



College Placement Strategies Evolving Considerations and Practices

A CAPR Working Paper

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Abstract

Many postsecondary institutions, and community colleges in particular, require that students demonstrate specified levels of literacy and numeracy before taking college-level courses. Typically, students have been assessed using two widely available tests — ACCUPLACER and Compass. However, placement testing practice is beginning to change for three reasons. First, the Compass test will no longer be offered as of the end of 2016. Second, questions have been raised about the validity of commonly used placement tests. Third, there are emerging discussions about the need to consider other aspects of students' readiness to succeed in college, especially so-called noncognitive skills.

In this paper, we discuss the history of college placement testing, with a focus on nonselective colleges. We describe the limitations of placement tests, the consequences of placement errors, and the movement toward changing systems of placement. The use of multiple measures is suggested as an approach that will result in more accurate placement. A typology of approaches to assessment and placement is described, including the identification of individual measures (e.g., alternative math and English tests, noncognitive assessments, and high school transcript information), ways to use them in combination (e.g., waivers, decision rules, and placement formulae), and how colleges might use assessment results in more varied ways (e.g., for placement into different course types or services). Finally, we include a discussion of emerging issues affecting assessment and placement practices.

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1. Introduction

Many postsecondary institutions, and community colleges in particular, require that students demonstrate specified levels of literacy and numeracy before taking college-level courses. Typically, students have been assessed using two widely available tests — ACCUPLACER and Compass. However, placement testing practice is beginning to change for three reasons. First, the Compass test will no longer be offered as of the end of 2016. Second, questions have been raised about the validity of commonly used placement tests. Third, there are emerging discussions about the need to consider other aspects of students' readiness to succeed in college, especially so-called noncognitive skills.

In this paper, we discuss the history of college placement testing, with a focus on nonselective colleges. We describe the limitations of placement tests, the consequences of placement errors, and the movement toward changing systems of placement. We also provide a typology of the measures that can be used for placement, how they can be combined, and how colleges might use assessment results in more varied ways.

History of Assessment for Entering College Students

Higher education institutions need mechanisms to assess the college-readiness of incoming students. Selective institutions use admissions requirements to screen students, accepting or rejecting them on the basis of their test scores and applications (Cohen, Brawer, & Kisker, 2014). Open-access institutions — which include community colleges and some four-year institutions — accept all or most students but then must determine whether they are ready for college coursework. As such, placement testing is a near-universal part of the enrollment experience for incoming community college students (Bailey, Jaggars, & Jenkins, 2015). Students who are not deemed ready based on their placement test scores typically take remedial or developmental coursework before beginning college-level studies. Roughly 60 percent of incoming freshman students nationally require developmental instruction in English and/or math; the vast majority of these students are concentrated at nonselective two-year or less selective four-year colleges (National Center for Public Policy and Higher Education & Southern Regional Education Board, 2010).

For much of the 20th century, rigid policies with mandates for placement were accompanied by course prerequisite policies, academic probation and progression policies, and other requirements associated with entrance and graduation (Cohen et al.,

2014). By the 1970s, however, the popularity of such policies was declining, as some argued that college students, as adults, should have the right to make their own decisions, even if this resulted in failing courses (Cohen et al., 2014; Hughes & Scott-Clayton, 2011). The laissez-faire approach to placement was short-lived, however, as legislators' and educators' support for testing and placement mandates grew amid concerns over high failure rates and dropout rates in the 1980s (Cohen & Brawer, 2003; Fonte, 1997; Rounds & Anderson, 1985). Two-year colleges reported having policies governing placement testing at twice the rate of their four-year counterparts (Abraham, 1987), and a national survey of community colleges found that over 90 percent used some sort of test to place incoming first-time students by the late 1980s (Woods, 1985).

At the same time, long-standing issues with standardized tests came to the fore in the 1980s. Early standardized tests, in particular IQ tests (Jencks, 1998), were criticized on the grounds that they reflected test-takers' racial and economic backgrounds rather than their academic capacities, and that they ignored cultural knowledge and other student strengths (Byrd & Macdonald, 2005). The concerns primarily revolved around the potential for placement policies to disadvantage whole groups of students (See, for example, the Mexican American Legal Defense and Education Fund's 1991 lawsuit challenging legislation that mandated placement testing in California [Cohen et al., 2014; Hughes & Scott-Clayton, 2011]). Nonetheless, by the 1990s, mandatory testing and mandatory placement were included in an influential list of community college best practices (Boylan, 2002).

Of community colleges surveyed by the National Assessment Governing Board (NAGB) in 2010, 100 percent reported using a standardized test for math placement purposes, and 94 percent reported doing so for reading placement (Fields & Parsad, 2012). Among four-year institutions, 85 percent employed placement tests for math and 51 percent reported doing so for English (Fields & Parsad, 2012). The 2010 NAGB survey also asked institutions about their use of the most common placement tools — SAT, ACT, ACCUPLACER, and Compass. While most used these tests, 14 percent of public two-year institutions and 38 percent of public four-year institutions reported using another assessment (Fields & Parsad, 2012). In another 50-state survey of assessment practices, the National Center for Higher Education Management Systems found that only 15 states had a common set of placement tests (Zis, Boeke, & Ewell, 2010).

For any given placement test, there is substantial variation in the cut scores institutions use to designate students as college-ready (Fields & Parsad, 2012; Hodara et al., 2012). Only 12 states have statewide cut scores. One state has a cut score policy that governs just its community colleges, and four states indicated they were developing a

statewide policy. Even among these states, however, some allow institutions to set a cut score above that specified in the state policy (Zis et al., 2010).

Limitations of Current Practices

An accurate placement mechanism will direct students who are college-ready into college-level coursework, while referring students who are academically underprepared to developmental coursework. Placing students correctly is crucial, as the consequences of incorrect placement — particularly underplacement — are severe. Of community college students who enroll in developmental coursework, just 28 percent earn a degree within eight years, compared with 43 percent of those who did not take any developmental coursework (Attewell, Lavin, Domina, & Levey, 2006). While these differences in outcomes could be attributed to differences in academic capabilities, a number of studies have employed a regression-discontinuity approach to compare similar students with placement test scores just above and below the cutoff and found that developmental enrollment has null or negative effects on short- and long-term outcomes (Bailey et al., 2015). A null impact on completion would indicate that students who score just below the cutoff and are referred to developmental education earn credentials at roughly the same rates as similar students who enter directly into college-level coursework. Thus, the introduction of pre-degree coursework does not improve college completion rates, but rather extends the time required to earn a credential and increases the cost to students and taxpayers (Crisp & Delgado, 2014; Scott-Clayton & Rodriguez, 2015).

Moreover, scores on entry assessments are not highly correlated with success in initial college-level courses. When used as the sole measure for course placement, these tests incorrectly place many incoming students (Bailey et al., 2015; Belfield & Crosta, 2012; Scott-Clayton, Crosta, & Belfield, 2012). For example, using data from a community college system in a large urban setting, Scott-Clayton (2012) demonstrated that high school grade point average (GPA) explained a greater share of variation in outcomes for gatekeeper English and math courses than placement test scores. A combination of placement test scores and high school achievement measures yielded the greatest explanation of variance. Using the richest set of predictors, the author then estimated the share of students who were placed in developmental coursework even though they would likely have received a B or better in an entry-level college course, as well as the share of students who were placed into college-level coursework despite a high likelihood of failure. These shares were combined to produce a “severe error rate” (Scott-Clayton, 2012, p. 25), which ranged from 24 percent in math to 33 percent in English. Similar findings have emerged in research conducted in a number of different

settings (Belfield & Crosta, 2012; Scott-Clayton et al., 2014; Scott-Clayton & Rodriguez, 2015).

Another limitation of using single measures for placement is the inability of such measures to distinguish different student needs for remediation. Students differ in their comfort with mathematical concepts, their exposure to math in high school, their ability to interpret test questions given their English language proficiency, and the time since their last math course (Bailey & Cho, 2010). Further, they do not cast light on the noncognitive factors that may influence student success in college.

2. Emerging Practices in Assessment and Placement

Colleges and college systems are seeking ways to improve entry assessments while minimizing costs and administrative challenges. Based on recent research on assessment practices (Bracco et al., 2014; Duffy, Schott, Beaver, & Park, 2014), options include employing alternative measures, the use of multiple measures, and broader conceptions of placement. In Table 1, we propose a framework for considering these alternatives.

Table 1
Options for Course Placement

Measures	Systems or Approaches	Placement Types
Administered by college: <ol style="list-style-type: none"> 1. Traditional placement tests 2. Alternative placement tests 3. Noncognitive assessments 4. Writing assessments 5. Computer skills assessments 6. Questionnaire items 	<ul style="list-style-type: none"> • Placement based on results of single assessment • Waiver system • Decision bands • Placement formula • Decision rules • Directed self-placement 	<ul style="list-style-type: none"> • Placement into traditional courses • Placement into alternative coursework • Placement into support services
Obtained from outside of college: <ol style="list-style-type: none"> 1. High school GPA 2. Other high school transcript information (e.g., courses taken, course grades) 3. Standardized test results (e.g., ACT, SAT, Smarter Balanced, PARCC) 		

Measures

Colleges have options beyond commonly available placement tests to assess students' readiness to take college-level courses and the likelihood that they would benefit from supportive services. Some of these are commercially available while others may be developed by a particular college. The selection or development process involves both identification of an appropriate instrument and the establishment of cut

scores that can be used in decision making. Cut score decisions are generally guided by a review of prior research, analysis of concordance tables showing relationships between previously used measures and the proposed measure, and/or by analyzing historical data associated with students at the college when available. Some examples of alternative measures follow.

Alternative Placement Tests

While most colleges continue to use traditional placement tests, some have selected or developed alternative tests in an effort to align the knowledge and skills measured with the specific courses they offer. Colleges may also seek diagnostic assessments that guide students into particular entry points in a developmental curriculum. Both Virginia and North Carolina have developed assessment systems that place students into specific developmental education modules (Hodara et al., 2012).

Alternative placement tests have the advantage of being customizable to each college's standards and introductory coursework. They can also have more diagnostic value than standardized instruments (see, e.g., Reddy & Harper, 2013). However, test development and validation is complex and costly — and may result in instruments with questionable reliability and validity (Hughes & Scott-Clayton, 2011).

Noncognitive Assessments

There is increasing recognition among postsecondary educators that success in college depends on more than students' content knowledge (Boylan, 2009; Hughes & Scott-Clayton, 2010). Noncognitive assessments seek to measure students' psychosocial characteristics, such as motivation, learning strategies, academic tenacity, or sense of belonging (Lipnevich, MacCann, & Roberts, 2013). Examples of noncognitive tests include SuccessNavigator (offered by the Education Testing Service), Engage (offered by ACT), the Learning and Study Strategies Inventory (offered by H&H publishing), and the College Student Inventory (offered by Noel Levitz). In addition, colleges may incorporate the use of short scales, such as the Grit Scale or Adult Hope Scale, into existing surveys or tests.

Noncognitive tests allow colleges to gather information about students that might lead to improved course placement and can help place students into supports and services. However, the evidence base for their use in placement is thin. Research conducted on SuccessNavigator suggests that it has some value as a measure when used in conjunction with a placement test to move students just below a cut score into a higher level math course (Rikoon, Liebttag, Olivera-Aguilar, Robbins, & Jackson,

2014). A study on an early version of Engage suggests that its Academic Discipline scale is predictive of student success in initial college level courses (Robbins, Allen, Casillas, & Peterson, 2006).

Writing Assessments

In many colleges, students are assessed via a performance task, most commonly writing a short essay, in addition to a standardized assessment. For example, some colleges in the University of Wisconsin System use a faculty-scored essay in addition to the Wisconsin Placement Test; student essays are scored based on the first-year composition learning outcomes used across the system. Research conducted by two faculty members found that the proportion of at-risk students who remained in good standing at the end of their fall semester grew from 59 percent in 2006, just before the introduction of the writing assessment, to 73 percent in 2009 (Duffy et al., 2014).

However, colleges typically have to assess large numbers of incoming students within a short period of time at low cost. While writing assessments may provide more complete and nuanced information on which to base placement decisions, they typically require added staff time to score (Rodríguez, Bowden, Belfield, & Scott-Clayton, 2015), although this may be ameliorated when they are graded using automated systems.

Computer Skills Assessments

Some colleges want to make sure that students have the basic computer skills needed to succeed in college courses. For example, the College of Western Idaho (CWI Assessment and Testing, n.d.) and Richland College, a community college in Texas (Richland College, n.d), administer short computer skills assessments to all or selected incoming students. Other colleges use assessments to determine students' readiness to succeed in online coursework. Students lacking skills may be placed into appropriate courses or workshops. However, testing students and providing them with counseling based on results will add cost.

Questionnaire Items

Colleges may ask incoming students to respond to selected questions about their prior experiences with learning certain kinds of material or their confidence about mastering future material, most commonly math (Venezia, Bracco, & Nodine, 2010). A study at one college found that students' responses to questions about their high school academic history improved placement accuracy when considered in addition to

placement test scores (Gordon, 1999). However, there is limited evidence that responses to these kinds of questions are good predictors of future success in college coursework.

High School GPA and Other Transcript Data

A growing body of research indicates that high school GPA is a strong predictor of success in college courses. Other items from the high school transcript may also be utilized, especially coursework in the subject area related to the placement decision. For example, math courses taken and math grades earned may be indicative of likely student success in future math courses. As an example, North Carolina's placement system considers students college-ready in math if they have an overall high school GPA of at least 2.6 and have completed four approved high school math courses (North Carolina Community College System, 2015).

While high school transcript data can be valuable for placement purposes, many colleges and state systems find it difficult to obtain this information in a timely manner. It is seldom available to colleges from state data systems, and it may not be in place when decisions need to be made. Alternatively, students can be asked to submit high school transcripts, a process that has gone smoothly in some locales and been challenging in others. Student self-report of high school GPA may also be used; research suggests that students' reports tend to be accurate (Sanchez & Buddin, 2015).

Standardized Test Results

Many college placement systems take into account student scores on the SAT and ACT or other 11th-grade standardized tests, such as those associated with the Common Core State Standards. Some of the impetus for using test results in college placement systems is a desire to align college readiness standards across K-12 and postsecondary education (Bracco et al., 2014). There is considerable research on the extent to which the SAT and ACT predict success in first college-level courses in math and English, with both being modestly predictive (Hughes & Scott-Clayton, 2011). However, as with high school transcripts, it can be difficult to obtain scores in a timely manner. They are seldom routinely available to colleges from state data systems.

System or Approach to Using Assessment Results

Most colleges require entering students to take placement tests and use the scores as the sole determinant of whether students are ready for college-level coursework. However, there is increasing awareness of the limitations of using single tests for placement, and a growing interest in employing multiple measures. We define multiple-measures placement as a system that combines two or more measures to place

students into appropriate courses and/or supports. We have identified five approaches that permit measures to be combined for placement purposes: a waiver system, decision bands, placement formula, decision rules, and directed self-placement. These methods may, in some instances, be used in combination.

All placement systems require a decision on what constitutes college-readiness. While selecting a cut score on a single measure is relatively straightforward, the process is more complex when more than one measure is involved. These decisions can be based on the research literature or on analyses of prior data associated with either single measures or measures used in combination. Typically, such analyses involve predicting the probability of student success in a college-level course using available administrative data from a college or state system (e.g., Scott-Clayton, 2012). The information derived may be presented to college faculty, who set a minimum probability of student success in a given course, taking into account the trade-offs between the proportion of students placing into a college-level course and the proportion of students expected to pass the course.

Placement rules can also vary according to a student's intended major and the associated requirements in math or English. Increasingly, math course sequences are differentiated according to student goals and may involve different placement criteria; similarly, students entering technical programs may be placed based on the math and English requirements of the job for which they are preparing.

Waivers

In a waiver system, one or more criteria are used to waive placement testing requirements and allow students to place directly into college-level courses. At some colleges, students with a specified high school GPA or standardized test score are exempt from placement testing. In Ohio, legislation requires that students be considered college-ready (or "remediation-free") if they meet pre-defined scores on widely used assessments such as the ACT, SAT, and ACCUPLACER, or less commonly administered assessments, such as ALEKS, Place U., and MapleSoft T.A. (Ohio Department of Higher Education, 2016).

Decision Bands

Colleges may determine that students with placement test scores that fall within a specified range be further evaluated using additional criteria. For instance, students who score just below a college-level placement test cut score could be further assessed using high school GPA or the results of a noncognitive assessment. Alternatively, a decision band system could start with a range on the high school GPA. In the state of

Washington, when students' placement test scores fall just below a certain threshold, added measures can be considered in determining their placement (Bracco et al, 2014).

Placement Formula

In a placement formula system, historical data is used to predict the influence of varied measures on success in college-level courses. Using the results, a placement formula is developed that weights and combines these measures, resulting in a placement score for each student. The placement formula can be integrated into the existing testing system if desired. Such an approach has been employed in research underway with several State University of New York (SUNY) community colleges to assess its impact on student outcomes (Center for the Analysis of Postsecondary Readiness, 2014).

Decision Rules

Decision rules generally consist of a series of “if-then” statements and may be hierarchical. Typically, a type of branching system is used that distinguishes between different categories of students and also takes into account the varied evidence that may be available to assess any given enrollee. A common distinction is between students matriculating directly from high school and those entering college one or more years after high school graduation. In the example shown in Table 2, readiness to take specific math courses is assessed for students right out of high school (direct matriculants) using 11th grade GPA, final high school math course taken, and course grades, while later enrollees (non-direct matriculants) are assessed using 12th grade information. In this example, test scores are not taken into account.

Directed Self-Placement

With directed self-placement, students may be permitted to place themselves into the course level of choice, usually informed by the results of placement testing, a review of their high school performance, and/or information about college-level expectations in math and English. Florida has instituted this policy across its colleges based on legislation passed in 2013. Early descriptive data from Florida indicate that directed self-placement leads to much higher enrollment rates in introductory college-level courses in English and math but lower pass rates for these courses. However, the sheer number of students passing a gateway course has increased over time (Hu et al., 2016).

Table 2

California Decision Rules for Science, Technology, Engineering, and Mathematics (STEM) Directed Courses in Mathematics

Level (minimal final high school course level required for placement)	Direct Matriculants (up through 11th grade)	Non-direct Matriculants
Calculus I (passed Precalculus or Trigonometry, or better)	11th-grade GPA ≥ 3.6 or 11th-grade GPA ≥ 3.2 and Precalculus C (or better)	12th-grade GPA ≥ 3.1 and took Calculus or 12th-grade GPA ≥ 3.5
Precalculus (passed Algebra II, or better)	11 th -grade GPA ≥ 3.4 or 11 th -grade GPA ≥ 2.6 and took Calculus	12 th -grade GPA ≥ 3.3 or 12 th -grade GPA ≥ 3 and Algebra II California Standards Test \geq 340 or 12 th -grade GPA ≥ 3 and Calculus C (or better)
Trigonometry (passed Algebra II, or better)	11th-grade GPA ≥ 3.4 or 11th-grade GPA ≥ 3 and Precalculus C+ (or better) or 11th-grade GPA ≥ 3 and Algebra II B (or better)	12th-grade GPA ≥ 3.3 or 12th-grade GPA ≥ 2.8 and Precalculus C (or better)
College Algebra (passed Algebra II, or better)	11th-grade GPA ≥ 3.2 or 11th-grade GPA ≥ 2.9 and Precalculus C (or better)	12th-grade GPA ≥ 3.2 or 12th-grade GPA ≥ 3.0 and Precalculus or Statistics with C (or better)

SOURCE: Newell et al. (2016), p. 3.

Types of Placement

For the most part, colleges assess incoming students for math, writing, and reading course placement purposes. However, some colleges are also concerned with other kinds of placement — most commonly, into specific course types or into supports or services.

For colleges involved in a developmental education reform such as corequisite courses¹ or changes to course sequences and pathways,² the placement process may be used to inform decisions about which options are most appropriate for which students. For example, a college using a decision band system for placement may decide that students within a certain band will be placed into corequisite English courses, while those below the band will take developmental English and those above will take college-level English. At another college, students placing close to the college-ready level are encouraged to take an accelerated developmental education course, in which two semesters of material are compressed into one (see Colorado Community College System, 2009).

Some colleges also use the assessment and placement process to make sure that students receive appropriate supports. Low community college graduation rates, even among students deemed college-ready, suggest that students need well-conceived, targeted assistance (Karp, 2011). Further, it is important that the help begin early (Lu, 1994; Mallinckrodt & Sedlacek, 1987). Most colleges offer a range of supports but typically meet the needs of limited numbers of students. Especially with more time-intensive options, it can be difficult to make sure that supports are optimally matched with the students who would most benefit from them. An assessment system, especially one that incorporates noncognitive assessments, may lead to better targeting and use of supports.

¹ In the corequisite model of developmental education, students enroll in college-level English or math and an accompanying support course (see, e.g., Accelerated Learning Program, n.d.).

² There is widespread discussion of changes to the types of math that students need for different life and career paths (see The Charles A. Dana Center, n.d., and Carnegie Foundation, n.d.)

3. Emerging Issues Affecting Assessment and Placement

Reform Movements

A great deal of reform is currently taking place in higher education motivated by concerns about graduation rates, equity, and the costs and benefits of a college education (Bailey et al., 2015). Changes in assessment and placement practices intersect with other initiatives in ways that can increase both opportunities and challenges.

Developmental Education Reform

Following years of concern about the effectiveness of developmental education, colleges are undertaking major reforms. There is a growing consensus that developmental sequences are too long, with multiple opportunities for students to run aground before becoming eligible to enter a college course. In addition, colleges are revising developmental education content and pedagogy to promote student engagement and better learning outcomes. Changes to course content, sequences, and expected prerequisite knowledge mean that assessment methods will need to change accordingly.

Math Pathways

Partly due to the number of students who fail traditional algebra courses and partly due to questions about the relevance of algebra to many students' goals, math course sequences are changing. Some would argue that, while all students should possess numeracy skills, many would gain more from quantitative reasoning or statistics courses than from traditional college algebra (Burdman, 2015).

Guided Pathways and Meta-majors

Numerous colleges have decided to restructure their curriculum offerings in ways that encourage students to choose a curricular pathway and stick with it over time. The rationale is that students will complete a credential in a timely way if they pick at least a broad focus area at the beginning of their college career. Math and English course requirements often differ depending on the pathway chosen.

Technology

Individualized Assessment and Instruction

As more refined technology-assisted learning tools become available, assessment and instruction can be intertwined and tailored to the individual student. For example, students may undergo an initial math assessment using an online tool and then be placed into computer-based modules in which they work through material designed to address their specific deficiencies. Such systems may come to replace traditional assessment and developmental education in some colleges.

State Data System Improvements

As these systems improve, opportunities increase to combine data from K-12 and higher education in a timely way in order to make placement decisions.

Policy Issues

Equity

Different approaches to assessment and placement are likely to have differential impact, with the potential to reduce or exacerbate existing inequities. For example, Scott-Clayton, Crosta, and Belfield (2012) studied a large urban system and found that African American students would be somewhat more likely to be placed in English (but not math) remedial courses if evaluated based on both high school GPA and test score. Thus, it is important for colleges to take measures to evaluate and reduce negative effects of changes in assessment and placement systems.

Local Versus State Control

The more decentralized the policy decisions about assessment and placement, the more likely that there will be diverse ways of thinking about and measuring college readiness. Different definitions of college readiness can lead to confusing messages for K-12 educators and students (Venezia & Jaeger, 2013). On the other hand, local decision-making can ensure that assessments and courses at particular colleges are well aligned.

Opportunities to Promote College Readiness in High School

When there are clear standards for college readiness and information about whether students are on track to college readiness in 11th grade, the senior year can be used to help students meet college readiness standards. Close relationships between colleges and feeder high schools can support this work (Barnett, 2016).

Implications for Policy, Practice, and Research

The use of multiple measures in college entry assessment and placement has the potential to enable more students to enter the most appropriate level of coursework and increase their likelihood of success. However, as Bracco et al. (2014, p. iv) commented, “The choice to broaden placement policy to include multiple measures beyond a single standardized test score involves trade-offs, including potential trade-offs between precision and cost, test validity and face validity, and local policy variation and uniform statewide implementation.” Careful consideration is required to create systems that work well for both institutions and students.

Decision-making in this arena is hampered by a lack of high-quality research on the strategies discussed here and by others. First, more information is needed on the extent to which existing measurement tools — alone and in combination — predict success in initial college courses; currently, decisions have to be made with little clear evidence of their predictive validity. In addition, the field would benefit from high quality evaluations of varied assessment and placement approaches that permit insights into their efficacy, implementation requirements, costs and benefits, and differential impact on varied student populations. Finally, research is needed on ways to bypass current approaches to assessment and placement altogether in favor of alternative ways of onboarding students.

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