Assessing Affective Factors to Improve Retention and Completion

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Bloom's Taxonomy may be the most recognized framework in all of education. Categorizing learning objectives into cognitive, affective, and psychomotor domains appeared to be common sense at the time the construct was created, and the domains both thrived and evolved over decades with many applications and revisions.

Benjamin Bloom and four of his colleagues met over a period of years during the late 1940s and early 1950s as a group of educational psychologists seeking to create a framework of learning objectives as a basis for designing curricula, tests, and research. In 1956, they published *Taxonomy of Educational Objectives – The Classification of Educational Goals – Handbook I: Cognitive Domain*, which became one of the most significant books ever published in education. In 1973, several other psychologists, including Bloom, also published a book on the affective domain, though an effort explicating the psychomotor domain was never published. Their work initially focused on the cognitive domain, perhaps because many at the time believed it too difficult to define, let alone assess, the affective domain (Martin & Reigeluth, 1992). Over the next several decades, most educators would also focus here, as the cognitive domain served as the foundation for most of traditional education. In Bloom's Taxonomy, the cognitive domain reflects knowledge, the psychomotor domain reflects skills, and the affective domain reflects attitudes.

Although educators and researchers recognize the value and importance of the affective domain to student success (e.g., Furst, 1981; Griffith & Nguyen, 2006; Martin & Reigeluth, 1992), it is the least applied and least understood of the taxonomy trilogy. Knowledge and skills are easier to understand and apply in the educational process; the affective domain reflects the world of feelings, values, appreciation, motivation, and attitudes—factors much more difficult to understand and assess.

The Affective Domain

Both implicitly and explicitly, there have been some grand experiments designed to emphasize the affective domain. Traditionally, residential education, student clubs and associations, dons and mentors, and counseling and student services have been the primary programmatic attempts to help students improve their interactions with others, to explore values and prejudices, and to increase self-understanding and self-esteem. For example, the Learning and Development Outcomes developed by the Council for the Advancement of Standards in Higher Education (Strayhorn, 2006) have served as the primary framework for student affairs and co-curricular programs and services—including housing and residence life, advising, and counseling services—for nearly a decade, and focus heavily on "intrapersonal development," "interpersonal competence," and "humanitarianism and civic engagement," among other areas.

There have also been some philosophical and psychological movements that have attempted to embed the affective domain into the educational enterprise. These include Progressive Education (Hayes, 2006; Reese, 2001), the Humanistic Education Movement Weinstein & Fantini; 1970), and theories of self-concept and self-esteem (Burns, 1982; Lawrence, 2006).

But no matter the quality and number of champions of the affective domain—John Dewey, Carl Rogers, Arthur Combs, and Abraham Maslow decades ago, and current leading researchers and educators such as Angela Duckworth, Carol Dweck, Patrick Kyllonen, Martin Seligman, and Roger Steinberg—the affective domain has remained the stepchild of the taxonomic trilogy when it comes to funded research, practice, and programs. However, new research, which often refers to the affective domain with terms such as noncognitive factors, psychosocial skills, or soft skills, is changing the conversation about key skills and behaviors in higher education.

Slowly Taking Hold

With the emergence of the Completion and Student Success Agendas (e.g., Hellyer, 2012; Hughes, 2012; Humphreys, 2012; Mullin, 2010) informing the overarching mission of higher education, the affective domain may find a more welcoming climate in the halls of academe. The community college may become the ideal incubator for demonstrating the significant role the affective domain can play to expand and improve student learning and increase retention and completion. Community colleges have been assigned the toughest tasks in all of higher education, and their leaders and their faculties have experimented for decades with traditional models of education. They are now turning to less traditional models and welcome the opportunity to innovate and explore new ideas, new structures, and new incentives—many based on practices and programs that incorporate the affective domain.

There is now general agreement among educational leaders and researchers that assessing students more effectively on affective dimensions, along with assessments of academic knowledge and incorporating past indicators of success such as high school GPA, is a promising direction for community colleges and other educational institutions committed to increasing retention and completion rates.

A shift toward the affective domain began in the early 1990s, when then United States Secretary of Labor, Lynn Martin, appointed the Secretary's Commission on Achieving Necessary Skills. The Commission then released *What Work Requires of Schools* (SCANS, 1991), which described the cultural, industrial, and sociological changes that required students to learn a different set of skills, particularly to be effective in the workplace. Not only did this involve a shift in the cognitive domain, emphasizing factors such as information literacy and the effective use of technology, but it also emphasized the soft skills reflective of the affective domain, including factors such as interpersonal skills and personal qualities (e.g., responsibility, self-esteem).

Since the publication of that report, many similar efforts, including those led by groups such as the Partnership for 21st Century Skills (2004), the National Research Council (2008, 2009, 2011, 2012), and the Collaborative for Academic, Social, and Emotional Learning (see Elias, 1997), have also sought to promote the inclusion of the affective domain, using various nomenclature, frameworks, and theoretical models, into models of student learning and educational practice. Specifically in higher education, frameworks over the past decade have expanded the domain of learning to almost seamlessly include cognitive and affective domains in defining what students should know and be able to do after completing college (e.g., Adelman, Ewell, Gaston, & Schneider, 2011; Association of American Colleges and

Universities., 2007; Markle, Brenneman, Jackson, Burrus, & Robbins, 2013; Strayhorn, 2006). For example, while communication skills might include the ability to read, write, and speak effectively (traditionally cognitive skills), many modern definitions of effective communication also include interpersonal components—the ability to read and interpret one's audience, tailor a message effectively, or persuade others—that might be considered affective (or noncognitive). In this way, communication is neither a cognitive nor affective skill, but a combination of both.

In addition to changing the outputs of higher education, affective factors have also been added to the list of key inputs, or predictors of success, in higher education. Several large, meta-analytic studies over the past decade have shown the importance of these domains (Poropat, 2009; Richardson, Abraham, & Bond, 2012; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004; Robbins, Oh, Le, & Button, 2009). These studies have rather conclusively demonstrated three important points about affective factors and student success. First, affective factors significantly predict student success. Second, this predictive validity is significant, even when controlling for variables such as standardized test scores, high school GPA, and socioeconomic status. Third, the relative importance of affective variables, vis-á-vis academic achievement, may be even greater when referring to persistence outcomes. That is, while test scores and high school GPA are strong predictors of college GPA, they have been shown to be weaker predictors of retention than noncognitive skills (see Robbins et al., 2004).

In addition to demonstrating their ability to predict success, research has demonstrated two other points about the malleability of affective areas that make them pertinent to the student success conversation. It was a long held tenet of psychology that personality traits (another moniker for the affective domain) are stable once established in adulthood. If this were true, and personality fixed and unchangeable, then using affective variables to indicate success would be less relevant for suggesting interventions. For example, demographic variables such as race/ethnicity, gender, or socioeconomic status have been consistently shown to be correlated with success. Yet these factors are not only immutable, but also provide no information about how to mediate risk for traditionally underserved groups (Eaton & Bean, 1995).

However, a meta-analysis by Roberts, Walton, and Viechtbauer (2006) showed that personality does indeed fluctuate significantly over one's lifetime. Moreover, Yeager and Walton (2011) reviewed several studies that showed effective psychosocial interventions that not only improved skills and behaviors, but had long-term impacts on student success. Effective interventions generally shared three characteristics. First, they had a firm basis in social psychological theory, meaning that they identified and addressed the underlying phenomenon (e.g., self-efficacy) that drives student success. Second, they were engaging activities, rather than instructional lectures. Third, these interventions were stealthy in nature, such that students were not directly instructed that the intervention was targeting psychosocial factors.

Ultimately, the studies by Roberts, Walton, and Viechtbaur (2006),Yeager and Walton (2011), and others demonstrate perhaps the most important aspect of the affective domain: Not only do these factors impact success, but they are also malleable and can be changed. Unlike other factors that are fixed—either by their inherent nature or the sheer mass of intervention required to do so (e.g., socioeconomic status) —the affective domain directly impacts success *and* allows interventions that can make changes in student behavior.

Defining and Structuring the Affective Domain

Recently, several popular efforts have emerged to apply various dimensions of the affective domain, though under different names. These include "grit" (Duckworth, Peterson, Matthews, & Kelly, 2007), "character" (Tough, 2013), and "hope" (Snyder, 2000), and are characterized by focusing on a common trait that determines student success above and beyond traditional indicators of achievement. Although these studies add to the extant body of literature which has already thoroughly demonstrated the importance of psychosocial skills, they do present some challenges to the larger inclusion of the affective domain into higher education.

In some cases, they cloud the picture of the affective domain by adding relatively synonymous terms to its already vast construct space. For example, Duckworth et al. (2007) espoused the importance of grit, but at the same time found it to be highly correlated with the personality domain of conscientiousness. This convergence should not come as a surprise, given grit's definition ("perseverance and passion for long-term goals"), nor should its predictive value, given the findings of Poropat (2009) and Robbins et al. (2004; 2009), which demonstrated the importance of conscientiousness and its various facets.

Ironically, some of these efforts also oversimplify the role of affective factors. For example, in describing "hope," Lopez (2009) provided the following definition:

> Hopeful students see the future as better than the present, and believe they have the power to make it so. These students are energetic and full of life. They are able to develop many strategies to reach goals and plan contingencies in the event that they are faced with problems along the way. As such, obstacles are viewed as challenges to overcome and are bypassed by garnering support and/or implementing alternative pathways. Perceiving the likelihood of good outcomes, these students focus on success and, therefore, experience greater positive affect and less distress. Generally, high-hope people experience less anxiety and less stress specific to test-taking situations. (p. 1)

This definition of a seemingly singular trait—hope—contains references to several domains of personality. Yet a meta-analysis by van der Linden, te Nijenhius, and Bakker (2010), found that the highest observed correlation between any two personality factors was .32, suggesting large amounts of unique variance among these areas. Meta-analyses in academic settings (e.g., Robbins et al., 2004) have produced similar findings. As such, representing these concepts under the auspices of one term misrepresents their granularity and nuance. In order to develop an effective understanding of the affective domain and, more importantly, effective strategies to intervene with students, we must acknowledge that the affective domain is as diverse and complex as the cognitive one.

There have been a number of efforts to frame this complexity. For one, some (e.g., Poropat, 2009) have applied the "big five" personality factors (Goldberg, 1990). This widely used model describes human characteristics and behavior in five broad categories: extraversion (talkative, sociable, outgoing), agreeableness (tolerant, courteous, trustworthy), conscientiousness (industrious, reliable, orderly), emotional stability (self-reliant, calm, confident), and openness to experience (perceptive, artistic, curious). From a theory perspective, this is a sound approach given the resounding support for the big-five in personality literature. Kyllonen (2013) argued that it was this framework's successful articulation of the personality space that facilitated the shift in understanding the

importance of the affective domain. However, though the big-five model is popular among researchers in psychology, it is rarely used in educational practice to articulate the skills of incoming students.

A host of frameworks, usually tied to existing assessments, present academically contextualized skills, behaviors, and attitudes relevant to student success. In many cases, these models present general skill areas, each with more granular subskills. These include the recent work done with ETS' SuccessNavigator assessment (Markle, Olivera-Aguilar, Jackson, Noeth, & Robbins, 2013) and ACT's Engage College Domains and Scales Overview (2013). Generally, the broader domains in these models are tied to those areas of the big-five personality theory that have been shown to most effectively relate to student success, including some combination of academic behaviors (e.g., study skills), motivation or commitment, self-regulation (e.g., emotional stability), and social connection.

The models presented by ETS and ACT represent only two of a litany of affective frameworks in higher education. These efforts that focus on student success add to those aforementioned frameworks that outline affective student learning outcomes. Indeed, one of the challenges in this area has been the lack of a clear theory or structure that might help educators better understand and discuss these affective skills, especially given their novelty in the academic landscape.

Touch Points for Student Success

Studying these affective factors has not only helped us better understand what affects success, but it has changed the way we view success itself. For decades of postsecondary research, the outcome of interest was primarily grade point average, though studies have increasingly focused on persistence and completion over the last several decades. Certainly, these two phenomena are inextricably linked, but research has shown differences in the factors that underlie each (e.g., Robbins et al., 2004; Markle et al., 2013).

In addition, there recently has been a large amount of attention paid to the early course placement and developmental education sequence, particularly in the community college sector. Interestingly, this attention has arisen from research, practice, and policy sectors, with each identifying low rates of success for those students who are placed into developmental courses (Bailey, Jeong, & Cho, 2008; Scott-Clayton, 2012). Obviously, course placement is just one point along the continuum of student success, but recent studies have suggested that it is a critically important point.

In the next sections, we discuss these three phenomena—course placement, academic success (i.e., grades), and persistence behavior—including the research into each area, relevant noncognitive factors, and effective practices to improve each outcome.

Course Placement and Developmental Education

Recent studies have cited both the abysmal rates of success in developmental education and the need to consider revolutionary changes to the way we place students into early college courses and address deficits in academic achievement (e.g., Bailey, Jeong, & Cho, 2010; Complete College America, 2012; Scott-Clayton, 2012). It is almost certain that the most effective means of improving developmental education will involve a combination of efforts, but some of the suggested steps include increasing support for students placed into developmental courses (e.g., Complete College America, 2012; Scott-Clayton, 2012); redesigning the structure of developmental courses (e.g., Edgecomb, 2011; Twigg, 2011); increasing the alignment between secondary curricula, placement tests, and college

curricula (e.g., Brown & Niemi, 2007; Brudman, 2012; Conley, 2008); and improving methods of placement testing (Boylan, 2009; Burdman, 2012; Collins, 2008; Conley, 2007; Levine-Brown, Bonham, Saxon, & Boylan, 2008); Saxon, Levine-Brown, & Boylan, 2008).

Among all these possible solutions to the developmental education issue, holistic assessment, acceleration, and course redesign have likely received the most attention in terms of research, practice, and policy. In addition, these areas are also where affective factors have the most relevance.

Innovations in developmental education. Given that the assessment of student readiness and likelihood for success is the first step in the process, considering revisions here is a logical place to start. Currently, there are two traditional standardized placement tests that are used to make the vast majority of placement decisions: the ACCUPLACER®, developed by the College Board, is used at 62 percent of community colleges, and the COMPASS®, developed by ACT, Inc., is used at 46 percent (Primary Research Group, 2008). At most institutions, these assessments are the sole determinants of student placement.

Some (e.g., Burdman, 2012) question the validity of existing placement tests. Others have noted (e.g., Conley, 2007) that academic achievement is only one of the many skills that indicate a student's likelihood of success in early college courses. Indeed, as the aforementioned meta-analyses have shown, many factors contribute to students' academic success. Thus, in attempting to determine where students should be placed in order to maximize their success, traditional placement tests might best be described as *insufficient*, rather than *invalid*, indicators. Accordingly, many states, including Florida, have recently passed legislation either limiting the use of placement tests (see Fain, 2013) or requiring multiple measures to be considered in placement decisions (e.g., California Student Success Task Force, 2012).

A second innovation is the redesign of developmental courses and curricula. Under traditional placement models, some students are required to take as many as four semesters of remedial courses before entering college-level (i.e., credit-bearing) coursework. Given this long and arduous path to a degree, some have argued the merits of shortening the sequence through course acceleration—placing students into higher level courses whenever possible—accompanied by co-curricular supports (Complete College America, 2012; Scott-Clayton, 2012).

Others have proposed various means of curricular restructuring and redesign for early math and English courses. Here, we refer to curricular restructuring as those efforts that use traditional pedagogical methods but not the traditional course structure (i.e., three credit hours, fifteen weeks). One example is the co-requisite model, in which students with deficiencies in academic achievement are entered into college-level courses, but are also required to take an additional section that allows for supplementary instruction time. Initial research has shown these efforts to be quite effective with regard to course completion and long-term success in both math and writing (Adams, Gerhart, Miller, & Roberts, 2009; Bragg, 2009; Brancard, Baker, & Jensen, 2006).

We also refer to curricular redesign efforts as those that apply innovative pedagogical models, occurring either within or outside of the traditional course structure. Perhaps the most prominent example is the emporium model for math courses, developed at Virginia Tech. Here, students use a computer-based, self-paced model of learning rather than a traditional lecture setting. Twigg (2011) listed four reasons why the model has seen success:

- "Students spend the bulk of their course time doing math problems rather than listening to someone talk about doing them" (p. 26).
- "Students spend more time on things they don't understand and less time on things they have already mastered" (p. 26).
- "Students get assistance when they encounter problems" (p. 27).
- "Students are required to do math" (as opposed to not participating in class; p. 27).

How can the assessment of affective factors be used to improve developmental education? The most likely way in which the assessment of affective factors can improve developmental education is by better understanding students' likelihood for success. Efforts to broaden the measures used to assess students' readiness or likely success have taken several forms. In some cases, such as a multi-dimensional college readiness index proposed by the College Board (Wiley, Wyatt, & Camera, 2010), this simply means the inclusion of additional indicators of academic achievement, such as high school grade point average or class rank. In other cases, sometimes referred to as holistic assessment, measures of affective factors as well as academic achievement are considered. Many have called for this holistic approach to be used in placing students into courses, (Boylan, 2009; Burdman, 2012; Conley, 2007; Levine-Brown, Bonham, Saxon, & Boylan, 2008). Moreover, research has shown that noncognitive factors add significantly to the prediction of early course success and can be used to inform decisions about course acceleration (Markle et al., 2013).

In practice, affective factors have two points of relevance to improving developmental education. On one hand, they can be used to inform course placement decisions. In a traditional developmental sequence, institutions might want to select the best candidates for course acceleration into a higher course by identifying those students who are highly motivated, have strong organizational skills, and are willing to reach out for help when they encounter a problem. If an institution has several models of course delivery, affective factors could be used to identify which one best fits a student's individual strengths, though more research is needed in this area.

The second point of relevance involves post-placement support. As mentioned, there has been increased focus on the need to provide co-curricular support for students after placement, regardless of their position in the developmental sequence (Complete College America, 2012; Scott-Clayton, 2012). Using an assessment of affective factors, institutions can identify which supports are necessary for each individual student. In some cases, these assessments can directly refer students to institutional resources or even provide their own tools and strategies (e.g., Markle et al., 2013).

Additionally, affective factors might identify how faculty can engage with students in the classroom, particularly in redesigned courses and curricula. Consider the math emporium model. Students work independently and at their own pace, while the role of faculty shifts to one of support, particularly when a student encounters difficulty. Using affective assessment, faculty members might understand their students' tendency to seek help and more proactively engage with those who do so less often. There is limited, if any, extant research on the role of affective factors in these redesigned courses, both in terms of predicting success and understanding the learning process, though this should be an area of future exploration.

Early Academic Success

Looking beyond just entry-level math and English courses, the grades that students earn early in their college career, represented by either first-semester or first-year GPA, are the most widely studied indicator of academic success in educational research. Grades are

important to consider for two reasons. First, we want to ensure that students are actually acquiring the knowledge and skills that are conveyed by a college degree or certificate. Even though grades are often criticized for their lack of reliability and multidimensional nature (e.g., Allen, 2005; Brookhart, 1993; Burke, 2006), they are by far the most prevalent indicator of learning available. Second, grades play an important part in understanding persistence behavior. Directly speaking, students cannot progress toward a degree without successfully completing courses with passing grades. Grades have also been shown to mediate the effect of other factors, such as motivation, academic achievement, and family income on degree attainment (Allen & Robbins, 2010).

A host of studies have examined which factors, among the wide array of academic and psychosocial variables, are most relevant to academic success. Poropat (2009) conducted a meta-analysis looking at the ability of the big-five personality dimensions and intelligence to predict academic performance. Of these possible predictors, he found only conscientiousness and intelligence to be significant predictors of academic performance in college, interestingly with roughly equal predictive strength. Richardson, Abraham, and Bond (2012) also used a meta-analytic approach, looking at a much wider array of personality, affective, and psychological factors in predicting academic performance in college. They, too, found indicators of intelligence or academic achievement to be relevant, along with a host of other factors including conscientiousness, academic self-efficacy, performance self-efficacy, effort regulation, time/study management, test anxiety (negatively related), and a strategic approach to learning. Finally, another meta-analysis by Robbins et al. (2004) found achievement motivation and academic self-efficacy, as well as academic achievement, to be significant predictors of GPA.

Overall, these studies find that the most relevant predictors of GPA tend to be academic achievement and factors related to conscientiousness—organization behaviors, motivation, and adaptive learning strategies. These findings are likely not surprising. What might be interesting, however, is the lack of other factors appearing on this list. Many of the social (e.g., institutional commitment) and self-regulatory (e.g., stress management) factors that are well known to many educators are absent.

There are at least two hypotheses to explain this absence of findings. One is the global nature of meta-analytic research. These studies attempt to generate one relationship across multiple studies and thousands of students. It is quite possible that these social and emotional factors are relevant, but only for a subset of students. Little research has examined the possibility of profiles that might suggest multiple paths to success (e.g., Markle & Steinberg, 2013), and although approaches hold promise for understanding different sets of skills within the student population, these methods have not been widely applied.

A second explanation is the potential mediation of conscientiousness-related factors. Consider students who face significant challenges with regard to social connections or emotional regulation. For these students, if they do not overcome these hurdles, then succeeding in class will certainly be difficult. However, if they overcome these challenges and still do not effectively organize their time, complete assignments, and persist to complete their academic goals, academic success will still evade them. Thus, it could be said that these factors outside of the immediate academic experience are necessary, but not sufficient for success.

Ultimately, the question still remains about how these factors can not only be understood, but also used in order to improve student success. Here, the approach is similar to that in addressing developmental education. The first step is to consider affective factors in

predicting student success. Several noncognitive assessments that are currently available provide composite indices that predict college grades and can be used to identify students with low probabilities of success. In this way, institutions can more intrusively engage with these students and provide them assistance before they encounter hurdles. The second step in this process is to then connect students with the appropriate co-curricular supports. Once again, several of the existing assessments can connect students with on-campus resources or provide embedded materials that focus on noncognitive skills.

Persistence Behavior

As institutions have increasingly shifted their focus to persistence and completion, researchers and practitioners alike have sought a better understanding of what drives student success. For many four-year institutions, increasing retention and graduation rates has simply meant attracting "better" students: those with higher standardized test scores, high school grades, or other indicators of academic achievement. However, this is a limited strategy for several reasons.

For one, this simply isn't an option for most institutions. Community colleges and other open enrollment institutions do not have the same liberty with admissions criteria as other schools. What's more, community colleges in particular are driven to provide access and education to a wide array of students, regardless of academic achievement. For all these reasons, simply "having better students" is not a practical option.

Interestingly, admitting only highly qualified students may also be the wrong approach. In 2004, Steven Robbins and colleagues conducted a meta-analysis using a large collection of studies that included students from both two-year and four-year institutions. They considered an array of predictors, including standardized test scores, high school GPA, and noncognitive factors, and their relation to both grades and retention through the first year of college. In predicting grades, standardized test scores contributed the most to the model, with factors such as academic self-efficacy and achievement motivation also contributing to the model. However, when predicting retention, standardized test scores had the lowest predictive value of any variable in the model, with noncognitive factors such as academic goals, institutional commitment, social support, and social involvement contributing significantly to the model. In this case, traditional notions of academic achievement were strong predictors of academic success, but noncognitive factors were stronger predictors of persistence.

This is not to suggest that academic achievement is unimportant. A study by Porchea, Allen, Robbins, and Phelps (2010) tracked a large, multi-institutional group of community college students over five years. The authors were able to follow students over this time even as they transferred to other institutions. Not surprisingly, they found a host of predictors, including academic achievement, psychosocial factors, socioeconomic status, and institutional characteristics, to be significant predictors of degree attainment.

Ultimately, determining the relative importance of academic and noncognitive factors is perhaps a moot exercise. From a practical perspective, it is critical to understand that both academic achievement and affective factors play important roles in student learning and persistence. Indeed, there are many paths to success, and accordingly, many combinations of skills that might allow a student to persist to a degree. Once again, determining profiles of student skills might be helpful for both understanding risk and identifying interventions, but research is still required to obtain a more granular and nuanced understanding of these different sets of skills and how they are related to success.

Key Developments in Assessing Affective Factors

While educators have always recognized the importance of noncognitive factors in the success of students, they have not always known how to create programs and practices to integrate these factors with what they know about the cognitive domain. In some cases, where they have embraced and experimented with programs and practices reflecting the affective domain, they have not been supported by leaders, policies, and resources. There was a great deal of enthusiasm in the 1960s and 1970s for T-Groups and Encounter Groups, meditation, and Personal Development Courses that directly addressed the noncognitive dimensions of human nature, but today there are only remnants of these creative approaches remaining in curricula.

However, with new research, new assessments, and new commitments to increasing retention and completion rates, there is a resurgence of interest among leading practitioners and college leaders in how we can improve and expand the learning of students by applying what we know about the noncognitive domain. In the following section we describe briefly three efforts to implement various programs and practices based on noncognitive factors.

Revamping developmental education. Chaffey College in California has been experimenting for several years with assessing noncognitive factors and improving course placement and student success. Laura Hope and her colleagues at Chaffey have been working with Gallup Education Practice to experiment with Gallup's Hope Scale to determine its value for improving assessment and course placement. The Hope Scale is a key part of the assessment process and is an extension of the Basic Skills Transformation at Chaffey which placed a tremendous value on the students' capacity to construct learning, especially if they were motivated.

In 2011, Chaffey began collecting data using the Hope Scale and, to date, has assessed approximately 10,000 students, becoming Gallup's laboratory for collecting data on hope on community college students. In 2013, the college also added a Mindset Scale, derived from Carol Dweck's work, to the assessment battery, assessing roughly 3,000 students. As part of the Basic Skills Transformation, the English curriculum was entirely overhauled from eleven courses in English and reading to three courses. Now that the new curricula are in place, the college is validating potential uses of the Hope Scale so that it can be added as one of the background measures for placement. Mindset will likely be added as a background metric as well, placing students in higher-level courses if their assessments indicate high hope and a growth mindset.

"It is our hypothesis that behavior is not only an extension of hope and mindset, but, more importantly, if we can help students behave in ways that are consistent with a high hope/growth mindset, we can help to influence their hope and mindset. So rather than just focusing on influencing the cognitive, behavioral reinforcement can influence the cognitive factors that generate hope/mindset behavior" (Hope, 2013).

Chaffey College staff are currently working on how to make these data actionable for placement and other purposes. The college will explore how to improve the placement process to ensure greater success in courses, as well as how to expand and improve students' noncognitive factors as related factors in overall success. College leaders also plan to disaggregate the data by demographics to determine how these affective factors function within unique populations as one avenue for improving the college's equity agenda.

An institutionwide plan for student success. Miami Dade College, as part of its Completion by Design initiative with the Bill & Melinda Gates Foundation, is creating a

comprehensive, holistic initiative to improve retention and completion rates for one of the largest and most diverse colleges in the U. S. In early phases of the initiative, the Student Support System will be re-engineered to include:

- Structured pre-admissions processes, including deadlines, structured information systems, test preparation, and early engagement;
- Holistic assessment of academic skill gaps, including noncognitive and career interest assessments;
- Strategic, mandatory orientation, including ongoing and study-focused orientations;
- Intrusive and mandatory advisement based on collaboration between student services and faculty;
- Completion of each student's academic plan, including course selection and appropriate course sequences.

The college is experimenting with two assessments of affective behavior as a key foundation to support this student success initiative. As part of the restructured intake process, students are required to complete a noncognitive assessment battery prior to attending their respective campus orientation. Students are also required to meet with their assigned advisor during their first term to review their noncognitive assessment results, discuss career options, and complete their student success pathway. Campus advisement teams have developed cross-walks matching various noncognitive factors with services at the specific campuses.

The college is also beginning to experiment with assessments to identify students who are at-risk, provide resources to students based on needs, and use data to guide programming and outreach to promote student success. Although the college is still in early stages of development and implementation, some promising results are beginning to emerge. For example, over 1,300 students enrolled in test preparation courses in reading, writing, and math. Diagnostic assessments were offered to the test prep participants followed by modularized instruction based on students' performance. Of the students participating in the program, over 50 percent advanced their course placement by at least one level.

An emerging model: SuccessNavigator. Recent research at Educational Testing Service (ETS) has produced a new assessment that allows for efforts like those at Chaffey and Miami Dade and at other institutions. The new tool, SuccessNavigator™, provides scores in four broad areas: academic skills, commitment, self-management, and social support. Comprised of roughly 100 items, it takes about 30 minutes to complete, and can be taken at orientation, during placement testing, in a student success course, or even outside the institution on a student's personal computer. Integrating noncognitive scores with indicators of academic achievement (e.g., placement or admissions test scores, high school GPA), the assessment can be used to identify students' likelihood for success, facilitate advising, or improve course placement decisions. Launched in the summer of 2013, SuccessNavigator has already been administered in more than 100 colleges and universities throughout the U.S., including a wide array of institutions - public and private, 2 and 4-year, urban and rural.

SuccessNavigator contains several characteristics that any assessment-based institutional effort must contain. First, the measure supports reliable, valid, and fair inferences about students' noncognitive factors and likely success. Second, it provides immediate, interpretable student-level scores to both students and advisors. Third, and perhaps most importantly, it provides feedback and action plans, as well as references to campus resources, so that students and those who work with them have actionable information that

can mediate risk and improve student success (for more information, see Markle et al., 2013).

Throughout the research and development of SuccessNavigator, several institutions have demonstrated various ways that noncognitive assessment can be used to structure interactions with students. At Wilbur Wright College in Chicago, the use of noncognitive assessments to inform course placement decisions was explored in a large pilot program. Students whose placement test scores were near the cut score for a higher level course and who demonstrate a strong profile of noncognitive skills can be accelerated into the higher level of course—shortening their path to success.

At the University of New Mexico, the SuccessNavigator framework has been used to not only structure work with students, but to understand the relationships between various co-curricular services and these critical noncognitive skills. After UNM mapped each program and service to at least one noncognitive area, they developed an inventory of co-curricular resources, as well as a map that can be used to guide advisors. When a student scores low in a given area, advisors now know the full breadth of resources on campus that a student can engage with to develop that skill.

Ultimately, however, SuccessNavigator exemplifies that no assessment is valuable in and of itself, but rather it is the use of that assessment that determines how effective it will be. By using assessment data, college staff can systematically identify students' strengths and challenges. By aligning noncognitive factors to campus resources, institutions have mechanisms in place to act on that information. Finally, by creating systems like intrusive advising and mandatory orientation, colleges establish mechanisms that can engage students proactively, rather than waiting for students to reach out for the support they need.

Conclusion

In the final analysis, college and student success do not rely on changes in assessment practices alone. The challenge to improve college and student success is much more complex and requires a comprehensive approach to reform. If we expect to see changes in indicators like retention and graduation rates, we all must do something extra, or something different; otherwise, we are simply following the adage of continuing the same behavior and expecting different results. What we have tried to emphasize here is the comprehensive nature of that reform. How we place and instruct students in early courses is certainly an important aspect of success, but it is only one aspect, and each of these aspects faces significant hurdles.

For example, recommendations from a study by Hodara, Jaggars, and Karp (2012), which examined practices and programs in community colleges across the country, outline the scope and difficulty that community colleges face with regard to placing students:

1. Administer placement exams in high schools.
2. Align high school exit and college entry standards.
3. Increase alignment between exams and college-level course content.
4. Provide opportunities for students to take practice exams.
5. Implement multiple measures, including affective measures.
6. Create consistent standards and assessments across the state.

These efforts require substantive collaboration across educational levels, systems, and institutions; and building consensus in these climates is never easy. Yet this represents only

those challenges in placing students, and doesn't speak to the remaining life cycle of student success.

With regard to curricular redesign and restructuring, institutions will need to work with faculty as they adapt to these models, often changing from the sage on the stage to the guide on the side. More involved advising efforts will now force institutions to reconsider the ways in which they engage with students, reaching out to those who need support and not just serving those who ask for it.

These are formidable challenges for all institutions of higher education, but many colleges and universities are beginning to face these challenges and to make progress in improving retention and completion rates of their students. In this paper, we have argued for the inclusion of noncognitive assessments as part of the package of tools higher education can use to better place students in courses, better advise students on their journeys, and better help staff and students make decisions based on a more holistic approach to improving and expanding student learning and success. This is by no means a silver bullet to all the problems in community colleges and throughout higher education, but a more holistic view of students' skills can help to frame the conversation on those factors that are most relevant to student success.

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