# *Graduating from High School Ready for College*

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## Introduction

Over the past decade, a growing consensus has emerged that the primary role of high schools is to prepare all their students to continue their education to the postsecondary level. College readiness has become embedded in the goals of districts and schools. The focus on college readiness is a reflection of the need for young people to have a postsecondary education in order to participate in the knowledge economy (Georgetown University Center on Education and the Workforce, 2016; Pew Research Center, 2014; U.S. Department of Education, National Center for Education Statistics, 2017).

While agreement has coalesced around the goal of high school being preparing students for college, a clear, actionable, evidence-based definition of college readiness remains elusive, particularly one that provides guidance for addressing the gap in college completion rates by gender, race/ethnicity, and urbanicity. Much of the policies and metrics on college readiness have focused on academic preparation and performance once students enroll in college, particularly test scores, GPA, and advanced coursework (Adelman, 1997; Glancy, et al., 2014). Gaps in achievement along a range of academic dimensions have been well documented. However, a solely academic focus masks the complexity of what it means to be ready to enroll and succeed in college and how this differs by student background and institutional characteristics.

Increasingly, researchers are focused on identifying factors that lead students to struggle or succeed in college and have demonstrated that readiness requires more than academic achievement (Braxton, 2000; Conley 2014; Conley & French 2014, Duckworth, Peterson, Matthews & Kelly, 2007). Other categories of factors that have been identified include students' knowledge about college (e.g., managing the college application and choice process and how to navigate the complex bureaucracies of higher education) and a range of noncognitive factors[1] (e.g., growth mindset, self-regulation, social awareness, sense of belonging). College knowledge and certain noncognitive factors are particularly salient for students who are not coming from a college-going background and do not have access to the same degree of social capital as their more privileged counterparts.

Indicators of college readiness also need to consider different milestones to college completion. Doing well in college depends on whether students enroll in college in the first place, thus being ready to engage in the college enrollment process is an essential element in considering how to assess college readiness. David Conley (2007) has suggested a definition of college readiness as "being sufficiently prepared to enroll and succeed in a non-remedial, credit bearing general education course during the first year in a post-secondary institution offering a baccalaureate degree or transfer to a baccalaureate granting institution." Beyond course performance in the first year, the goal of college

[1] Other researchers use alternative terms for concepts closely related to noncognitive factors such as "metacognitive" factors or "interpersonal and intrapersonal" skills or "social emotional" factors.

readiness is the completion of a certificate or degree, and college readiness should also be assessed against that milestone.

One further complication in considering college readiness is that colleges vary greatly in their admissions standards and the factors that matter for success, both by institution and by major within an institution. Not only do the academic qualifications needed gain admission to college vary, the level of academic preparedness and the type of college knowledge and noncognitive factors needed to make a successful transition vary. The complexity between applying to a community college versus a highly selective liberal arts college differ greatly, as does the type of college knowledge needed to navigate different environments. Students enrolling in a college with students of similar background do not need to draw on the same set of mindsets or adapt social skills in the same way that students entering a new cultural environment in college (Hurtado & Carter, 1997; Stanton-Salazar, 1997; Steele, 1997). The transition to college is a complex phenomenon that is shaped by both the wide variety of internal factors students bring with them and their interaction with their external environment.

This paper is composed of three parts. The first section highlights different domains of college readiness. The second examines how the domains relate to different milestones of college completion, examines how different demographic groups have differential likelihoods of reaching the milestones, and reviews the evidence base. The third section suggests indicators of college readiness based on this review of the literature. Using a more expansive definition of college readiness requires looking beyond the traditional set of academic indicators that

inhabit accountability systems and seeking a additional means of measuring college readiness.

## Domains of College Readiness

The best-known model of college readiness was produced by the researcher David Conley (2014). It describes four domains of college readiness: (a) key cognitive strategies, (b) key content knowledge, (c) key learning skills and techniques, and (d) key transition skills and knowledge for college. Similarly, another framework, the College Readiness Indicator System, identifies three areas of college readiness: academic preparation, academic tenacity, and college knowledge (Borsato, Nagaoka, & Foley, 2013). Both of these models highlight the importance of academic preparation, noncognitive factors, as well as the importance of having the knowledge and skills to navigate the college application process as well as college campuses. Although not specifically about college readiness, a previous National Research Council study (2012) identified three areas of competencies related to student success: intrapersonal, interpersonal, and cognitive competencies. For the purposes of this paper, three domains of college readiness are described: 1) academic readiness, 2) college knowledge, and 3) social emotional learning factors.

*Academic readiness.* This domain of college readiness includes content knowledge, cognitive competencies, and learning skills and techniques. Content knowledge refers to the subject mastery required as a baseline for engaging in college level courses. Cognitive competencies include both cognitive and metacognitive abilities such as analysis, interpretation, problem solving, and

reasoning that have been consistently linked with college success. Learning skills encompass specific actions, skills or beliefs that learners use to excel in academic settings. They range from attending class regularly to study skills to time management.

*College knowledge.* The second area of college readiness refers to the information and actions students need to apply successfully to college and for financial aid, make a college choice and once enrolled, being able to navigate the systems and culture of the college environment. College knowledge includes understanding the college application process, the financial aid system, and the range of institutions within the postsecondary system, as well as the ability to navigate these complex processes and systems. The process of enrolling in college entails a set of knowledge and skills that can be supported by schools and students' families by providing norms, information, and guidance about college-going.

This paper highlights college knowledge as a lever of particular importance for addressing differential levels of college readiness and success. College knowledge is distributed inequitably in society based on students' backgrounds and school environment (Conley, 2008). Inequities in college knowledge can discourage, without intervention, and suppress the college aspirations of students, particularly first-generation college students, and students from racial/ethnic backgrounds who often find the college environment very different from their home communities. It is particularly important to note the complexity of the transition to college and how it is shaped by both the wide

variety of internal factors students bring with them and their interaction with the college environment.

*Social emotional learning factors.* Undergirding both academic readiness and college knowledge are social-emotional learning factors. These factors include the skills, attitudes, beliefs, and strategies that are crucial to students' academic performance and participation in postsecondary. Social-emotional learning factors go by many names, including noncognitive skills, metacognitive skills, soft skills, and character traits. The 2012 National Research Council study incorporated the intrapersonal domain (intellectual openness, work ethic and conscientiousness, and positive core self-evaluation) and the interpersonal domain (teamwork and collaboration and leadership, which include factors that both help students engage in the academic challenges of postsecondary education, but also the social adjustment.

Researchers examining the adjustment to college emphasize the role that personal and social integration into the college environment plays (Tinto 1993; Braxon 2000). Going to college requires students to have new and challenging experiences beyond calling on competencies to engage in more challenging academic work. The college experience can raise difficult questions about identity, belonging, and purpose. Thus, in addition to having academic dimensions, the struggle to make a successful transition has a social-emotional dimension as well. This paper does not intend to identify specific indicators of social-emotional learning, rather it will note how indicators of academic readiness and college knowledge rest on social-emotional factors and should reflect their

importance as well.

**Ready for What?**

The term college readiness implies that a student has had the experiences and preparation necessary to be successful in college and ultimately complete a certificate or degree. However, the journey from high school to postsecondary completion requires is conditional on enrollment. This section describes the milestones to completion and describes the evidence base for how these outcomes vary by demographics and the role that the three dimensions of college readiness play in each.

***College Enrollment*** The national immediate college enrollment rate for high school completers increased from 63 percent in 2000 to 69 percent in 2015, with 25 percent enrolling in two-year colleges and 44 percent enrolling in four-year colleges (U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October Supplement, 2000–2015). White students are much more likely to enroll in college than Black high school completers (71 percent v. 56 percent). Latino students have similar enrollment rates as White students (69 percent) while Asian students have the highest enrollment rate (83 percent). Students from high-income families are much more likely to enroll in college than low-income students (83 percent versus 69 percent), which middle income students are actually less likely to enroll than low-income students, with only 63 percent enrolling. These gaps in enrollment point to the complexity of the process

of enrolling in college, and that beyond academic qualifications, other factors such as college knowledge, come into play.

College admissions standards require students to have particular levels of academic skills and knowledge, as well as non-cognitive skills as assessed by looking at students' performance on achievement exams, grade point average (GPA), and participation in coursework and each of these three areas are predictive of whether students enroll in college (Adelman 2006). Coursework is a marker of whether applicants have been exposed to content that prepares them for college-level courses. Achievement tests are used as standardized indicators of students' cognitive ability, content knowledge, and core academic skills. Course grades measure the extent to which students have mastered the material in their classes, and have the cognitive and learning strategies to engage in coursework.

An important strand of research on college access suggests that low-income and first-generation college students do not have the college knowledge to effectively identify the kinds of colleges they might like to attend, the range of options that are available to them, and how much they will be expected to pay for college. College knowledge, as measured by engagement in the college application process, is a strong predictor of college enrollment, particularly for low-income, minority students (Manski and Wise 1983; Pallais and Turner 2006, Plank and Jordan; Roderick, Nagaoka, Coca, & Moeller, 2008).

College knowledge also shapes how students seek financial aid and pay for college. Applying for financial aid, particularly for low-income students, has

been shown to predict whether or not students enroll in college (U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002; Roderick, Nagaoka, Coca, & Moeller, 2008). Even when financial constraints are greatly reduced, highly qualified low-income students do not apply to elite colleges. In a study of Harvard's initiative to guarantee full financial aid to students with family incomes below $60,000, the number of students entering the applicant pool increased, but many highly qualified students did not apply. In particular, students who attended high schools with little or no tradition of sending their graduates were unlikely to apply. (Avery, et al., 2006).

Colleges have long been seeking to measure social-emotional factors in their admissions processes by examining applicants' participation in volunteer activities, leadership roles, sports teams, and student clubs. Many colleges ask students to write essays that evaluate both their writing skills and other less tangible factors that help determine whether students are likely to succeed on their campuses. Some include interviews to allow for a more comprehensive view of the students' qualifications. The recognition of the importance of noncognitive factors in student success has led to the development of instruments designed to measure noncognitive factors, including by the large testing companies that have been producing cognitive college admissions tests (Kyllonen, 2012; Lauren, 2008; Sedlacek, 2011). It has also been suggested that these instruments may be more effective in identifying minority, first-generation college students than traditional measures (Sedlacek, 2011).

***College persistence and first year GPA.***

***College completion.*** Like college enrollment rates, four-year college completion rates vary widely by race/ethnicity. The overall six-year completion rate for 2009 graduates was 58 percent, with the rates for White students being 63 percent, 38 percent for Black students, 51 percent for Latino students, and 70 percent for Asian students.

The most commonly cited reason for these gaps is differences in academic preparation, as measured by college entrance exams (the ACT and SAT), high school GPA, and rigorous coursework. However, the strength of the evidence for these three types of indicators vary widely.

The literature on college readiness suggests scores on college entrance exams are strong predictors of college graduation. However, most of these studies have been conducted in collaboration with testing companies, and use student -reported GPAs in their comparisons (Camara & Echternaucht, 2000; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Noble & Sawyer, 2002). These studies often do not control for student background characteristics, college type and characteristics, or high school characteristics. Among students in similar types of colleges, who come from similar high schools, ACT and SAT scores have weak-to-no associations with college graduation.

The research base for the predictiveness of high school GPAs is much stronger, particularly from studies that use student transcripts. These studies

tend to find that high school GPAs are the strongest predictors of college grades and of college graduation, compared to other potential academic indicators, such as test scores (Bowen, Chingos, & McPherson, 2009; Camara & Echternacht, 2000; Geiser & Santelices, 2007; Geiser & Studley, 2002; Roderick, Nagaoka, & Allensworth, 2006) .

While advanced coursework serves as a signal in college admissions and is a predictor of college enrollment, its prediction of college completion is less studied than grades or test scores, and the evidence is mixed. Advanced Placement (AP) is one of the most common examples used across the country to provide opportunities for advanced coursetaking and college credit for high scores on an exam. However, in most studies that control for demographics and prior characteristics—comparing students with similar backgrounds, researchers find students who took AP courses in high school perform no better on college freshman GPA, persistence, and completion (Dougherty, Mellor, & Jian, 2006; Geiser & Santelices, 2004; Klopfenstein, 2004; Sadler & Sonnert (2010). However, one study by Jackson (2014) did find positive effects for providing teacher training and payments to 11th and 12th grade students and their teachers for passing AP exams; students in participating schools increased their AP passing rates, college retention and wages. The International Baccalaureate Programme (IB) has been less studied; one study found that IB students were significantly more likely to persist in college after two years.[2] Dual enrollment, the opportunity for students to take college courses for college credit while still

[2] Coca, et al. (2012).

enrolled in high school, has shown promise; studies have found students who participate in dual enrollment programs are more likely to persist and complete college.[3] Thus, there is a basis for including at least some types of coursework into college readiness indicator systems. However, more research is needed to know how much emphasis there should be on these indicators.

It is important to note that higher test scores and stronger coursework make it more likely that students will get into colleges where more students graduate, and thus will have an indirect effect on college completion. As a result, they are important indicators of college readiness, but greater emphasis should be placed on high school GPA, as it is a strong indicator of both completion and enrollment.

**Indicators**

Indicators of college readiness should be predictive of three stages of college: enrollment, persistence and first-year GPA, and completion. The evidence base for college enrollment is by far the strongest.

Academic readiness indicators:

- High school GPA- strong evidence base for college enrollment, persistence and completion.
- College entrance exam scores- evidence for college enrollment but no evidence for persistence and completion
- Coursework- evidence for college enrollment but no evidence for persistence and completion

[3] An (2012); Karp, et al., (2007).

Indicators of college knowledge:

- Completion of college applications- evidence for college enrollment but no evidence for persistence and completion; no clear threshold for number
- Timely completion of FAFSA- evidence for college enrollment but no evidence for persistence and completion

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