

ACT Holistic Framework of Education and Work Readiness

A limitation of current definitions of college and career readiness is that they tend to focus exclusively on academic preparation and, in particular, to focus narrowly on the level of knowledge and skills students need in mathematics and English. Such a focus may be driven in part by an emphasis on educator accountability rather than a student-driven model that emphasizes the broader set of skills and competencies associated with success (Conley, 2013).

An earlier report presented a mounting body of evidence showing success in school and work is multidimensional (Mattern et al., 2014). In the workplace, it has long been recognized that performance on the job requires more than just completing tasks in a timely manner with sufficient quality. For instance, Campbell's (1990) eight-factor model of job performance is widely accepted. Based on a factor analysis of the various behaviors related to overall job performance, Campbell subdivided job performance into the following dimensions: task-specific behaviors, nontask-specific behaviors, oral communication, effort, personal discipline, teamwork, supervision or leadership, and managerial skills. Constructs such as organizational citizenship behaviors and counterproductive work behaviors have been proposed as additional dimensions of job performance, reinforcing the notion that task-specific behavior is an insufficient representation of the broader construct of job performance (Borman & Motowidlo, 1993).

Academic performance can be similarly conceptualized as multidimensional because it too encompasses a wide range of behaviors important for overall success (Camara, 2005; Conley, 2011; Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004; Shultz & Zedeck, 2011). For example, Oswald et al. (2004) proposed a twelve-factor model of academic performance that included both a traditional academic component (knowledge, learning, mastery of general principles) and nontraditional components such as continuous learning, multicultural tolerance, leadership, and career orientation. Given that all these various dimensions are important components of success, it follows that readiness and preparation should be similarly focused on a broad and diverse set of personal characteristics.

Previous research has demonstrated that although cognitive indicators of readiness tend to be most strongly related to traditional indicators of work success, noncognitive predictors such as behaviors, career interests, and self-related beliefs are also reliable predictors of performance in the workplace (Barrick & Mount, 1991; Judge & Bono, 2001; Nye, Su, Rounds, & Drasgow, 2012; Schmidt & Hunter, 1998). In a similar vein, empirical findings in the educational setting have shown that while cognitive skills tend to be the best predictors of academic performance, noncognitive skills can also reliably predict academic performance (Poropat, 2009; Richardson, Abraham, & Bond, 2012).

When performance and other work-related outcomes are defined more broadly, noncognitive skills take on added value. For example, on the job several noncognitive skills are related to important aspects of performance, such as helping coworkers and being cooperative (Berry, Ones, & Sackett, 2007; Borman, Penner, Allen, & Motowidlo, 2001). Research has also shown that noncognitive skills predict other important outcomes, such as

job satisfaction and the intention to quit (Kristof-Brown, Zimmerman, & Johnson, 2005; Zimmerman, 2008). In educational settings, both cognitive and noncognitive skills predict college retention (Radunzel & Noble, 2012; Robbins et al., 2004).

Research conducted at ACT has explored ways to better understand and predict education and work success. The ACT approach to assessment has been student centered and has included multiple broad domains: core academic measures (e.g., science, English language arts, mathematics), behavioral measures (e.g., motivation, engagement, self-regulation), and career and education navigation measures (vocational interests, work-related values). Mattern et al. (2014) describe the multidimensional nature of college and career success and introduce the ACT holistic framework, which moves beyond just academic measures of college and career readiness to a research-based continuum that includes the important noncognitive components. Equally important is the developmental progression associated with each of the broad domains from middle school—and even grade school—forward to the workplace.

To provide a more holistic and integrated picture of education and work readiness from kindergarten to career, ACT has created a framework of readiness that includes knowledge and skills organized into four broad domains (see Figure 1):

- Core academic skills in mathematics, science, and English language arts (ELA) based on an expanded, more granular definition of the skills and mapped to learning progressions from kindergarten through career (K–Career)
- Cross-cutting capabilities, such as critical thinking, collaborative problem solving, and information and technology skills
- Behavioral skills related to success in education and the workforce, such as dependability, working effectively with others, adapting, and managing stress
- Education and career navigation skills related to education and career paths, including self-knowledge of abilities, values, likes, and dislikes; knowledge about majors and occupations; and a variety of skills related to education and career exploration, planning, and decision making

It should be noted that other multidimensional models of success in education and the workplace have been proposed (e.g., Camara, 2005; Campbell, 1990; Conley, 2011; Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004; Shultz & Zedeck, 2011). Across these various models, we find significant overlap in terms of what predictors have been identified as important for education and workplace success. For example, Conley’s model of college and career readiness can be broken down into four areas: key cognitive strategies, key content knowledge, key learning skills and techniques, and key transition knowledge and skills. Indeed, his model includes many of the same constructs proposed in the current framework. The model proposed here builds on all of the previous research and extends it in important ways. For one, previous research on college and career readiness has focused on the high school to college transition; however, a primary goal of the current effort is to articulate what students need to know and be able to do at numerous points along the K–Career continuum. In a similar vein, most research on college and career readiness focuses exclusively on the educational setting and educational outcomes; however, the current

effort is also focused on understanding important predictors of workplace success, allowing one to meaningfully evaluate whether the same knowledge and skills—moreover, the same level of knowledge and skills—are needed to achieve education and workplace success. Finally, the current framework also drills down to more specific levels of knowledge and skills to clearly define what students need to know and be able to do.

In this report, we first build on the research conducted at ACT over the last fifty years to provide the context for a holistic model of education and work readiness that includes each of the four broad domains. We then describe the holistic model of readiness, highlighting the importance of each broad domain at key developmental transitions in education and work, the relevant constructs included, and the research support for how these constructs apply to specific outcomes. The discussion also includes a comparison of how the constructs for academic and workplace success are similar across ages and settings (e.g., school vs. work) yet may be expressed differently at different ages or in different settings, highlighting theoretical and empirical support for the constructs included in the broad domain. The report concludes with a discussion of an integrated view of education and work readiness, acknowledging that constructs from the four broad domains are not independent, that together they provide a more holistic view, and that different constructs are relatively more or less relevant for different aspects of success over time. To illustrate the multidimensional nature of readiness for education and work success, the examples focus on two key transitions: the transition from high school to college and the transition from college to work. For these two transitions, we present a holistic model of success that specifies factors in each of the domains that are important for success. The example models highlight the fact the relevancy of various constructs in our framework in terms of predicting success depends on the outcome being examined, as well as the transition. For example, some constructs are more relevant for performance in college as compared to persistence in college. Likewise, different constructs are more relevant for performance in college as compared to performance on the job.

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No Child Left Behind (NCLB), for example, requires assessments in reading and mathematics, neglecting other cognitive skills and behaviors that have been shown to predict success in educational and work settings.