional support for many students, and students should look to and seek out adults as such resources (Carey, 2018; Roksa et al., 2020). Siblings shaped the way students engaged with their parents and got support from them, depending on

whether those siblings also attended PSE or the same institution. If the parents' lack of familiarity with higher education makes it difficult to give support, students will often turn to their siblings with PSE knowledge for support (Roksa et al., 2020).

Counseling. High school counselors can be a key support for students in multiple areas of college and career preparation. Robinson and Roksa (2016) note counselors' role in transmitting information and resources related to postsecondary education to students. School counselors encourage students to be ready for postsecondary education and understand their options after high school (Paolini, 2019). They play an important, large role in the development and maintenance of a college-going culture at a school, especially through fostering college access for students of color and students with lower socioeconomic status (Bryan et al., 2023; McKillip et al., 2012). Counselors are generally involved in everything from ensuring that students are taking the appropriate courses to prepare for their desired next step to facilitating ACT and SAT registrations and scholarship applications (Paolini, 2019; Stillisano et al., 2013). This includes helping students understand the requirements for graduation and the college application process (Bryan et al., 2015; Paolini, 2019). Counselors are also able to intervene to assist students who might be struggling with issues such as attitude, attendance, or academics to get the help or resources they need to course correct (Martinez & Everman, 2017). Counselors advise students and encourage them to take rigorous coursework, such as Advanced Placement (AP) and concurrent courses, to prepare for postsecondary education (Paolini, 2019). AP courses allow students to acquire college credit in high school, while being introduced to rigorous college-level materials (Paolini, 2019; Peterson, 2013). They also help students understand career options by encouraging the use of career exploration applications such as Naviance (Paolini, 2019). It is also important for counselors to involve all students, with and without disabilities, in postsecondary activities and development (Novak et al., 2024).

Counselors can provide students with information to make better-informed postsecondary decisions and can also point students to other sources of information they can consult on their own (Robinson & Roksa, 2016). Starting counselor visits early in students' high school careers and continuing them through the senior year can make the biggest impact on students' eventual postsecondary enrollment, especially in a four-year university (Robinson & Roksa, 2016). Counselors can play a critical role by helping build relationships with postsecondary schools and community organizations as well as families, educators and students (Bryan et al., 2015; Paolini 2019). Through building relationships with local colleges and universities, they can provide information to students about opportunities after graduation (Bryan et al., 2022; Paolini, 2019). Counselors can serve as a bridge between students' postsecondary goals and the postsecondary application process (Paolini, 2019).

College access centers or college and career awareness centers set up within a high school can provide a centralized point for information, resources, and assistance with college planning (Stillisano et al., 2013). Counselors can hold postsecondary fairs or invite representatives to come to schools to discuss requirements and opportunities postsecondary institutions offer (Paolini, 2019). For schools where this sort of program is a challenge to maintain, campus visits can be included in services (Bryan et al., 2015; Paolini, 2019). Getting students on to college campuses for visits is often a task given to counselors (Paolini, 2019). Counselors also have the unique ability to hold meetings during school hours to meet with groups of students to discuss postsecondary options, test waivers, and the application process (Bryan et al., 2015; Paolini, 2019). In addition to being staffed with counselors from the high school, college and career access centers and activities can also include participation from teachers, college advisors, members of the community, or current college students who serve as mentors (Stillisano et al., 2013).

It is important that school counselors involve parents and families in the college-going process (Carey, 2018). This ensures that students and parents are aligned in their postsecondary goals, reducing stress for both (Carey, 2018). Counselors facilitate parent events that provide knowledge of postsecondary options and requirements for applying to schools (Paolini, 2019). They also help students and parents navigate the college

application and financial aid process (Paolini, 2019). A GEAR UP program in North Carolina showed an increase in postsecondary enrollment based on families attending events such as workshops, campus visits, and family focused events (Tillery et al., 2022). Research shows that parents who take initiatives in learning have a positive effect on students' postsecondary enrollment (Tillery et al., 2022). Counselors play a vital role in encouraging families to help students pursue postsecondary education and overcome any barriers they might face (Paolini, 2019).

Mentoring. Mentors are generally individuals trained to provide advice to younger or inexperienced people—students—on a specific topic such as work or education (Cambridge Dictionary, n.d.; Connolly, 2017). Student mentors can positively influence students who have graduated high school and have plans to attend college when it comes to navigating the admissions process (Castleman & Page, 2013, Castleman & Page, 2015). Studies have shown that not all high school students who are accepted to college in the spring attend in the fall (Castleman & Page, 2015). Much of this is due to students' inability to navigate the admissions side of the process (Castleman & Page, 2013). The summer after high school graduation presents complex and unanticipated challenges, like financial, procedural, and logistical tasks, that can prevent students from following through on their intentions to pursue postsecondary education (Castleman & Page, 2015). Student mentors can assist with many of the components described above, including college visits, goal setting, career investigation, and learning about college culture (Radcliffe & Bos, 2011). Mentoring programs have been shown to be associated with gains in students' perceptions of postsecondary education, state test scores, and high school perseverance (Radcliffe & Bos, 2011). Teachers, who interact with students daily and have attended college themselves, are in a unique position to influence students' beliefs and actions pertaining to postsecondary preparation (Martinez & Everman, 2017). Middle and high school teachers and counselors can serve as mentors and promote a college-going culture by sharing information about their own experiences in higher education, and by displaying objects or occasionally wearing clothing decorated with the logo of their alma maters to prompt conversations (Bryan et al., 2015; Paolini, 2019; Stillisano, 2013). Further, they are well-positioned to identify students who need extra attention to improve their academic skills to better prepare for college-level coursework, and to work one-on-one with students on tasks such as college applications and essays (Martinez & Everman, 2017; Stillisano, 2013). Ultimately, teachers need to show a genuine commitment to their students to show they are invested in and care about their students' long-term success (Martinez et al., 2022).

Other students, especially those from a local college or university, are another resource for mentoring, as they can provide advice about preparing for the next steps in students' academic journeys (Martinez & Everman, 2017). College students can serve as near-peer mentors to secondary students and potentially dispel misconceptions that students have about the college experience (Castleman & Page, 2015). Their relatable experiences and accomplishments act as powerful motivators, reinforcing the idea that if the mentor could succeed in college, then the student can as well (Arnold et al., 2022). A study of Latino/a/x and African-American students discovered that near-peer mentoring was an important source of social capital and built relationships that created a college-going identity in the students who participated, contributing to students' feelings that they belong in college (Cavendish et al., 2023). By interacting with a current college student, secondary students begin to believe that they also can be successful in postsecondary education (Castleman & Page, 2015). College student mentors also provide current knowledge about navigating the many steps to apply for college and obtain financial aid (Castleman & Page, 2013). Specifically crucial is the use of a near-peer mentor during the summer after high school graduation to ensure that students are on track to begin attending their postsecondary institution of choice (Arnold et al. 2022; Castleman & Page, 2013). The use of a texting platform can provide a successful medium to keep in timely contact between the student and mentor (Castleman & Page, 2015). Near-peer mentors provide a bridge for social capital networks that connect individuals and communities (Cavendish et al., 2023). To promote student interactions with others who are currently attending or previously attended PSE, partnerships between secondary and postsecondary

institutions should focus on activities throughout the year that involve representatives from both sides (Bosworth et al., 2014), and include opportunities for secondary students to take college-level classes through dual courses or early enrollment taught by postsecondary educators (Moe, 2022). As a community, schools, universities, and businesses can help collectively identify mentors for students (Ozuna et al., 2016).

Postsecondary and Secondary School Partnerships. One way to promote student interactions with others who are currently attending or have previously attended postsecondary education is by building school partnerships with colleges or universities in the community or region and setting up activities throughout the year that involve both sides (Bosworth et al., 2014). One example of these partnerships is the National College Advising Corps (NCAC), which partners postsecondary institutions with underserved high schools (Horng et al., 2013). They provide services to any student that requests assistance and can help with the college search process, financial aid applications, test preparation, and the application process (Horng et al., 2013). Research shows that having college-graduate advisors in high schools increases the number of students taking the SAT (Clayton & Worsham, 2024). As these advisors did not have the ability to affect students' course schedules, they did not have an impact on Advanced Placement courses (Clayton & Worsham, 2024). This is an area where counselors can have a bigger impact. Researchers discovered that teachers and parents are key components in the process (Horng et al., 2013). Whereas teachers can serve as advisors to students, parents are important in encouraging postsecondary enrollment (Horng et al., 2013). Both groups should be included in the initiative to help increase success (Horng et al., 2013). These partnerships are not without challenges. Both schools and postsecondary institutions need to align their goals and objectives to help with buy-in and overcoming external demands that can take priority (Horng et al., 2013; Mokher & Jacobson, 2021).

Another challenge is that the process of building partnerships takes time to produce positive effects on graduation rates, but it is not a quick process and must be sustainable for all parties (Mokher & Jacobson, 2021). It takes time to build trust and relationships, especially when there are high rates of teacher turnover in schools (Mokher & Jacobson, 2021). Partnerships can also be built via the establishment of dual-credit or early enrollment programs where high school students take college-level classes sponsored or taught by an area college (Moe, 2022). These types of partnerships need to work collaboratively to ensure that both sides are benefiting from the partnership and are learning and making improvements to develop a successful initiative (Horng et al., 2013).

Acculturation. Acculturation involves a person learning about and taking on aspects of a new culture while still holding on to their previously held cultural beliefs and traditions. In the context of postsecondary preparation, it is essential that program leaders find the right balance between introducing students to the culture of postsecondary education and respecting the existing cultures that students bring along with them. GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs) is one program that can help students understand the paths and processes needed to reach postsecondary preparedness while embracing their cultures. GEAR UP is a federally funded, pre-college program that focuses on cohorts of students from middle school through high school with the intent to help more disadvantaged students find paths into postsecondary education (Gibbs Grey, 2022). GEAR UP provides students and their families with the knowledge of postsecondary options, funding, and application processes while introducing them to college campuses and career choices (Gibbs Grey, 2022). One study by Gibbs Grey (2022) shows that Black students who participated in a GEAR UP program were able to overcome stereotypes about succeeding in college by building relationships with student leaders who had similar backgrounds (Gibbs Grey, 2022). Through participation in the GEAR UP program, the students were able to envision their possible future selves and gain knowledge about how to attend and succeed in postsecondary education (Gibbs Grey, 2022). GEAR UP helped create a spirit of possibility while embracing each student's culture and potential (Gibbs Grey, 2022).

Dual enrollment is another program that can help students become familiar with postsecondary academic courses (Giani et al., 2023). When students are successful in dual enrollment programs or AP courses, they can gain a sense of self-efficacy from these courses and experience different feelings about

postsecondary opportunities (Giani et al., 2023). Participation in more rigorous academic courses can increase motivation and engagement in postsecondary education (Giani et al., 2023). Rigorous academic courses may have more of an impact on the future decisions of Black and low-income students (Giani et al., 2023). This is especially true if the students perceive that the individual helping them with these decisions is culturally aligned with them (Payne et al., 2023). However, this can have the opposite effect if students come through dual enrollment or AP courses with the idea that they cannot succeed in postsecondary education (Giani et al., 2023). Though, studies have shown that even if students do not earn college credit by passing the end-of-year test, they are still more likely to enroll in rigorous courses, with an even higher likelihood of enrollment in populations of Black and Latino/a/x students (Giani et al., 2023). By providing students with the experience of college coursework, schools and teachers increase students' confidence in themselves, motivation, and academic skills. (Giani et al., 2023).

Building Awareness of the Culture of Postsecondary Education. One way students can become more familiar with postsecondary environments and the ways in which they function is by visiting and experiencing these environments themselves. Various GEAR UP services studied and found that campus visits emerged as very influential (Kim et al., 2021). Participants in campus visits were found to be significantly more inclined, by approximately 9 percentage points, to enroll in college within one to two years after high school graduation (Kim et al. 2021). Furthermore, they exhibited an almost 13 percentage point higher likelihood of college persistence compared to their counterparts who did not partake in such visits (Kim et al., 2021). School counselors can sometimes take on the role of scheduling campus visits and helping students understand the importance of postsecondary education (Paolini, 2019). Campus visits are a core part of many postsecondary preparation programs. As students progress from eighth grade through high school, the purpose and focus of the visits can evolve. Early on in middle school, students can explore career interests and understand the importance of a postsecondary education (Radcliffe & Bos, 2011). Campus visits can move from helping students envision themselves as being a student there someday, to giving students opportunities to sit in on actual classes, to providing practical knowledge about the different offices and departments (bursar, financial aid, registrar, etc.) that students would interact with when applying to, enrolling in, or attending the institution (Radcliffe & Bos, 2011). In a study of various GEAR UP services, it was also found that career planning was another impactful, core part of the postsecondary preparation program (Kim et al., 2021). Career planning involved interest surveys and career finders, as well as information about individual careers students were interested in pursuing (Kim et al., 2021). By providing students with information about careers, they are able to create an academic pathway for high school (Kim et al., 2021).

Preparing to Leave the Familiar While Maintaining Ties to Home. For many students, the move from high school into postsecondary education will also come with a move to a new physical location, such as a new city or state. But even for students staying in the same area, there are likely to be changes in immediate surroundings, friend groups, and possibly even in family dynamics. As students consider the move into postsecondary education and the options that they have, it is important for teachers, counselors, and others to be aware that many of the unknowns that come with major life transitions might be weighing on them (Carey, 2018). Such considerations can be especially magnified for students who feel an extra level of personal responsibility for the well-being of their families or whose families place such responsibility on them. Ultimately, students' decisions can be guided not only by their actual family expectations but also by their own perception of those expectations (Carey, 2024) and their impression of how their community and family relationships and responsibilities might be affected (Noll, 2022). Even if they see the long-term value of postsecondary education, students might be faced with a dilemma as to whether their postsecondary goals or plans will have an immediate, short-term impact on the well-being of their families (Carey, 2018). This type of dilemma can be especially common among Latino/a/x and African American boys (Carey, 2018). Acculturation then goes beyond the student to family and social supports that could influence long-term goals and outlooks.

While most CCR interventions will be directed at students themselves, some will be more broadly

directed at students' families and support networks or at schools and school staff, including administrators, teachers, and counselors. Current college students, alumni, other members of the community, and students' personal networks can also play a role in helping students set goals and prepare for postsecondary education. This includes colleges themselves who, through partnerships with local districts, can help to ensure students are ready to apply for and be accepted to the postsecondary educational opportunity of their choice (Koppich et al., 2017). Moreover, students should make efforts to learn about and have realistic expectations of the resources and support services, beyond financial aid, available to them once they are accepted into postsecondary options (Carey, 2019). A team effort from all stakeholders involved will help to ensure that students hear a consistent, clear message that will guide them to success. It takes multiple voices and perspectives to build a solid and encompassing PSE readiness program.

Parent Involvement. Families play one of the most important roles in students' postsecondary education (Carey, 2018). Parents' view of education can be impacted by their own lives and education. Some families can see education as a way to promote social status where others may perceive it as a denial of the way students grew up or were raised (Auerbach, 2007; Kelley & Prohn, 2019). No matter whether a parent's view of education is positive or negative, a parent's educational expectations for their student has a significant impact on that student's completion of high school and progression toward postsecondary education (Ross, 2016). Parents have an impact on how students move from high school to postsecondary education and on to the experience of getting into college, fitting in at college, and transitioning to postsecondary careers (Carey, 2018). This is especially true for students of color (Bolívar et al., 2011; Carey, 2018). Families help students form their view of the world with or without a postsecondary education (Carey, 2018). Therefore, a parent's view of their student's possibilities, lack thereof, or the ways these possibilities can affect the family dynamics can influence postsecondary choices (Carey, 2018). Parent and family education, involvement, and investment are important to ensure that, to the greatest extent possible, all stakeholders have a shared vision which is guided by the student.

Parent involvement helps create a successful transition to postsecondary pathways (Ozuna et al., 2016). Unfortunately, research shows that there is a drop in parent involvement when students move from elementary school to middle school and high school (Ross, 2016). Students without parent support are 34% more likely to drop out of school (Ross, 2016). Velez (2020) found that seven percent of graduates with parents who expected them to stop their education at high school graduation earned a bachelor's degree, compared to 55% of students that earned a bachelor's degree when that was the parents' expectation. When parents are involved in their students' education, there are increases in reading, math, positive behavior, attendance, motivation, self-efficacy, and engagement (Ross, 2016). Family involvement in a student's education can look different depending on race and socio-economic status (Auerbach, 2007). Schools should keep in mind that there is not a one-size-fits-all parent involvement process (Auerbach, 2007), but parents attending school functions and extracurricular activities, and having high expectations for postsecondary education, can have a positive effect on students' education and attendance (Ross, 2016). However, high expectations are not enough. Families should work with their students to help plan for postsecondary pathways, which may include the families increasing their knowledge of postsecondary(Ross, 2016). As students transition from elementary to middle to high school, parent involvement shifts (Ross, 2016). For example, in elementary school, parents supervise and assist with homework, but in high school, a parent's involvement with homework should take on more of a supportive role. (Ross, 2016). Involvement is more than participating in school events; it can also include families embracing supportive roles at home. Having conversations with students about the importance of education, sharing their own experiences, and discussing how to overcome obstacles is another important way families can be involved in their student's education (Auerbach, 2007). Students with disabilities benefit greatly from conversations with their parents about their postsecondary goals (Kelley & Prohn, 2019). When parents create an autonomy-supportive environment, rather than a controlling environment, they impact students' well-being and academic improvement, and students themselves become

more autonomously motivated (Lerner et al., 2022). When parents guide and encourage students to try to explore on their own, they help students learn to regulate their emotions and build their self-control, which are qualities they need once they are away from their families (Gong & Wang, 2023). Parents are educational role models to their students; they are students' first teachers (Ozuna et al., 2016). By creating a home environment that encourages learning and education, and by advocating for students at school, parents can positively impact students' education (Ozuna et al., 2016).

As parent involvement is proven to be important, building trusting relationships between families and schools should be a priority (Auerbach, 2007, Ozuna et al., 2016). Sharing postsecondary information with families is important for schools, as some families rely on their students to share what they know, or on the school to share outside information directly (Auerbach, 2007). Parents of first generation students don't have access to the same information about navigating the path to college as parents who had navigated that path themselves (Duncheon & Relles, 2019). Information should be provided to families, as well as students. Educators should consider presenting the information in a variety of ways to reach larger audiences of families (Martinez et al., 2013). As technology options continue to expand, schools need to stay up to date on ways they can communicate digitally with families (Olmstead, 2013). Research shows that schools and families see technology as a way to involve parents (Olmstead, 2013). This involvement can be through emailing, school or teacher websites, checking student grades in parent portals, or voice-calling systems to share announcements (Olmstead, 2013). No matter the method, parents need to understand what to do and how to go about doing it in order to support their students (Martinez et al., 2013). Even parents with no college background can gain knowledge about postsecondary education and help impact their student (Ozuna et al., 2016).

By allowing parents to become leaders to their peers, they can increase their own knowledge of the postsecondary education process and affect other families around them (Bolívar et al., 2011). One way this can be done is through parent leadership programs that give parents the opportunity to learn and reach out to their students' school community (Bolívar et al., 2011). Programs such as this not only empower parents to be involved in their own students' education, but also to make impactful changes for the school as a whole (Bolívar et al., 2011).

Parents, educators, and counselors need to understand and support the student's personal goals, beliefs, and pressures. Parents can have many conversations with their students, but if they do not listen, understand, and collaborate in decision making it can impact students' academic performances (Zhang, 2020). High-quality conversations involve listening and respecting the student's perspective, involving them in decisions, having empathy for their emotions, and providing them feedback (Zhang, 2020). When parents have high-quality conversations with their student, they also impact their student's self-image (Zhang, 2020). Educators likewise need to listen actively, otherwise home life could be a continuing barrier to postsecondary success. Not all students and families may desire the same things. Schools need to acknowledge that sometimes students have to choose between home and family (Covarrubias, 2021). With a cultural understanding, they can help students respect their own family needs and culture while still attending school (Carey 2018, 2024; Covarrubias, 2021). At the same time, schools must be careful not to view students coming from homes that may not adhere to the dominant cultural norms as somehow inferior or less capable of academic success (Acevedo-Gil, 2019; Achinstein et al., 2015; Covarrubias, 2021). Having discussions that value and validate cultural backgrounds can aid in supporting the student in a way that does not undermine family values. From this place of trust, families can be encouraged to support students in reaching their full potential while honoring their homes and traditions.

Parents don't always have the opportunity to be involved in decision-making in schools and therefore lack understanding of school culture, structures, and functions (Bolívar et al., 2011). Building relationships with parents and families is vital to ensure that messaging from a postsecondary preparation program carries over into the home environment. Parents must trust that school and program leaders have their child's best interests in mind, and they should also be challenged to participate and take accountability as a partner in

their child's education, learning, and future success (Martinez & Everman, 2017; Martinez et al., 2019). Cultural differences, such as different beliefs about the role of education and educators, and language barriers can both be significant challenges to parental involvement, but finding ways to overcome these challenges and help parents see the benefits of continued education can involve important allies to encourage and support students in their postsecondary pursuits (McCollough, 2011).

One barrier parents and families need to keep in mind is FERPA. FERPA provides access rights to parents for their student's educational records (United States Department of Education, 2021). Once a student turns 18, which can happen before a student graduates, the parents or guardians lose access to their student's educational records through federal law (United States Department of Education, 2021). In these cases, if a change needs to be made to a student's record, it becomes the student's responsibility to request the change (United States Department of Education, 2021). In most cases, this means that when a student over the age of 18 enters a postsecondary pathway parents no longer have access to their educational records.

Developing Academic and Career Skills and Aspirations

Working with students early in the process of PSE preparation to develop high educational aspirations can help to ensure that those students will persist as they move further along their journey into and through postsecondary education (Conley & French, 2014; Klasik, 2012). Students with clearer and higher postsecondary aspirations are more likely to go on to develop knowledge about the process of preparing for and attending college than their equally capable counterparts (Carey, 2024; Conley & French, 2014). To help students develop these aspirations, it is advantageous to share with students why a college education could contribute to and enhance their long-term goals (Carey, 2024). Having a clear understanding of why PSE is important can help both students and their families face the realities of college expenses and the costs and benefits of higher education (Carey, 2024). Part of building aspirations is helping students, especially those coming from families or backgrounds where college graduation is not common, reframe negative beliefs about themselves and their potential to succeed in postsecondary education (Carey, 2024; Martinez et al., 2019). For example, Achinstein et al. (2015) refer to reframing personal definitions, so students build self-efficacy and develop a self-image that includes being successful in the college culture.

An early step to address in PSE preparation programs is career planning. Career discussions can begin in middle school as students start to understand the connection between the educational choices they are making now and the career options they will have in the future (Ryan et al., 2021). Even if students are exploring a variety of options and are undecided about what they might want to do, going through the exercise of career planning, such as by imagining their future selves and the life that they want to lead, can help students better understand and articulate their goals and become aware of what it might take to achieve them (Carey, 2024; Ryan et al., 2021). Career planning informs many of the choices that the student will make regarding which types of postsecondary programs to explore and eventually apply to, and helps students estimate how much time and money it might require to prepare for the student's preferred career. It has also been linked to higher levels of engagement in high school (Plasman, 2018). Having a potential career in mind can help frame all other postsecondary goals while grounding students in the work they are doing in high school (Carey, 2024). Linking career exploration with PSE goals can generate hope and aspirations among students for building positive, imagined postsecondary future selves and greater PSE preparation. The act of imagining future selves is particularly beneficial for students of marginalized, underserved communities to develop "vocational hope" and aspirations that aid them in overcoming obstacles to reach these goals (Carey, 2024). Moreover, how students generate and manage hope is influential to their academic achievement prior to PSE, with evidence of levels of hope in eighth grade students as predictive of their academic achievement in ninth grade, the first year of their high school career (Fraser et al., 2021). Thus, it's important for students to find ways to generate hope and aspirations for their postsecondary future selves. Likewise, educators and families should find culturally relevant ways to support students' hopes and aspirations (Carey, 2024; Fraser et al., 2021).

Ryan et al. (2021) refer to the tension that students coming from backgrounds with little postsecondary experience face when considering their future career options. They may struggle to believe their goals are attainable. Students may even face outside challenges that can affect their participation in postsecondary readiness experiences (Lindstrom et al., 2020). Encouraging students to consider topics of concern early in their secondary career and continuing to revisit these topics can help to reinforce the idea that their aspirations are possible. To give themselves the best chance to fulfill these aspirations, students must think about what they want and value for their future and plan ahead to put themselves on the path to get there (Martinez & Everman, 2017). Students then need to follow through on the steps they have identified, taking actions they have deemed necessary for success (Bryan et al., 2017). Goal setting is a valuable first step in setting students on a timely route to PSE readiness.

Goal Setting

For students entering PSE, a general knowledge of the steps involved in preparing for college and careers is not sufficient for them to become truly invested in the process. Students need to have a clear vision of what they are working toward and a personal conviction of why it matters (Carey, 2024). Visualization is a key component of goal setting. Students need to be able to "see" what their life will be like after college and have ownership of the decision making that goes along with it (Carey, 2024). If students cannot first see themselves as admitted to college and are unable to connect college with their life goals, their inability to imagine this future can be a barrier to postsecondary success. Students face three, often competing inputs when goal setting: what they hope, fear, and expect to happen (Carey, 2024). Students need supports to grapple with competing visions of the future. Helping students make abstractions to envision their future lives and how to reach that reality is key, particularly for students beginning to identify postsecondary institutions of interest.

Identifying Postsecondary Institutions of Interest

Once students have their end goals in mind and better understand the steps it will take to reach them, they are in a more favorable position to identify postsecondary institutions that align with their goals and otherwise could be a good fit for them. Without this level of understanding, students, especially those coming from low socioeconomic backgrounds, are more likely to choose two-year colleges or other institutions not well matched to their interests or academic abilities (Robinson & Roksa, 2016). Secondary teachers and administrators should provide opportunities for students to learn about the wide variety of postsecondary institutions available to them (Martinez et al., 2019). Taking time in class to engage in college-going tasks, such as exploring schools and application requirements, can also help marginalized students (Martinez et al., 2022). When disseminating information about various postsecondary institutions, teachers should work to ensure that the information they are providing is equitable to their cohort of students and does not display any potential biases they might have about particular postsecondary options (Duncheon et al., 2023; Hines et al., 2022; Mann & Turner, 2023; Martinez et al., 2019). Ultimately, whether a student feels they match with an institution is important for how students apply to postsecondary institutions and prepare for these options.

Thus, what could be considered as matching for students warrants attention, as students match with postsecondary institutions for various reasons. Beyond academically matching, students may match for reasons related to the utility of attending a less selective institution (Hoxby & Avery, 2012) or how they feel an institution aligns with their identity in meaningful ways (Black et al., 2020). For example, students may attend an institution closer to home to allow them to maintain caregiving status for a family member, or students may choose a Historically Black College and University (HBCU) or Minority Serving Institution (MSI), including Hispanic Serving Institutions (HSIs), because of their comfortability and desires for racial/ethnic identity development in these culturally aligned environments (Garcia et al., 2018). When Black males have opportunities to develop a positive perception of their racial/ethnic identity and embrace cultural norms of their communities, Black males exhibit greater educational and career goals (Lateef et al., 2024). Developing

a positive perception of ethnic identity influences students' career aspirations as well as their ability to match with and adapt to postsecondary options. For example, young adult Latino male college students who attended a HSI reported greater racial/ethnic identity salience for fostering positive racial/ethnic identity development and community involvement, whereas Latino college students who attended predominantly white institutions struggled academically and struggled to find ways to connect with other Latina/o/x students (Garcia et al., 2018). Greater racial and ethnic identity for Black, Latina/o/x, Asian American, and Pacific Islander youths positively influences these students' academic outcomes, which includes greater student engagement, higher GPA, educational goals, and future education orientation, and some evidence indicates a positive influence on the protective capabilities of a positive racial/ethnic identity (Rivas-Drake et al., 2019). Therefore, it's important that students build positive connections to and notions of their racial/ethnic identity for enhancing their postsecondary readiness and achievement capacity.

Similar culturally relevant and affirming aspects of HBCUs and MSIs have been reported for students of color. Specifically, Asian, Black, and Latina/o/x students' decisions to apply to colleges are impacted by their perceptions of same-race students on campus as compared to the institution's selectivity and how far an institution is from home, with Black and Latina/o/x students also considering how successful previous students of their racial/ethnic background from their high school have been at said institution when weighing a social match (Black et al., 2020). At an institutional level, faculty members at HBCUs tend to focus on pedagogical strategies that prioritize cultural validation, relevance, and humanization through content related to students' lived experiences and normalizes students' backgrounds in order to foster student success (Williams et al., 2022). Huerta et al. (2018) convey that many Black male students feel heightened external pressures to choose a career path, while societal messaging can reinforce the idea that they don't belong in higher education pathways. This can lead them to feel that options like military service, while an appropriate postsecondary option, is a backup option because they don't feel they belong in postsecondary education. Feelings of belonging are gained through a strong social and academic match, which makes the difference for many marginalized and underserved students for promoting postsecondary readiness. Furthermore, culturally aligned postsecondary options may be an important component of students' feeling that they culturally match with an institution, so much so that discussions of matching should incorporate all forms of matching and how students conceive of a positive match.

Factors like socioeconomic status further complicate how postsecondary matches may be perceived by students. Often, parents of lower-income students do not have the experience with PSE that their higher-income peers possess. As such, lower-income students generally receive less information about college applications, expectations, or options as compared to their higher-income counterparts (Hoxby & Avery, 2012), which contributes to higher instances of "undermatching," a term that means attending an institution where students' own academic achievement is higher than the average academic achievement level of current students at that institution. Specifically, the majority of high-achieving students of lower socioeconomic status do not apply to any selective colleges where selective indicates the "very" and "most" competitive institutions as designated nationally. Greater access to information about postsecondary institutions, financial aid, and application expectations can increase the likelihood that high-achieving, lower-income students apply to more selective institutions (Hoxby & Turner, 2013). Students can obtain this information from friends, family members, and others with experience in PSE (Dahir, 2020). Lower-income students, and Latina/o/x students in particular, that attend urban schools with little access to information about PSE have difficulties determining their options for PSE and making choices about their postsecondary pathway (Lindstrom et al., 2020; Martinez & Deil-Amen, 2015).

Because of the historical impact of race and class on student opportunities in the United States, students of color may also occupy a lower socioeconomic status (Williams et al., 2022). For example, the USDE has previously reported that roughly 70% of students who attend HBCUs are of lower socioeconomic status (Williams et al., 2022). Therefore, some students must consider all elements of matching with a postsecondary

institution to greater or lesser degrees when determining how well an institution culturally, financially, socially, and academically matches their needs. Such complexities and forms of matching should be included when developing strategies for building postsecondary readiness and supporting students through college enrollment processes.

Writing Application Essays. Many colleges are giving elements other than testing more weight on their applications (Reynolds, 2022), making other elements, like the college application essay, of growing importance in the college application process. Many students have such meaningful backgrounds, identities, interests, and talents that an application would be incomplete without the ability to share their story (OU Admissions & Recruitment, 2021). Therefore, colleges include essays in their application processes to get a unique perspective of the applicants' lives beyond academic test scores and GPAs. Students should include personal information in their essays, such as niche interests that connect to their chosen degree path (Beck & Godley, 2023). Teachers can encourage students to begin working on their essays (Martinez et al., 2022) and introduce them to multiple examples of published essays (Beck & Godley, 2023). Support from teachers and counselors should be provided to help students write impactful college admissions essays (Beck & Godley, 2023).

Extracurricular Involvement

Access to and participation in extracurricular activities and other interests can play an important role in helping to prepare and shape a student's postsecondary plans, contributing to their post-high school success. A few of the benefits of extracurricular activities for students include better grades (Durlak et al., 2010; Fredricks & Eccles, 2006; Kronholz, 2012), higher graduation and college acceptance rates (Sahin, 2013), lower incidences of substance abuse (Crispin et al., 2017), increased self-esteem, and decreased depression (Fredricks & Eccles, 2006). Regardless of the focus of the extracurricular activity, participation provides marked benefits to students (Durlak et al., 2010). In terms of postsecondary engagement, students who maintained participation in school-based extracurricular activities for at least two years were 97% more likely to attend college and 179% more likely to obtain a postsecondary degree (Kronholz, 2012). Students' participation in such activities can be interpreted as a source of social capital that could increase their likelihood of postsecondary enrollment, or they might choose to join certain activities as a means of building up their resume in preparation for their application to postsecondary institutions (Klasik, 2012). When integrated with educational goals, extracurricular activities can be used to aid student preparedness for college and the workforce (Ahmad et al., 2020; Allen et al., 2019; Levine, 2016). With mindful planning on the part of sponsors, schools can provide added support for postsecondary readiness by offering a variety of extracurricular activities.

School Activities and Electives. When students participate in school activities and form relationships with school staff, student achievement increases and the perception of barriers to attending college decreases (Bryan et al., 2017; Schaefer & Rivera, 2016). Students who participate in music courses, for example, have higher levels of academic achievement in core subjects (Guhn et al., 2020). The higher academic achievement rates of music-taking students are seen even after factoring in identifiers such as sex, socio-economic status, and language spoken (Guhn et al., 2020). When teachers cultivate positive relationships with students through activities and electives, students are more likely to persist academically and have higher levels of achievement (Schaefer & Rivera, 2016). This can also lead to a relationship built on trust (Martinez et al., 2022). This can include after-school clubs focused on students' interests. Clubs with well-structured content and program design, such as 4-H and Scouts, provide students the chance to refine essential skills such as research, customer service, project management, persuasion, and more, thereby fostering a positive impact on their lives that extends beyond the high school years (Solberg et al., 2021). School activities, electives, and clubs can provide students with tools, skills, and self-awareness to help prepare them for life after high school (Solberg et al., 2021).

Athletics. Involvement in physical activity has been reported to promote academic performance and achievement (Rasberry et al., 2011; Wretman, 2017). Therefore, participation in sports while in high school can lead to higher levels of persistence and the ability to reframe negative situations as positive ones (Guilmette et al., 2019). Particularly, giving students the opportunity to get performance feedback helps them understand the importance of persisting through difficult situations (Guilmette et al., 2019). Practice in persistence can help students as they transition into postsecondary education after high school (Guilmette et al., 2019). Additionally, participating in athletics can build self-esteem and lower levels of depression in teenagers (Bang et al., 2020).

Volunteering. Postsecondary institutions place value on a student's willingness to volunteer in their community when considering their admission. Colleges report that community service is a consideration when evaluating students for admission (Emerson, 2022). Public and private schools use community service as a deciding factor when choosing between student applicants who are equally qualified (Emerson, 2022). Students with volunteer hours on their applications are seen as more likely to contribute to the school's mission and be active in the campus social life (Emerson, 2022). Students who are involved in extracurriculars that include volunteering have also been found as more likely to attend PSE (Zaff et al., 2003), have higher rates of PSE enrollment and completion (Balfanz & Byrnes, 2019), and perform better academically (Fredericks & Eccles, 2006). Additionally, organizations that are passionate about their mission may offer scholarships to students who are involved with the organization. Completing volunteer service hours while in secondary school can translate to scholarship money for postsecondary education costs (Emerson, 2022).

Pursuing Individual Interests. Outside of school-sponsored activities, students may also have opportunities to pursue interests that reflect their own personalities and values. Research on the Schoolwide Enrichment Model (SEM) suggests students develop advanced reasoning and critical thinking skills when learning incorporates a focus on students' academic strengths, interests, and learning styles (Reis & Renzulli, 2023). Students who participate in activities aligned to their personal interests are more likely to graduate high school with a postsecondary plan and forge a clearer understanding of the types of careers they would like to have after high school (Denault et al., 2019). Integrating students' strengths and interests into learning affords opportunities for students to see they can earn a living doing what they enjoy and what they are good at. Therefore, it is important that students are provided opportunities to recognize and understand their academic strengths, interests, and preferences so they can work toward personalized postsecondary goals. Educators can facilitate student self-exploration of academic strengths and include classroom content and activities that allow students to focus on and grow such strengths, interests, and preferences within learning (Reis & Renzulli, 2023).

As educators provide these opportunities, it's essential that biases or assumptions about what students of various backgrounds are good at or should be interested in are absent from instruction (Carey, 2019). For example, students of marginalized backgrounds are more likely to perceive themselves as less prepared for postsecondary options, with Mexican-American students more likely to convey sentiments of "not being smart enough" as compared to their white peers (Carey, 2019; McWhirter, 1997). Low academic confidence and low college-going self-efficacy can negatively impact students' eventual success in postsecondary opportunities (Carey, 2019), with Strayhorn (2015) revealing academic confidence to be a central component of college success in STEM. Thus, it's important that students feel academically confident in order to increase positive postsecondary outcomes. Educators can foster such confidence through promoting and integrating unbiased explorations of academic strengths, personal interests, and learning preferences into instruction, enhancing the likelihood that students of all backgrounds, especially those from marginalized communities, develop beliefs about themselves as "smart enough" for postsecondary opportunities. Culturally relevant, college-going professional development fosters a schoolwide, college-going culture that supports PSE readiness and access for all students (Knight-Manuel et al., 2019). Research has shown that when educators receive such culturally relevant, college-going professional development, there is evidence of changes to educators' sense

of shared accountability and deficit-based perspectives regarding Black and Latino male students' college attendance (Knight-Manuel et al., 2019). Teachers as well as students should be lifelong learners (Sancar et al., 2021). Teachers' continuous learning through professional development can help them grow student learning and their own knowledge (Sancar et al., 2021). Therefore, it's important that educators learn and develop professionally with regard to postsecondary readiness and incorporating postsecondary talk throughout their teaching practices in culturally relevant ways.

Discussing personal interests, especially those considered niche, in students' college application essays is another way students can highlight valuable personal qualities and make connections between their interests and PSE choices (Beck & Godley, 2023). A niche might include anything from fly fishing to rock climbing, or soccer to creative writing, just to name a few (Beck & Godley, 2023). Along with exploring personal interests, many students seek employment during high school (Koppich et al., 2017) that can expose them to ways that jobs and careers could align with their interests or skills. However, employment during high school may also hinder students' abilities to explore personal interests and can become a barrier, among others, for some students pursuing postsecondary opportunities.

Barriers to Postsecondary Readiness and Pathways

Barriers, both actual and perceived, can lead to delays or missed steps along the path to postsecondary enrollment and must be considered in the development of any college and career preparation program (Klasik, 2012). If a student misses too many of the steps on the path to enrollment, a student with poststecondary aspirations may not ultimately enroll in postsecondary education (Klasik, 2012). Barriers can be especially high for students from homes of low socioeconomic status, or from groups that have traditionally been underrepresented in higher education, such as African-American and Latina/o/x students or students whose parents have not completed postsecondary education (Carey, 2019; Duncheon & Relles, 2019; Klasik, 2012). Barriers can be as wide-reaching as the fear of not being able to pay for college, lacking confidence in one's ability to perform academically, family or cultural expectations that send conflicting messages or do not share the same educational goals, or the student simply having a limited number of people in their network of connections with postsecondary experience (Carey, 2019, Martinez et al., 2019). Working during high school can also constitute a barrier because of the limited time students have to spend elsewise on extracurriculars, college applications, scholarships, and studying for admission tests (Koppich et al., 2017).

No matter a student's aspirations, the process of applying to and enrolling in postsecondary education is more complex than it might seem on the surface (Klasik, 2012). For students to successfully enroll in a four-year college, they must typically meet specific milestones, including having degree aspirations in high school, taking the ACT or SAT, attaining at least minimum qualifying academic standards, and completing the college application (Klasik, 2012). On the path from aspiration to postsecondary enrollment, family factors and racial background can both play a role in missing key milestones (Klasik, 2012, Holzman et al., 2019). Students who are first-generation college students experience lower levels of degree attainment, which could be due in part to a lack of supports and understanding at home for navigating college (Duncheon & Relles, 2019). Identifying the steps that students are especially prone to struggle with, or miss entirely, is key for a college and career preparation program in order for the program to help address these sticking points and, in turn, help create successful outcomes for students (Klasik, 2012). Students should understand and learn what resources may be accessible to them at postsecondary institutions before applying, and especially once accepted or enrolled, as help-seeking has been positively associated with postsecondary academic achievement (Fong et al., 2023).

Barriers also occur at the school level. Schools already struggling with issues of negative school climate are also likely to struggle with adequately engaging students and teachers in a PSE preparation program or building the desired level of college-going culture within the school (Carey, 2024; Knight & Duncheon, 2020). Carey (2019) frames barriers to postsecondary education through the lens of social cognitive theory and cautions that schools and programs looking to prepare students for postsecondary education should always consider student perceptions and beliefs in their program designs. If programs present information in a way

that lacks awareness of students' current perspectives and beliefs, or invoke practices that further marginalize already marginalized students, they might end up having the unintended effect of hindering PSE preparation or motivation and make an already daunting process seem even more intimidating and unattainable to the point where the student simply gives up (Carey, 2019; Martinez et al., 2019). Similarly, if teachers have low expectations of their students' potential or of the potential for certain students, they might not put in the effort needed to make a postsecondary readiness program succeed, or they might select which students they think should receive the program's services and exclude others (Martinez & Everman, 2017). Teacher and counselor expectations of students can affect a student's postsecondary decisions (Benner et al., 2021; Bryan et al., 2022). Research shows that high expectations from teachers can even outweigh low expectations from family (Benner et al., 2021). Another danger of misaligned PSE preparation programs occurs when the program is implemented in such a way as to be selective of the students it serves. By targeting a specialized school community or population or by stratifying students into groups that do or do not receive services, the school's college-going culture is at risk of being fragmented and not inclusive of the entire student body (Martinez & Everman, 2017). Perhaps the largest perceived barrier is that of financial readiness. Students must be aware of financial barriers and viable solutions when facing them.

Financial Readiness

Financial challenges can be some of the most significant barriers and provide some of the most perpetuated misconceptions about postsecondary education. Because paying for college involves multiple variables and will not look the same for any two students, a one-size-fits-all approach will not be effective. Students and families are often not aware of the financial aid options available to those attending postsecondary institutions and express worry about the cost to attend (Carey, 2019). While many families encourage their children to attend a postsecondary institution, they may experience trepidation about the potential financial costs incurred when their child continues schooling after high school (Carey, 2019). Students themselves can become concerned about the financial burden that their family will take on if they attend a postsecondary institution (Martinez et al., 2020).

By junior year of high school, it is important that families are not only exposed to the many financial aid options that are available but also given strong support and guidance for navigating the financial aid process (Carey, 2019). School counselors can provide this service by hosting workshops to help families and students understand their options when it comes to financial aid (Paolini, 2019). Students and families should be informed not only of need-based programs to help finance postsecondary education, but also of the merit-based scholarships that are open to students based on GPA or athletic ability (Carey, 2019). Counselors are often well-placed to offer support and information regarding financing PSE.

Understanding Sticker Price vs. Actual Cost. One of the most common misconceptions about postsecondary education is that schools with the highest annual cost of attendance on paper will be the ones that are least affordable and least attainable to students of mid- to low-socioeconomic status (Grodsky & Jones, 2007). It is common for students to choose a school based on these misconceptions without understanding the full financial picture (Carey, 2019). Students may factor in their family income and savings when deciding on college (Carey, 2024). To make good choices regarding which academic programs will be most affordable to them, students and their families should have an accurate understanding of the various financial aid options and how their financial and academic situation will affect their access to different types of aid. This can be done through programs that include coaching on budgeting, managing student loans, and accessing available state and federal financial resources (Ricks & Warren, 2021).

The increasing cost of PSE means that students are relying on loans to finance their education (Evans et al., 2019). Yet, loan aversion may contribute to students not considering PSE or underinvesting in PSE. In a recent qualitative study of how community college students made decisions regarding PSE, students discussed being highly loan-averse for supporting PSE because they were either explicitly warned from doing so or they were familiar with friends or family that were still paying off student loans (Monaghan, 2024). The fear, then, of the

financial burden associated with PSE becomes a barrier for students when conceiving of their college choices and for aspiring to various postsecondary options (Monaghan, 2024). Experimental results of how financial options are labeled and discussed with students suggests that changing how loans are labeled and framed influences students' preferences or aversion to loans and other financial options. Furthermore, differences in loan aversion were reported among student subpopulations organized by race/ethnicity (Evans et al., 2019). Latina/o/x students and communities have been reported to express more loan aversion than Black, White, and Asian student subpopulations, with pronounced results indicating the effect of labeling financial aid options has a more prominent effect on Latino/a/x students (Evans et al., 2019). Therefore, in addition to providing information that dispels misconceptions concerning financial aid or options, referring to loans and other financial options with multiple relevant labels or framing techniques would reduce loan aversion and general uncertainty concerning financing PSE, especially when considering how loan aversion may be uniquely prevalent based on students' cultural background and identities.

FAFSA. One of the milestones of postsecondary education financial readiness is completing and submitting the Free Application for Federal Student Aid (FAFSA). FAFSA is the form that students complete during their senior year of high school, and then once yearly while in college. This form is used to qualify for the federally funded Pell Grant, federally backed student loans, and work-study programs. Eligibility is based on students' family income, and awards are distributed by the financial aid office at the college students attend. In 2021, approximately 87% of students qualified for some type of federal financial aid (National Center for Education Statistics, 2023). FAFSA requires all parents and students to register for an account with a username and password and sign up for a Federal Student Aid ID (FSA ID) (U.S. Department of Education, n.d.). Students will need to work with their families as the FAFSA form requires tax information, balances of savings and checking accounts, and net worth of investments (U.S. Department of Education, n.d.). When students are provided with support to fill out the FAFSA, such as meeting with a counselor, the percentage of students who complete the FAFSA form rises from 59% to 87% (Shea et al., 2023). In the last year, FAFSA has adjusted the application process which has resulted in fewer applications for aid due to lack of understanding of how to navigate the process (Craig, 2024; Dickler, 2024). Schools can promote FAFSA workshops for parents to help families prepare their students for the transition from high school to postsecondary education (Paolini, 2019). Some schools have implemented college-student-staffed centers that assist with college application tasks such as completing the FAFSA (Stillisano et al., 2013). One-on-one support for students and families completing the FAFSA will result in higher numbers of FAFSA completion and the potential removal of financial barriers to attending a postsecondary institution.

Scholarships. Students might have misconceptions about the full scope of scholarships available to them, which extend beyond academic or athletic achievements to encompass such things as involvement in clubs or other extracurricular pursuits, identification with a particular group, or financial need (Ryan et al., 2021). Prompting students to seek out scholarships is one way teachers can promote this area of college readiness (Martinez, 2022). Schools can support students by providing regular updates about the availability of scholarships at school by using daily announcements or flyers to inform students (Martinez et al., 2019).

Conclusion

Ultimately, the present synthesis and review of literature articulates the need for and complexities of developing a comprehensive framework for postsecondary readiness standards for students, educators, counselors, and families. Although frameworks for studying and conceptualizing postsecondary options currently exist, these frameworks could further develop such emphases as cultural relevance or non-academic skills, or existing components could be made more robust and detailed to pertain to fostering postsecondary readiness for students specific to supportive stakeholders. A comprehensive framework of PSE readiness should include factors of knowledge, skills, and attitudes to more holistically encompass the influences and interrelationships of factors associated with PSE readiness. Moreover, for programs developed and organized

to build postsecondary readiness in students, like GEAR UP, a more holistic approach to PSE readiness would improve and enhance existing initiatives. Thus, the present review presents such a potential framework for PSE readiness of knowledge, skills, and attitudes, and showcases research to date and insights into how a standards framework for PSE would be developed for middle to high school students, educators, counselors, and students' families.

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[1] The published title of this article contains a typo.

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