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Findings from a National Survey and Interviews with Postsecondary Institutions

Elizabeth Zachry Rutschow, Maria Scott Cormier, Dominique Dukes, and Diana E. Cruz Zamora

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Elizabeth Zachry Rutschow
MDRC

Maria Scott Cormier
Community College Research Center

Dominique Dukes
MDRC

Diana E. Cruz Zamora
Community College Research Center

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Overview

Research has suggested that the traditional modes of delivering developmental education, or remedial courses designed to prepare students for college-level coursework, are ineffective and pose a significant barrier to college students' success. To improve them, many colleges, education systems, and states are pushing to reform current developmental education practices. Recent state policies mandating or recommending these reforms suggest that change is happening at a rapid pace, but few studies have looked at the scope and scale at which colleges may be implementing these changes on the ground.

To examine the reach and effectiveness of developmental education reforms, in 2014, MDRC and the Community College Research Center at Teachers College, Columbia University, established the Center for the Analysis of Postsecondary Readiness (CAPR), a research and development center funded by the U.S. Department of Education's Institute of Education Sciences. As one of three primary studies in CAPR, this descriptive study documents current developmental education practices used in broad-access two- and four-year colleges across the country. The findings are based on a 2016 nationally representative survey of public two- and four-year colleges and private, nonprofit four-year colleges as well as qualitative interviews with institutional and state leaders. This report examines the current state of practices in developmental education assessment, placement, instruction, and support services offered to students.

The study finds that although many colleges are continuing to use standardized tests to assess college readiness and multi-semester, prerequisite developmental course sequences, they are also experimenting with changes to these practices. For instance, a growing number of public colleges are using additional measures, such as high school grades, to assess college readiness. Additionally, many colleges are implementing instructional reforms, with the most prevalent being compressing developmental courses into shorter periods, offering diverse math courses that align with students' careers, allowing students to determine their own learning pace, and integrating developmental reading and writing instruction into one course. However, while experimentation is widespread, colleges are generally not offering these approaches at scale, with most of these reforms to developmental education instruction making up less than half of the college's overall developmental course offerings. Finally, the report finds that college leaders tend to identify a variety of factors as influencing their efforts to improve developmental education, including faculty input, research, practices at other colleges, and the availability of resources. However, state policy, and how schools implement these policies, appear to have a particularly strong influence on colleges' practices and the number of institutions that implement these reforms.

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The Authors

Executive Summary

Research has suggested that far more students are referred to developmental education courses than necessary, and that developmental education presents a monumental barrier to students' success.[1] For instance, national reports have shown that up to 70 percent of entering college students are advised to take developmental courses before entering college-level classes.[2] Additionally, research has shown that colleges' reliance on standardized tests to assess students' college readiness has resulted in many more students being placed into developmental education courses than is necessary — and that alternative information, such as high school performance, may more accurately predict college success.[3] Furthermore, research indicates that the predominant mechanisms for delivering developmental education — multi-level, prerequisite developmental courses that can take multiple semesters or even years to complete — hinder students' progress, and large proportions of students fail to make it through these courses.[4] As a result, practitioners and researchers have been experimenting with multiple ways to revise developmental education, with many practices showing promise for improving students' success.[5]

In recent years, many colleges, systems, and states have been quick to adopt these revised practices.[6] For instance, in 2018, the Education Commission of States noted that 19 states now encourage or mandate colleges to assess entering students' college readiness by incorporating additional measures, such as students' high school grade point average (GPA), rather than depending solely on standardized test scores.[7] Similarly, 15 states now recommend or require colleges to enroll students with developmental needs directly into college-level courses with supplemental supports, instead of requiring them to take multiple semesters of prerequisite developmental courses — a practice that was nearly unheard of before 2010. And such changes are percolating from sectors beyond the colleges themselves; political leaders in large states such as Texas and California have begun legislating statewide reforms to developmental education.

While state-led change has been occurring at a rapid pace, there has been little research on whether colleges are implementing these reforms and at what scale. In 2014, researchers at MDRC and the Community College Research Center (CCRC) at Teachers College, Columbia University, partnered to create a research and development center funded by the U.S. Department of Education's Institute of Education Sciences (IES), the Center for the Analysis of Postsecondary Readiness (CAPR), to examine the reach and effectiveness of developmental education reforms.[8]

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[1]Bailey, Jeong, and Cho (2010); Chen (2016); Zachry Rutschow and Schneider (2011); Barnett and Reddy (2017); Hu et al. (2019); Scott-Clayton (2012).

[2]Chen (2016); and Bailey, Jeong, and Cho (2010).

[3]Scott-Clayton (2012); Hodara, Jaggars, and Karp (2012); Belfield and Crosta (2012).

[4]Bailey, Jeong, and Cho (2010); Jaggars and Stacey (2014).

[5]See, for instance, Zachry Rutschow and Schneider (2011); Kalamkarian, Raufman, and Edgecombe (2015); Cho, Kopko, Jenkins, and Jaggars (2012); Scrivener et al. (2018); Logue, Watanabe-Rose, and Douglas (2016).

[6]Chen (2016).

[7]Whinnery and Pompelia (2018).

[8]For more information, visit postsecondaryreadiness.org.

As one of three primary studies in CAPR, this descriptive study is focused on documenting current instructional and assessment practices used in broad-access two-year and four-year colleges across the country.

In 2016, CAPR disseminated a survey to a nationally representative sample of broad-access two-year and four-year institutions, asking them to document the scope and scale of their developmental practices as of the 2015-2016 academic year. In addition, CAPR researchers conducted interviews with institutional and state leaders about their practices and the factors that influenced their developmental education decisions. This report provides the most recent nationally representative examination of the scope and scale of colleges' developmental education practices.

The key findings from the report are that most public colleges continue to use standardized tests to assess students' college readiness, though a majority also now use additional measures such as high school performance. Most colleges continue to rely on multi-semester, prerequisite course sequences to teach developmental education, although large numbers of colleges are also experimenting with reforms to these practices. Nevertheless, colleges tend to offer alternative developmental education instructional reforms as less than half of their overall course offerings. Finally, college leaders name a variety of factors as influencing their efforts to improve the outcomes of students with developmental needs, though analyses suggest that state policy can have an important influence on the number of colleges that implement these reforms.

What Are the Challenges with Developmental Education and How Is It Changing?

Assessing students' college readiness and placing students with skills below the college level into sequential developmental reading, writing, and math courses has been standard practice at broad-access two-year and four-year colleges for decades. Typically, these schools have relied on standardized tests, including exams used in college admissions such as the ACT or SAT or entering college placement exams such as the ACCUPLACER, to assess entering students' skills. Students testing below a certain score (which can vary from college to college) are generally deemed not college-ready and placed into developmental education courses in order to build their skills. Traditionally, colleges offered multiple levels of the courses and required students with lower test scores to complete each successive level to demonstrate their mastery of these skills and be eligible to take college-level courses. This process often means that students are taking multiple semesters or even years of developmental courses before being allowed entry into college-level courses.

Research from the past decade has shown that these practices are less than effective and may be hindering students' college success. For instance, reports have shown that standardized tests can be a poor predictor of students' college readiness in comparison with other measures such as students' high school performance — and thus result in many more students taking developmental classes than may need them.[9] In addition, research studies have shown that very few students ever complete their developmental requirements, particularly if they are required to take

[9]Scott-Clayton (2012); Barnett and Reddy (2017).

them over multiple semesters, resulting in less than 40 percent of these students ever entering and completing their first college-level course.[10]

Given these findings, many practitioners and policymakers have been experimenting with ways to improve students' success in these courses by revising the assessment, placement, instruction, and supports for students in developmental courses.[11] These reforms range from changing the methods for assessing students' college readiness to include measures outside of standardized tests (reforms to assessment) to changing the structure, sequencing, content, or pedagogy used in developmental courses (instructional reforms) to providing students in developmental courses with additional support (reforms to student services and supports). Table ES.1 provides the names and definitions of the most popular types of developmental education reforms.

Table ES.1

Popular Developmental Education Reforms

Type of Practice	Definition
Assessment reforms	
Multiple measures assessment	Use of 2 or more measures to determine college readiness
High school performance	Measures that consider students' academic success in high school (such as high school GPA) to determine college readiness
Measures of motivation or commitment	Measures of students' behaviors and attitudes toward school and learning to determine college readiness. May be measured using an assessment such as the Learning and Study Strategies Inventory (LASSI).
Planned course of study	Measures that consider students' intended majors for placement in developmental education. Frequently used in multiple math pathways models.
Instructional reforms	
Compressed courses	2 or more developmental courses compressed into a shorter time period
Self-paced courses	Students complete lessons at their own pace; instruction is often computerized
Corequisite model	Students are placed directly into a gateway college-level course with additional supports
Learning communities	Students take 2 or more courses together as a cohort
Multiple math pathways	Diversified math designed to align with students' intended majors
Integrated reading and writing	Developmental reading and developmental writing combined into one course
Student supports reforms	
Tutoring or supplemental instructors	Targeted instruction or support
Student success courses or coaches	Individuals or courses help students learn about college life and introduce them to the supports available to promote their success
Computer-based learning sessions	Self-paced learning outside of class using computer-based instruction
Pre-matriculation program or boot camp	Programming before a student officially enrolls in college

[10]Bailey, Jeong, and Cho (2010); Barnett et al. (2018); Chen (2016).

[11]Zachry Rutschow and Schneider (2011); Kalamkarian, Raufman, and Edgecombe (2015); Cho, Kopko, Jenkins and Jaggars (2012). See, also, Florida's and Connecticut's state policy changes regarding developmental education: Hu et al. (2019) and Turk, Nellum, and Soares (2015).

The CAPR Descriptive Study

The primary goal of the CAPR descriptive study is to understand the scope and scale of colleges' reforms to their developmental education assessment and placement practices as well as colleges' implementation of instructional and student support interventions designed to improve students' success. The study data come from a survey disseminated to a nationally representative, random sample of 1,055 broad-access two-year and four-year colleges, universities, and postsecondary systems; and interviews with 127 college faculty, staff, administrators, and system leaders from 83 different two-year and four-year colleges, college systems, and state-level higher education governing bodies. The survey was split into two nearly identical sections for math and for reading and writing and asked college leaders to reflect on their institution's or systems' practices and policies for developmental education assessment, placement, and instruction for the 2015-2016 academic year. The researchers disseminated the survey in spring 2016 and fall 2016 and achieved an overall response rate of 78 percent from public two-year and four-year institutions and private, nonprofit four-year institutions.[12]

Findings

This section details key findings from the CAPR survey and interviews.

- **Most institutions continue to use standardized assessments to measure students' college readiness; however, a growing number of public colleges are also using additional measures to assess college readiness, such as students' high school performance.**

CAPR survey findings confirm that virtually all broad-access public colleges assess students' college readiness, and most continue to rely on standardized assessments to do so. Many public colleges (nearly 40 percent) use only one measure to assess students' skills and over 90 percent of these use standardized assessments exclusively. However, survey findings also reveal a 30 percentage point increase in the proportion of colleges using additional measures to assess students' college readiness since 2011, when the last nationally representative survey was conducted.[13] As shown in Figure ES.1, the most common alternative measure used in assessment and placement decisions is high school performance, followed by colleges using students' planned course of study to guide placement into developmental math courses.

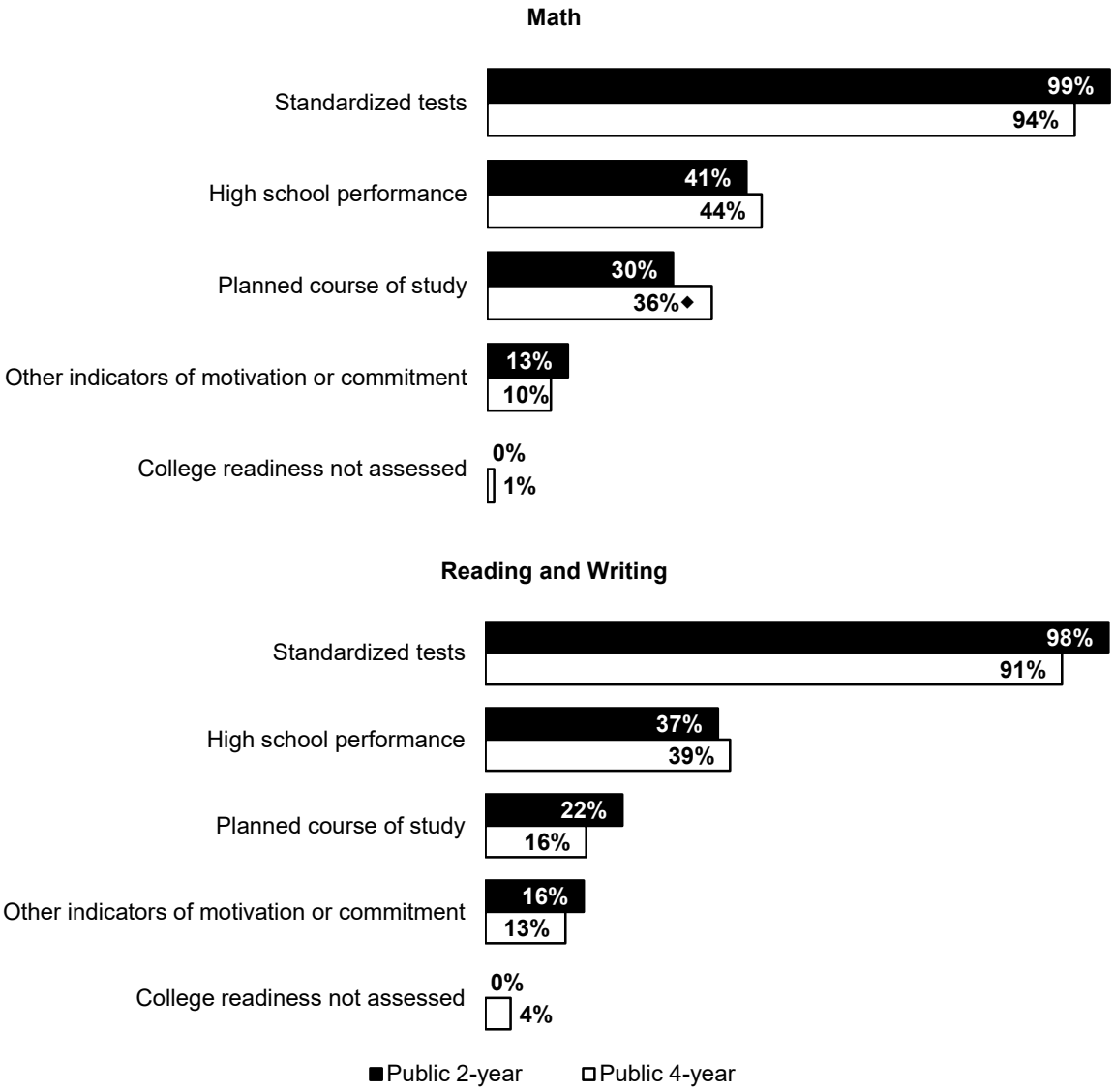
- **Most two-year and four-year public colleges offer developmental courses, though their prevalence is much higher at two-year colleges. Multi-semester, prerequisite sequences make up a substantial proportion of these courses at both types of institutions.**

[12]Because their response rates were very low, private two-year colleges and private, for-profit four-year colleges were excluded from the study.

[13]Fields and Parsad (2012).

Figure ES.1

Processes Used to Determine College Readiness Among Public Colleges, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Distributions may not add to 100 percent because categories are not mutually exclusive.
Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

The CAPR survey findings show that almost all broad-access public two-year (99 percent) and most public four-year colleges (about 83 percent) offer developmental education courses to students deemed underprepared; while the percentage of two-year colleges offering developmental education has remained steady, more four-year colleges offer developmental courses in 2016 than in 2000.[14] Public two-year colleges offer over twice as many sections of developmental education on average (74 sections in math; 49 sections in reading and writing) as public four-year colleges (32 sections in math; 22 sections in reading and writing), which is noteworthy given that community colleges on average enroll slightly fewer undergraduate students than do four-year colleges.[15] Both two-year and four-year colleges also tend to offer more sections of developmental math than developmental reading and writing sections. Additionally, a large proportion of two-year colleges (86 percent) and four-year colleges (67 percent) offer developmental math courses as multi-semester, prerequisite course sequences. Somewhat fewer (67 percent of public two-year colleges and 44 percent of public four-year colleges) offer multi-semester sequences in developmental reading and writing courses.

- **Many colleges are experimenting with different instructional approaches in developmental education, particularly among two-year colleges; however, these approaches tend to make up less than half of colleges' overall developmental course offerings.**

There are six different instructional approaches that are being offered at more than half of public two-year colleges (as shown in Figure ES.2). A majority of two-year colleges are offering at least one section of multiple math pathways, self-paced math courses; integrated reading and writing, corequisite courses in developmental reading and writing; and compressed courses in both subjects. Though somewhat less common, substantial proportions of four-year colleges also use these approaches. That said, these approaches are usually not scaled; most public colleges do not offer these approaches in half their sections of developmental education courses or more.

- **Both public two-year and four-year colleges offer multiple types of support services for students in developmental courses, particularly in developmental math, although their uptake is higher within two-year colleges.**

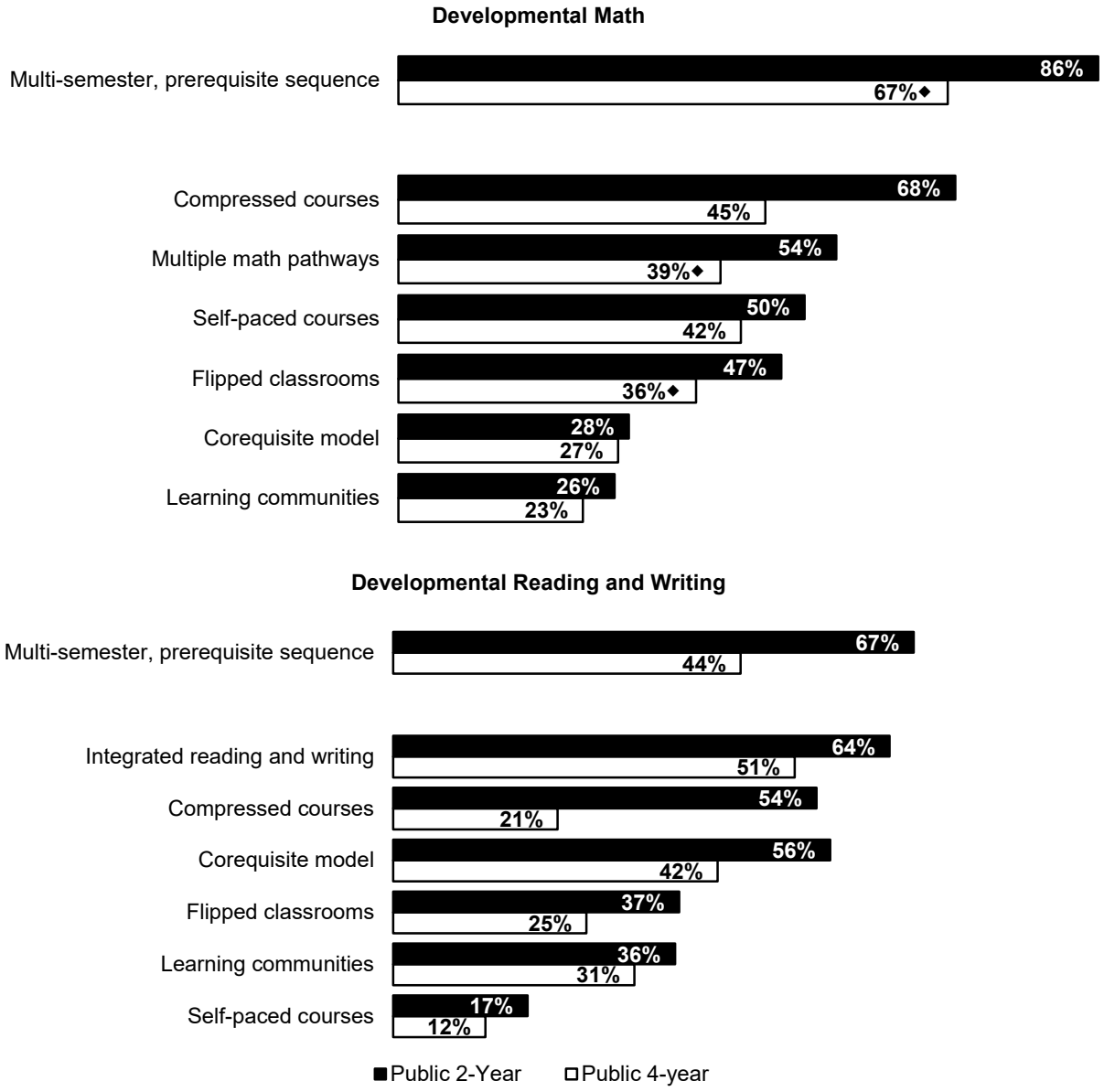
There are three different support services that more than half of two-year and four-year colleges offer to students in developmental math courses. (See Figure ES.3.) A large proportion of two-year colleges (56 percent) and four-year colleges (46 percent) also have pre-matriculation programs or "boot camps" for students identified as having developmental math needs, meaning that many colleges offer three or four different types of supports for these students. More than two-thirds of colleges also provide student success courses and tutors or supplemental instructors for students in developmental reading and writing courses.

[14]Parsad and Lewis (2003).

[15]According to CAPR researchers' calculations using data drawn in 2015 from the Integrated Postsecondary Education Data System (IPEDS), the average undergraduate enrollment among colleges in the survey sample was approximately 8,800 students for public four-year colleges and 7,400 students for public two-year colleges.

Figure ES.2

Instructional Approaches to Developmental Education in Public Colleges, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Values represent percentages among public colleges that reported offering developmental courses. Colleges were counted as using an instructional method if any respondent indicated that they used it in at least one course section.

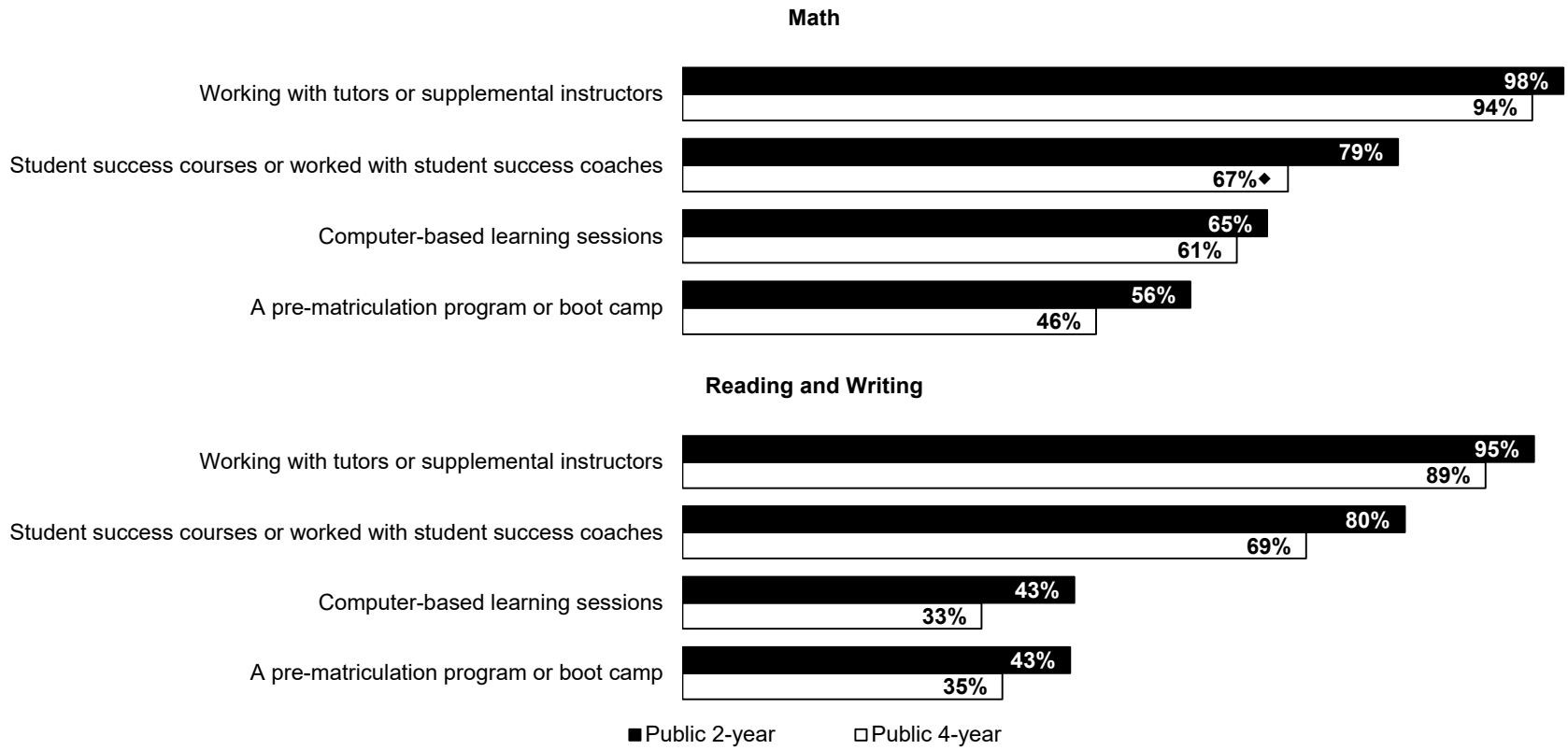
Distributions may not add to 100 percent because categories are not mutually exclusive.

Rounding may cause slight discrepancies between tables and figures.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

Figure ES.3

Percentage of Public Colleges with Students Identified as Underprepared in Math and in Reading and Writing Using Student Support Services, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Colleges were counted as using a student support service if they reported any students using that service.
Distributions may not add to 100 percent because categories are not mutually exclusive.
Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

A greater percentage of community colleges also report larger proportions of students identified as having developmental needs using support services, compared with four-year colleges. Higher uptake is seen in public two-year colleges among every support service the CAPR survey asked about. For instance, 79 to 80 percent of public two-year colleges report using success courses or success coaches for students identified as having developmental needs in math, reading, and writing compared with 67 to 69 percent of four-year colleges.

- **Most colleges report a variety of factors as influences on their efforts to improve skills of students in developmental courses, with faculty input as the most commonly named factor and state policy the least.**

A majority of public two-year and four-year colleges report that each of the factors listed on the CAPR survey (faculty input, internal research, the availability of resources, practices at other colleges, external research, and state policies) are drivers of their developmental education practices. The most frequently cited factor at both two-year and four-year colleges is faculty input (at over 85 percent of colleges).[16] At least 65 percent of two-year colleges also name each of the other factors on the survey as driving their efforts, with four-year colleges naming these factors slightly less frequently. Respondents cite state policy least often, though 58 percent or more colleges see state policy as important.

- **Analyses of the role of state policy in three states (Texas, Georgia, and Tennessee) suggest that state policy may have a more complex and influential role in colleges' practices than the overall CAPR survey results reflect.**

A larger proportion of public colleges in three states with mandated or recommended developmental education reform policies report state policy as an influence on their practices than seen in the overall survey results. However, colleges' actual implementation of these reforms varies. Colleges in states that mandated practices, revised course offerings, and developed accountability systems to check on colleges' implementation generally have higher levels of implementation of these recommended or mandated reforms than those that allowed colleges more discretion over implementation.[17] Examples from three states suggest that state- and system-level policy may play a more complex and influential role in colleges' practices than the overall CAPR survey results reflect.

- **Developmental education is much less prevalent at private, nonprofit four-year colleges,[18] and their implementation of different approaches to assessment, instruction, and supports varies.**

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[16]The survey did not ask individuals to identify the importance of one driver over another.

[17]The survey sample was not stratified by state, meaning that the survey responses presented by state are necessarily not representative of all institutions within these states. Additionally, because of small sample sizes, survey responses reported by state have higher margins of error than the national sample.

[18]These results may not be as representative as the results for public two-year and public four-year colleges, as the response rates among private, nonprofit four-year colleges were lower (51 percent) than for public two-

Fewer broad-access private four-year colleges (41 to 54 percent) than public colleges require students to have a minimum level of skill before they enroll, and about one-fourth of private four-year colleges do not assess college readiness at all (compared with 0 percent of community colleges and less than 5 percent of public four-year colleges). When they do assess students' college readiness, about 40 to 47 percent use two or more methods to assess students' college readiness, with high school performance being the most commonly used additional method. About half of private colleges offer developmental reading, writing, and math as multisemester, prerequisite sequences, which are less prevalent compared with public colleges. Private colleges are similar to public colleges in their use of integrated reading and writing courses as well as a number of different math approaches, including compressed courses, multiple math pathways, self-paced courses, and flipped classrooms. Private colleges were less similar to public colleges in their developmental reading and writing practices, with 30 percent or less offering compressed courses, corequisite courses, flipped classrooms, self-paced models, and learning communities in these subjects. Private four-year colleges used student support services less frequently than public colleges.

What Do These Findings Say About the State of Developmental Education Reform Now?

The findings from the CAPR survey and qualitative interviews suggest that much is changing in developmental education practice — and that much is staying the same. The following provides a brief summary of developmental education reform based on the findings from this study.

- **The pace of developmental education reform is increasing rapidly across the country.**

Large proportions of colleges are implementing practices, such as multiple measures assessment or multiple math pathways, which had barely been introduced to the field before 2012. These numbers have likely grown since the time the CAPR survey was disseminated in 2016, as states have been increasingly playing a larger role in recommending or mandating college practices. For instance, although the CAPR survey reveals that less than one-third of colleges had implemented corequisite reforms, a 2018 report by the Education Commission of States found that at least 15 states now recommend or mandate corequisite courses for all the colleges in their postsecondary systems.[19] As such, reforms have likely become even more prevalent since the time of this survey.

- **Colleges are implementing more complex reforms.**

Many of the practices that colleges are implementing require substantial revisions to institutional or even state policies and practices. For instance, the use of high school performance in developmental education placement decisions can be highly challenging for broad-access

year colleges (86 percent) and public four-year colleges (90 percent). Thus, the survey responses for the private colleges may be less representative of national trends than the responses of public colleges.

[19]Whinnery and Pompelia (2018).

colleges that generally do not require high school transcripts for entry. Colleges must figure out new ways to obtain these data, which may entail new relationships with kindergarten-through-grade-12 schools or new data systems to process these measures, both of which may require lengthy negotiations and long periods of implementation.[20] Colleges also appear to be taking on deeper revisions to developmental course content and instruction, such as reforms that integrate different subjects or change the content of math classes. This is a shift from prior research showing that many reforms aimed to change the timing or sequencing of courses.[21]

- **Despite this, traditional practices continue in many places for many students.**

While much change is happening, findings from this study suggest that some elements of the developmental education landscape remain the same. For instance, a large proportion of public colleges continue to offer developmental courses as multi-semester, prerequisite sequences. Additionally, two-year colleges are more likely to offer these courses at scale, meaning that students entering two-year colleges are much more likely to be required to take these courses. As such, many students who take developmental courses may not be receiving the revised assessment, instruction, and support practices noted above.

What Are the Next Steps?

The following provides some suggestions for continuing to strengthen policymakers', practitioners', and researchers' efforts to improve the success of students in developmental courses:

- **Continue to improve the evidence of what works so that policymakers and practitioners can implement the programs and policies that have the greatest chance for improving students' success.**

The urgency in the field to improve the success of students enrolled in developmental education courses has led many institutions, systems, and states to push for reforms that have not necessarily been demonstrated to be effective in improving student outcomes. For instance, research indicates some reforms such as compressed courses, student success courses, and self-paced instructional models may be limited in helping students advance into college-level courses and, in some cases, may slow students' progress.[22] These findings underscore the importance of getting clear evidence of effectiveness out to the field to ensure that the practices that have the most potential for improving student outcomes are implemented. Additionally, it suggests that practitioners and policymakers should try to remain nimble in decision making around differing reforms and be open to shifting practices as more evidence becomes available about what reforms may best improve student outcomes.

[20]Barnett et al. (2018); Barnett and Reddy (2017).

[21]Edgecombe, Cormier, Bickerstaff, and Barragan (2013).

[22]Kalamarkian, Raufman, and Edgecombe (2015); Karp and Stacey (2013); Weiss et al. (2011); Zachry Rutschow, Cullinan, and Welbeck (2012); Bickerstaff, Fay, and Trimble (2016); Fay (2017); Boatman (2012); Weiss and Headlam (2018).

- **Seize opportunities for more rigorous research that may arise from the slow pace of scaling.**

While experimentation with new practices is high, colleges are not, in general, implementing these reforms for large groups of students, which offers opportunities to test what types of interventions may be most effective. Practitioners and researchers could take advantage of the natural timeline often needed to implement new practices to do more rigorous analyses of the outcomes of students who receive a new intervention in contrast with those who do not. Finding natural marriages between these two interests represents one way that both practitioners and researchers may be able to advance the field more quickly — and effectively — toward improving student outcomes.

- **Build knowledge about how integrating multiple reforms together may improve student success.**

Recent research suggests that more integrated reforms, which bring together a variety of instructional and student support changes, may be promising, as studies of more comprehensive reforms to students' course-taking, supports, and financial assistance have been effective in improving students' academic progress and graduation rates.[23] However, research on the mix of practices that may be most effective is still relatively limited and should be a priority to provide the best information for the field.

- **Gain a better understanding of the drivers of colleges' reforms.**

This study reveals that multiple factors, ranging from faculty input to research to state policy, influence colleges' practices. However, the data do not allow for a deep investigation of how these drivers may interact and what types of drivers may best foster colleges' implementation. A more nuanced investigation of the interaction between and among these factors may help support further implementing and scaling of promising programs.

- **Learn more about what works for specific types of students.**

As the evidence on the effectiveness of different developmental education practices is building, leaders should prioritize conducting an analysis of which types of reforms may be best for different groups of students. For instance, providing strong services for traditionally underserved students and students with multiple developmental needs will be a particularly important part of this picture, given that broad-access colleges often serve large proportions of these students.[24]

- **Strengthen the field's knowledge of how instruction may affect students' success.**

This study indicates that many colleges are experimenting with classroom-level reforms such as integrated reading and writing and multiple math pathways, but there is very little information about how changes to classroom practices may affect students' success. Research has

[23]Scrivener et al. (2018); Sommo, Cullinan, and Manno (2018).

[24]Visher, Cerna, Diamond, and Zachry Rutschow (2017).

shown that certain types of instructional reforms, such as those that provide more active learning environments for students or contextualization of math learning, hold promise for improving students' learning and academic and labor-market outcomes — while others, such as technology-based instruction, have more mixed effects.[25] These findings suggest that instruction may play an important role in students' learning and success and should be a priority in future research agendas.

- **Focus on learning more about private two-year colleges.**

Private two-year colleges' low response rates in this research study mean their practices remain relatively unknown. Given that these institutions enroll large numbers of low-income students and students of color, understanding the types of practices that they are implementing and their effectiveness should remain central to future work.[26]

Summary

As part of the reauthorization of the Higher Education Act, which provides federal resources aimed at strengthening postsecondary education and financial assistance for students, Congress is currently (as of fall 2019) considering a number of provisions aimed at reducing the rates of postsecondary remediation and encouraging the adoption of evidence-based reforms. This report suggests that while many colleges have already moved toward the implementation of these practices, many more may be affected, as federal funding and support is tied to students' success. This is likely to have important implications for the many colleges that have not yet begun down the road of reform. Moreover, it underscores the urgency in understanding what reforms may be most effective and how they can be more widely implemented among the nation's colleges.

[25]Logue, Watanabe-Rose, and Douglas (2016); Zachry Rutschow, Diamond, and Serna-Wallender (2017); Martinson, Cho, Gardiner, and Glosser (2018); Hodara (2011); Jaggars and Xu (2016); Jaggars, Edgecombe, and Stacey (2013).

[26]Fry and Cilluffo (2019).

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Chapter 1

Introduction

Research has suggested that far more students entering postsecondary schools are identified as being in need of developmental education courses than require them and that these courses present a monumental barrier to students' success.[1] For instance, national reports have shown that up to 70 percent of first-year college students have been advised to take developmental courses before entering college-level classes.[2] Additionally, studies show that colleges' reliance on standardized tests to assess students' college readiness contributes to casting an overly broad net for developmental education while suggesting that other factors, such as high school performance, may more accurately predict students' college success.[3] Research also indicates that the predominant mechanisms for delivering developmental education — multi-level, prerequisite developmental courses that can take multiple semesters or even years to complete — hinder students' progress, with large proportions of students failing to complete these courses.[4] Informed by this evidence, practitioners and researchers have been experimenting with multiple ways to revise developmental education, with many practices showing promise for improving students' success.[5]

In recent years, many colleges, systems, and states have been quick to adopt these revised practices. For instance, in 2018 the Education Commission of the States noted that 19 states now encourage or mandate colleges to assess the college readiness of entering students by incorporating additional measures, such as students' high school grade point average (GPA), rather than depending solely on standardized test scores.[6] Similarly, 15 states now recommend or require colleges to enroll students with developmental needs directly into college-level courses while providing them with supplemental supports instead of requiring them to take multiple semesters of prerequisite developmental courses — a practice that was nearly unheard of before 2010.[7] And colleges are not the sole drivers of these changes: Political leaders in states such as Texas and California have begun legislating developmental education reforms, sometimes without clear evidence of which practices are most effective for improving students' success.[8]

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[1]For instance, see Bailey, Jeong, and Cho (2010); Chen (2016); Zachry Rutschow and Schneider (2011); Barnett and Reddy (2017); Hu et al. (2019); Scott-Clayton (2012).

[2]Chen (2016); Bailey, Jeong, and Cho (2010).

[3]Scott-Clayton (2012); Hodara, Jaggars, and Karp (2012); Belfield and Crosta (2012).

[4]Bailey, Jeong, and Cho (2010); Jaggars and Stacey (2014).

[5]For instance, see Zachry Rutschow and Schneider (2011); Kalamkarian, Raufman, and Edgecombe (2015); Cho, Kopko, Jenkins, and Jaggars (2012); Scrivner et al. (2018); Logue, Watanabe-Rose, and Douglas (2016).

[6]Whinnery and Pompelia (2018).

[7]Whinnery and Pompelia (2018).

[8]Daugherty et al. (2018); California Community Colleges (n.d.).

While state-led change has been occurring at a rapid pace, relatively little is known about whether colleges are implementing these reforms and at what scale. In 2014, researchers at MDRC and the Community College Research Center (CCRC) at Teachers College, Columbia University, partnered to create a research and development center funded by the U.S. Department of Education's Institute of Education Sciences, the Center for the Analysis of Postsecondary Readiness (CAPR), to examine the reach and effectiveness of developmental education reforms.[9] As one of three primary studies in CAPR, this descriptive study is focused on documenting current instructional and assessment practices that broad-access two-year and four-year colleges across the country use. Based on a nationally representative survey of public two-year and four-year colleges and private, nonprofit four-year colleges as well as interviews with institutional and state leaders, this report examines the current state of practices and reforms in developmental education assessment, placement, and instruction. The key findings from the report are:

- Most public two-year and four-year colleges continue to use traditional methods of assessment and instruction, including standardized tests to assess students' college readiness and multi-semester, prerequisite developmental courses.
- Many public colleges are experimenting with reforms to assessment, placement, instruction, and supports. The most popular interventions include the use of multiple measures to assess college readiness, the compression of developmental courses into shorter periods, offering diverse math courses that align with students' careers, offering courses that allow students to determine their own pace of learning, and offering courses that integrate reading and writing. Tutoring, supplemental instruction, and student success courses are the most popular support interventions.
- While experimentation is widespread, colleges implement these reforms on a relatively limited scale, with most colleges offering these interventions to less than half their students.
- College leaders name a variety of factors driving their instructional reforms, including faculty members' input, research, practices at other colleges, the availability of resources, and state policy. However, state policy appears to heavily influence colleges' scaling of reforms.

What Is Developmental Education and What Are the Challenges?

Developmental education has been an important part of postsecondary education in two-year and four-year colleges for many years. It is intended to help college students build skills before entering gateway college courses and traditionally takes the form of a series of multi-level, multi-semester, noncredit preparatory courses in reading, writing, and math. Developmental

[9]For more information, please visit postsecondaryreadiness.org.

education has an impact on a large proportion of college students — a longitudinal study from 2016 found that approximately 68 percent of entering community college students and 40 percent of entering public four-year students took at least one developmental course in math, reading, or writing.[10]

Most broad-access two-year and four-year colleges have few admissions requirements, and many neither require nor have access to measures of students' past performance such as high school grades or GPA.[11] These schools have often relied on students' performance on exams used in college admissions (such as the ACT or SAT, typically administered in high school) if available or college placement exams (such as the ACCUPLACER, typically administered to newly enrolled college students) to assess entering students' college readiness.[12] Colleges often require entering students to take placement tests without informing them of the high-stakes nature of these exams.[13] College leaders traditionally set cut-off scores to determine placement into college-level courses and place students testing below these levels into developmental, or remedial, courses. Until recently, colleges offered multiple levels of developmental courses in one subject area and placed students into lower- or higher-level courses based on their assessed need (which they usually determined by test scores). Each level was a semester-long course, and students were generally required to complete one level before taking the next course in the series. In some cases, particularly in math, students could be required to successfully complete up to five developmental courses before they could enroll in a gateway college-level course. Though students can use financial aid to support their enrollment in these courses, developmental education classes are generally noncredit and nontransferable, meaning that they do not count toward a degree or certificate.[14]

Although developmental education has been widespread for decades, recent research has questioned the effectiveness of standard approaches to its delivery. Prominent research reports have demonstrated that the use of college readiness and entrance exams may be less effective at predicting students' success in college-level courses than other measures such as students' high school performance or motivation through surveys of their attitudes and behaviors.[15] In addition, research studies have shown that very few students who are advised to take developmental courses ever complete these courses and enroll in college-level courses.[16] Some studies have suggested that 50 to 60 percent of students steered toward developmental education fail to successfully complete all their developmental requirements, and less than 40 percent successfully

[10]Chen (2016).

[11]Barnett and Reddy (2017).

[12]Fields and Parsad (2012).

[13]Venezia, Bracco, and Nodine (2010).

[14]The information in this paragraph came from Bailey, Jeong, and Cho (2010) and Zachry Rutschow and Schneider (2011).

[15]Scott-Clayton (2012); Barnett and Reddy (2017).

[16]Bailey, Jeong, and Cho (2010); Jaggars and Stacey (2014).

complete a gateway college-level course.[17] As a result, many practitioners and policymakers have been experimenting with ways to improve students' success in these courses by revising the assessment, placement, instruction, and supports for students in developmental courses.[18]

Reforms to Developmental Education

College leaders and researchers have identified a number of reforms that may increase the success of students placed into developmental courses.

Reforms to Developmental Education Assessment

First, researchers have identified other measures that show more promise for assessing students' college readiness. In particular, studies have shown that high school performance is highly predictive of students' future college success, while other research has suggested that measures of motivation or commitment to college may also help predict students' future performance.[19] Alternatively, some researchers have suggested that high school exit exams, such as those aligned with the Common Core State Standards adopted by many states, may hold promise for identifying students' colleges readiness.[20] Very few colleges — less than 25 percent — used these types of alternative measures at the time of the previous nationally representative survey of colleges' assessment and placement practices in 2011 (about five years before CAPR fielded its survey).[21] Now, system leaders in many states are recommending or requiring their colleges to use these measures to assess students' skills.[22]

Reforms to the Delivery of Developmental Education

Colleges are also experimenting with ways to accelerate students' progress through developmental courses by changing the sequencing, structure, and content of these courses. For instance, some colleges have shortened the number of developmental courses offered in a sequence to one or two courses, often eliminating lower-level courses. Additionally, colleges have compressed course content into shorter periods (often called "compressed courses"), such as condensing a 16-week course down to 8 weeks, allowing students the opportunity to complete two courses in one semester. Another strategy is enrolling students with developmental needs directly

[17]Bailey, Jeong, and Cho (2010); Chen (2016). Chen's study only looked at students who enrolled in courses rather than students referred to these courses, while Bailey, Jeong, and Cho analyzed developmental education referrals.

[18]Zachry Rutschow and Schneider (2011); Kalamkarian, Raufman, and Edgecombe (2015); Cho, Kopko, Jenkins and Jaggars (2012). See, also, Florida's and Connecticut's state policy changes concerning developmental education: Hu et al. (2019); Turk, Nellum, and Soares (2015).

[19]Scott-Clayton, Crosta, and Belfield (2014); Belfield and Crosta (2012); Scott-Clayton (2012).

[20]Barnett and Fay (2013).

[21]Fields and Parsad (2012).

[22]Whinnery and Pompelia (2018).

into college-level courses with an additional support course or tutoring (corequisite courses or mainstreaming).

Other interventions have targeted the content and pedagogy in developmental courses, aiming to make them more engaging for students. For example, some colleges are breaking developmental course content into modules focused on specific competencies, with students working only on modules in areas where they have not demonstrated mastery.[23] Others have integrated two traditionally separate subject areas, developmental reading and developmental writing, into one combined course (integrated reading and writing).[24] Finally, other interventions have sought to diversify the type of math students take to align the math content with students' future career interests (multiple math pathways).[25]

Improving Supports for Students in Developmental Education

Some colleges have also sought to intensify the academic and other supplemental supports for students in order to help improve their outcomes. Many colleges are embedding tutors or supplemental instructors within classes to provide real-time assistance to students during class time (supplemental instruction).[26] Similarly, some colleges have developed intrusive or enhanced advising models that require students to meet with their academic advisors during critical points in the semester, or in which advisors take a more proactive approach to monitoring students' progress throughout the semester.[27] Another popular approach has been to provide success courses or coaches to help students learn about collegiate life and provide them with tools to approach the decisions and responsibilities they will have as college students.[28]

Legislative and System-Level Reforms to Developmental Education

In recent years, the number of states and college systems mandating or recommending practices through legislative reforms or system-level polices has grown. State policymakers in Virginia, North Carolina, Tennessee, and Texas have limited the number of developmental courses public two-year colleges can offer and have mandated how the schools are to deliver developmental education.[29] Similarly, college systems such as the California State University and the University System of Georgia have begun requiring all developmental students to be enrolled in corequisite courses.[30] Some states have worked to better align their kindergarten-through-grade-12 and postsecondary systems, such as Tennessee's and California's efforts to develop

[23]Weiss and Headlam (2018).

[24]Bickerstaff and Raufman (2017); Saxon, Martirosyan, and Vick (2016).

[25]Zachry Rutschow, Diamond, and Serna-Wallender (2017); Clyburn (2013); Cullinane and Treisman (2010).

[26]Zachry Rutschow and Schneider (2011).

[27]Karp, O'Gara, and Hughes (2008); Scrivener and Logue (2016).

[28]Zachry Rutschow and Schneider (2011); Scrivener, Sommo, and Collado (2009); Zeidenberg, Jenkins, and Calgano (2007).

[29]Kalamkarian, Raufman, and Edgecombe (2015); Daugherty et al. (2018); Kane et al. (2019).

[30]White (2018); Complete College Georgia (2011).

early assessment and instructional programs while students are still in high school.[31] Many states and systems have recommended that colleges implement multiple reforms to developmental education, such as the case in Texas, where legislators or college system leaders have pushed colleges to implement six reforms to developmental education between 2009 and 2017.[32] However, despite this push, there has not been a nationally representative study to examine the prevalence and scale of these reforms at individual colleges.

The CAPR Descriptive Study

The CAPR descriptive study comprises a nationally representative survey of broad-access two-year and four-year colleges, universities, and postsecondary systems; and qualitative interviews with a selection of faculty members, staff members, administrators, and state leaders. Its primary goal is to understand the scope and scale of colleges' reforms to the assessment and placement practices used to determine students' college readiness, as well as colleges' implementation of instructional and student support interventions designed to improve students' success.

The researchers drew a random sample of 1,712 colleges from the 3,127 public and private degree-granting, undergraduate-serving, open-access two-year and broad-access four-year colleges based in the United States in March 2015.[33] They defined "colleges" as degree-granting, undergraduate-serving institutions and identified the schools using the Integrated Postsecondary Education Data System (IPEDS), a national database that records demographic, enrollment, and performance data of all colleges that participate in federal student financial aid programs.

The survey asked questions about the institutions' practices and policies on assessment, placement, and instruction during the 2015-2016 academic year.[34] To understand how these practices differed across subjects, the survey comprised two nearly identical sections, one for math and one for reading and writing, which different respondents familiar with these subjects at the sampled institutions could complete. The survey drew its terminology for the assessment, placement, and instructional practices from common terms college leaders and faculty members use, and CAPR researchers piloted it with college leaders before its full dissemination. CAPR researchers leveraged and built off some of the assessment survey questions from two other nationally representative surveys of assessment,[35] allowing them to measure changes over time in assessment and placement policies across the United States.

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[31]California Department of Education (2019); Tennessee Board of Regents (2019).

[32]Daugherty et al. (2018).

[33]"Open access" is defined as open admissions. "Broad-access" is defined as admitting 70 percent or more of applicants."

[34]Because the survey was disseminated throughout the 2016 calendar year, all survey respondents answered for the academic year 2015-2016 to align all survey responses. In other words, respondents who received the survey in spring 2016 answered for the current academic year, and those who received the survey in fall 2016 answered for the previous academic year.

[35]These included the 2000 National Center for Education Statistics Postsecondary Education Quick Information System survey, which provides national estimates of the prevalence and characteristics of development

As the result of a diligent fielding campaign over the course of a year, response rates to the survey for public two-year and four-year colleges and private, nonprofit four-year institutions were high: 88 percent of public two-year institutions, 92 percent of public four-year institutions, and 52 percent of private, nonprofit four-year institutions from the sample completed both sections of the survey, and even higher numbers completed at least one section. (See Table 1.1.)

Table 1.1

2016 CAPR Survey Response Rates, by Institution Type

	Private, nonprofit			
Response Rates (%)	4-year	Public 2-year	Public 4-year	All
Completed math section	55.8	90.6	93.0	82.2
Completed reading and writing section	56.9	88.4	93.3	81.5
Completed both sections	51.1	85.9	89.6	77.8
Sample size	276	481	298	1,055

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations.

In spring 2016 and fall 2016, the survey went to college faculty members, staff members, and administrators who were familiar with their institutions' policies and practices in developmental education as well as to a sample of college and university system leaders. Following the first fielding period (spring 2016), the research team found that response rates for private two-year and for-profit four-year institutions were very low,[36] even after multiple contact attempts involving phone calls, emails, and letters.

Two primary factors accounted for the low response rate at private two-year institutions: The contact information available online or for purchase was more likely to be unavailable or inaccurate compared with public institutions; and private two-year institutions were more often identified as no longer operating, merging with other schools, changing names and purposes, or not offering developmental education classes (for example, religious schools, mortuary science schools, and cosmetology institutes) than public institutions. Additionally, individuals at these institutions were less likely to respond to the survey invitation once contacted compared with the rest of the institutions in the sample. Therefore, to conserve resources, the researchers stopped fielding to the remaining private two-year colleges and private, for-profit four-year colleges that had not responded to the survey (618 institutions). They removed all private two-year colleges and private, for-profit four-year colleges from the sample, totaling 657 institutions, and as a result, data on these institutions are not included in this report. Given this change, the revised and final

courses (Parsad and Lewis, 2003) and the 2011 National Assessment Governing Board Survey, which surveyed the standardized tests used in postsecondary education and their cut-off scores (Fields and Parsad, 2012).

[36]Following the first wave of fielding, at most 26 percent of private two-year colleges and 22 percent of private, for-profit four-year colleges completed at least one section of the survey. This is in comparison with the other types of institutions, where more than 50 percent of the public colleges and at least 45 percent of the private, nonprofit four-year colleges fielded in the first wave completed at least one section of the survey.

sample for the survey is 1,055 institutions, which includes only public two- and four-year colleges, and private, nonprofit four-year colleges.

For a fuller description of the survey methodology, along with more information about key decisions about the survey sample and fielding, see Appendix A. The full survey questionnaire can be found in Appendix B.

In addition to the survey, CAPR researchers conducted 127 qualitative interviews with college faculty members, staff members, administrators, and system leaders from 83 two-year and four-year colleges, college systems, and state-level higher education governing bodies. The interview sample is a nationally representative subset of the survey sample and includes 71 public two-year colleges and 29 public four-year colleges. Among these institutions, 26 public two-year colleges, 6 public four-year colleges, and 31 statewide college systems participated in the interviews. These institutions and systems were spread across 36 states and one jurisdiction.

The interview sample also included a purposeful sample of respondents in California, Florida, New York, Tennessee, and Texas. The intent of the purposeful sample was to better understand the policies in states with known and scaled developmental education reforms (Florida, New York, Tennessee, and Texas) and a state with large numbers of public two-year and four-year institutions (California). The researchers interviewed a total of 26 respondents in 20 different organizations from this purposeful sample.

CAPR researchers used semi-structured interview protocols to ask college, system, and state representatives about various developmental education practices at their institutions, including the mechanisms used to assess students' college readiness and place them into courses; the types of services and supports offered to these students; the sequencing, structure, and instructional practices used in developmental courses; and the factors driving these practices. Most interviews were recorded, transcribed, and uploaded to a qualitative data analysis platform, Dedoose. The researchers then coded the interview data using a standardized coding scheme based on the types of questions asked in the protocols, as well as relevant research on developmental education assessment and instruction. They analyzed these coded transcripts to identify emerging themes.

Structure of the Report

In the remainder of the report, Chapter 2 provides an analysis of the survey results on two-year and four-year colleges' developmental education assessment and placement practices. Chapter 3 provides an analysis of the scope and scale of instructional reforms based on the survey findings. Chapter 4 provides an analysis of the scope and scale of services designed to support developmental students' success. Chapter 5 provides an analysis of the factors that may have influenced the implementation of these reforms, drawing on information from the survey and the qualitative interviews. Chapter 6 contains the conclusion and recommendations for the field.

Chapter 2

The State of Assessment and Placement Reform in Developmental Education

Drawing on institutional survey data, this chapter examines the major approaches colleges nationwide use to assess students' college readiness and place them into developmental and college-level courses. As discussed in Chapter 1, the findings in this chapter are based on a 2016 survey of a nationally representative, random sample of more than 1,000 broad-access two-year and four-year colleges and thus provide a concrete look at the scale and scope of developmental reforms across the country. The findings in this chapter draw on survey questions about whether and how colleges assess students' college readiness. The researchers also compare these results with developmental assessment and placement practices in 2011, when the last nationally representative survey was conducted. This chapter also presents the differences in assessment and placement across different types of institutions (for example, public two-year colleges as well as public and private four-year colleges)[1] and the scope and scale of these practices across these colleges.

The key findings from this chapter are:

- Most institutions use two or more methods to assess students' college readiness and place them in developmental education, although there continues to be a heavy reliance on standardized tests.
- A growing number of public colleges are using additional measures to assess college readiness, such as students' high school performance.
- Private nonprofit four-year colleges' assessment and placement practices differ from public colleges, particularly in math. Fewer private colleges require a minimum level of skill to take classes, and many colleges do not have a process to determine college readiness.

Assessment and Placement Reform in Developmental Education

As noted in Chapter 1, broad-access two-year and four-year colleges tend to have few admissions requirements, but they have often used standardized tests to determine students' college readiness. Four-year colleges have tended to rely more on students' scores on tests used in college admissions, such as the SAT and ACT, to assess students' college readiness in math; these tests, which students typically take in high school, are designed to serve as a predictor of college readiness and success.[2] Two-year colleges also use college entrance exams, but they often also administer

[1]Because of low response rates, private two-year and private for-profit four-year colleges are not included in this analysis. See Chapter 1 and Appendix A for more information.

[2]Fields and Parsad (2012).

college placement exams, particularly for students who do not have recent or readily available SAT or ACT scores. College placement exams measure students' college readiness but are given to students by a particular college after their admission into that institution. Many colleges use nationally known college placement tests, such as ACCUPLACER and COMPASS,[3] although some states and college systems have developed customized college placement exams that all colleges in the state or system are mandated to use. In many colleges, students are waived from having to take a college placement test if they have achieved a certain score on the SAT or ACT.

Both college entrance exams and college placement exams focus on assessing students' reading, writing, and math skills, and in some cases, knowledge in other areas such as science and social studies.[4] Developmental or college-level course placement is generally determined using cut-off scores (minimum test scores) or score ranges for placement into particular developmental or college-level courses. In the past, many colleges had differing cut-off scores for placement into developmental or college-level classes, so that students with similar skill levels might be placed in different classes depending on the institution they attended.[5] However, in recent years a number of states and systems have moved to standardize assessment practices across multiple institutions, setting state- or system-wide cut-off scores for entry into college-level or developmental courses.[6]

While standardized exams have been commonplace for many years, recent studies have challenged their efficacy for course placement decisions. When used as the sole measure of college readiness, standardized tests are often inaccurate, and many students who would otherwise be successful in college-level courses are referred to developmental education instead.[7] Many researchers and policymakers have begun investigating and implementing additional or alternative methods to assess students' readiness for college-level coursework.[8] Table 2.1 summarizes the most common of these approaches. For example, some institutions have begun using measures of high school performance, such as grade point average (GPA), to assess students' college readiness, while others use noncognitive assessments such as the Learning and Study Strategies Inventory (LASSI), ACT Engage, or the Grit Scale to measure students' attitudes and behaviors that may be important for college success.[9] Some college advocacy organizations, such as Complete College America, have also promoted such reforms nationwide.[10] Many states appear to be heeding these calls; by 2018, college systems in at least 19 states were encouraging or

[3]The COMPASS test, a popular assessment test for many years, has now been discontinued.

[4]The SAT is divided into two sections: math and verbal. The ACT has four subject areas: English, math, reading, and science. Both exams include an optional essay. The SAT and ACT also provide additional tests in specific subject areas such as science or social studies.

[5]Fields and Parsad (2012).

[6]Whinnery and Pompelia (2018)

[7]Scott-Clayton (2012); Barnett and Reddy (2017).

[8]Barnett and Reddy (2017).

[9]Duckworth (2019).

[10]Hu et al. (2016); Barnett and Reddy (2017).

Table 2.1

Methods to Assess College Readiness Listed on the 2016 CAPR Survey

Placement Method	Description
Standardized tests	Exams designed to assess students' reading, writing, and math skills and predict their success in college-level courses. Typically, colleges use admissions tests, such as the SAT or the ACT, which are generally administered to high school students; or college placement exams such as ACCUPLACER (and previously, COMPASS), which some colleges administer to their incoming students. Standardized tests are easy to administer and score. "Cut scores" are the minimum score required to be deemed college ready.
High school performance	Measures that look at students' academic success in high school and can include high school GPA, grades in particular high school courses, or a high school exit exam. Research suggests that these measures, high school GPA in particular, act as an aggregate measure of performance over multiple years, reflecting both content knowledge and other behaviors such as attendance and participation.
Planned course of study	Students' major or career field is considered in course placement decisions. Often used in multiple math pathways designs where students are placed into different types of developmental and college-level math courses based on what will be needed or used in their future careers.
Indicators of motivation or commitment	Noncognitive measures of students' behaviors and attitudes toward school and learning. Examples of noncognitive assessments include ACT Engage, the Learning and Study Strategies Inventory (LASSI), the Grit Scale, and recommendations by academic advisors or counselors.

mandating the use of alternative or additional measures to assess college readiness, according to a scan by the Education Commission of States.[11]

Findings from the CAPR Survey

Given the nationwide activity around reforming developmental education assessment and placement, a major goal of the CAPR survey is to understand how the landscape of developmental education placement and assessment has changed. The survey asked college leaders, including faculty members, staff members, and administrators as well as system leadership, to identify whether their colleges set a minimum skill level for entry into math, reading, and writing courses and the specific types of measures that colleges use to assess students' college readiness. Additionally, the survey asked whether institutions use or intend to use assessments aligned with the

[11]Whinnery and Pompelia (2018). Examples of states implementing multiple measures include California (California Community Colleges, n.d.), Massachusetts (Massachusetts Department of Higher Education, n.d.), Virginia (Virginia's Community Colleges, 2017), and North Carolina (Finkelstein, 2015; North Carolina Community Colleges, 2016).

Common Core State Standards (Common Core), a set of academic standards setting out what students should learn in kindergarten through grade 12 (K-12), in placement decisions and whether assessment differed for recent high school graduates as opposed to older students. This section begins with a discussion of trends in public colleges, with a separate discussion of the practices at private four-year colleges at the end of the chapter. It includes results from the survey. Appendix B contains the full survey questionnaire and Appendix C contains the data.

- **Most public colleges have minimum skill-level requirements for entry into courses.**

Leaders at most public two-year and four-year colleges note that they do require students to have certain skills in reading, writing, and math before enrolling in classes, with public four-year colleges slightly more likely to require minimum skill levels than public two-year colleges. As Table 2.2 shows, overall, 65 percent of public four-year colleges require a minimum skill level for entry into math and 69 percent in reading and writing; 57 percent of public two-year institutions require minimum skills in math and 63 percent require minimum skills in reading and writing. Very few colleges do not assess college readiness; less than 4 percent of public four-year

Table 2.2

Presence of Processes to Determine College Readiness, by Institution Type, Academic Year 2015-2016

Response	Private, Nonprofit 4-year	Public 2-year	Public 4-year
Math assessment			
Students are required to have a minimum level of skill before enrollment (%)	41.4	56.5	64.7
No process used to determine college readiness (%)	28.6	0.0	1.1
Sample size (total = 867)	154	436	277
Reading and writing assessment			
Students are required to have a minimum level of skill before enrollment (%)	53.8	63.4	69.3
No process used to determine college readiness (%)	25.0	0.0	4.0
Sample size (total = 860)	157	425	278

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

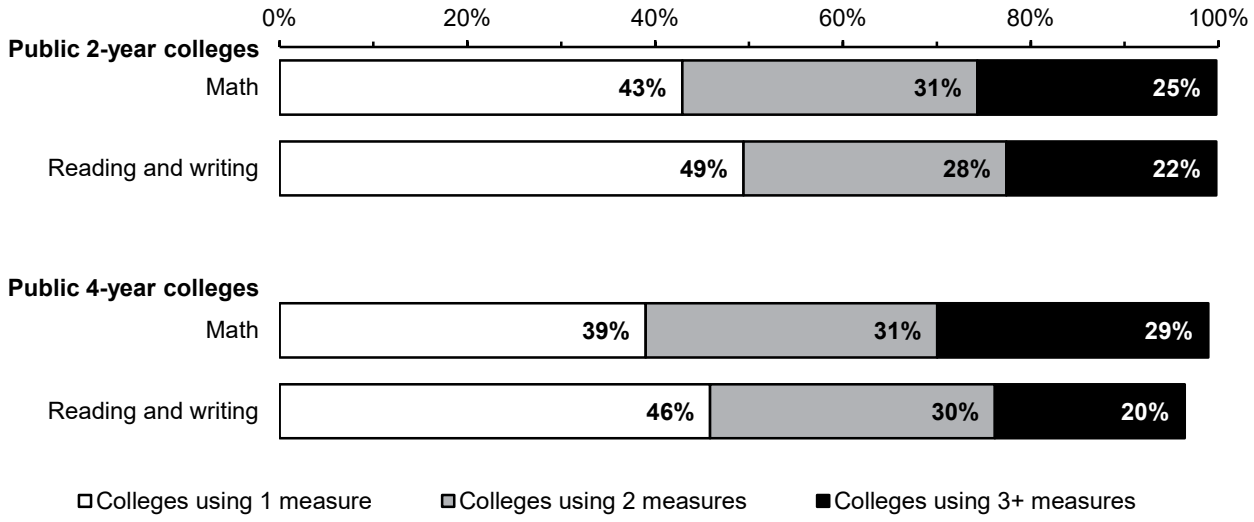
NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.
Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent or more of the sample.

college leaders and virtually no public two-year college leaders report that they do not assess college readiness. Over half of public colleges now use at least two methods to assess students' college readiness, a dramatic growth since the last national survey in 2011.

Public colleges' use of more than one method to assess students' college readiness has grown dramatically since 2011, particularly in math placement decisions. As Figure 2.1 shows, 56 percent of public two-year colleges and 60 percent of four-year colleges use two or more measures to consider whether a new student was ready for college-level math courses. Nearly as many colleges (50 percent) use multiple measures to assess students' college readiness in reading and writing. From 20 percent to 30 percent of public institutions reported using three or more measures to determine students' college readiness in all three subjects.

Figure 2.1

Percentage of Public Colleges Using Multiple Measures to Determine College Readiness, Academic Year 2015-2016



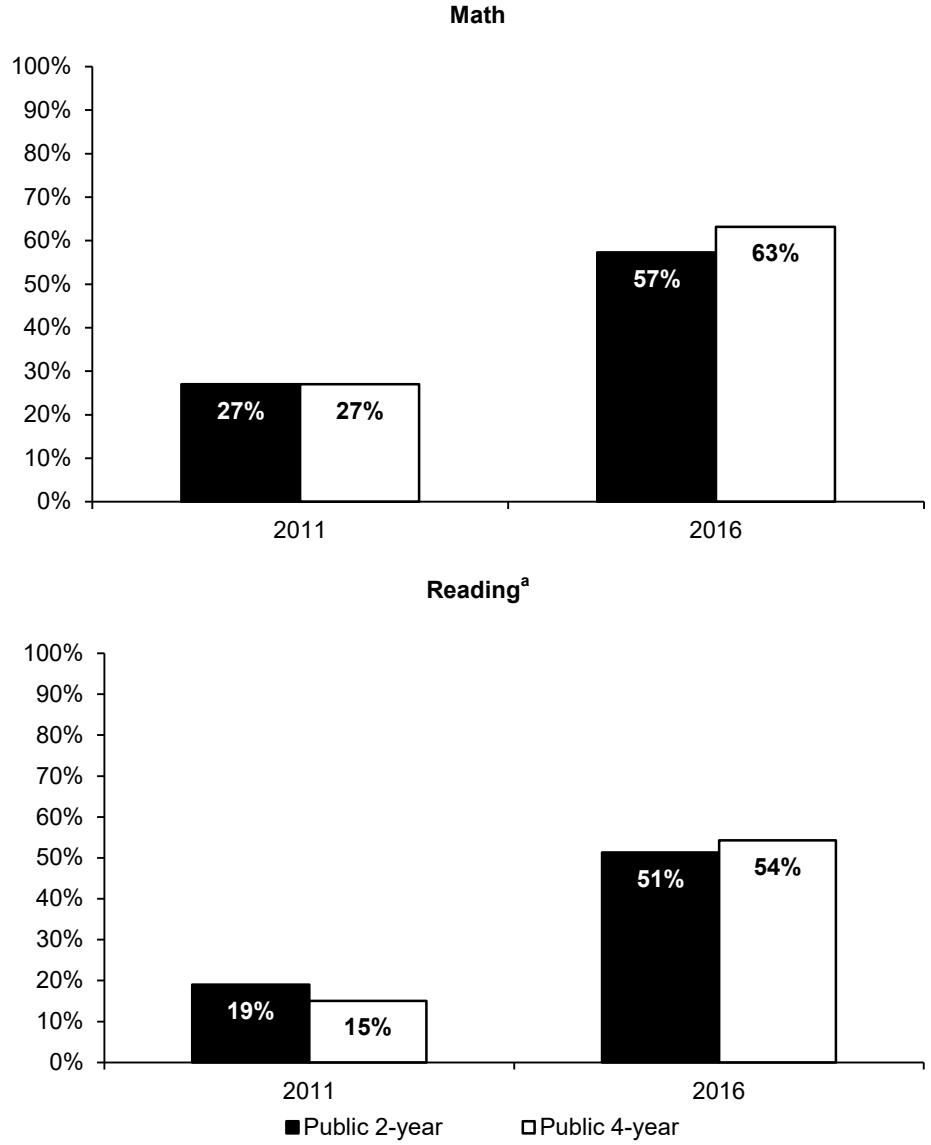
SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness' institutional survey, fielded in 2016.

NOTES: Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

This is a marked difference from the methods colleges used in 2011 when the last nationally representative survey of their assessment and placement practices in developmental education was conducted. As Figure 2.2 shows, at that time very few colleges used measures other than standardized tests to assess students' college readiness, particularly in reading. Over 80 percent

Figure 2.2

Percentage of Public Colleges Using Processes Beyond Standardized Tests to Determine College Readiness, 2011 and 2016



SOURCES: 2011 data are from Fields and Parsad (2012); academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness' institutional survey, fielded in 2016.

NOTES: Rounding may cause slight discrepancies between tables and figures.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]The Fields and Parsad (2012) reading statistics are for reading placement only, whereas the CAPR survey data are for both reading and writing.

of community colleges used standardized assessments exclusively for reading placement, and more than 70 percent of colleges did not use any other measure for math placement.[12]

- **Standardized assessments continue to be the most popular measure for gauging college readiness.**

As Figure 2.3 shows, nearly all community colleges and at least 91 percent of public four-year colleges use standardized assessments in determining college readiness in math and in reading and writing. The use of standardized assessments far outweighed the use of any other measure of college readiness by a difference of 50 percentage points or more. A relatively large proportion of two-year and four-year colleges (over one-third) also use only one measure to assess students' college readiness. Among these colleges, 90 percent rely exclusively on standardized assessments.

- **A growing number of colleges are using measures other than standardized tests to assess students' college readiness.**

Many more colleges are using students' high school performance, including indicators such as class rank, the type of courses taken, or grades, to determine whether students are college-ready. Around 40 percent of public colleges use high school performance to determine whether students are ready for college-level courses in reading, writing, and math, or nearly double the percentage of colleges that used any measures other than standardized tests in 2011. The use of measures of high school performance along with standardized tests is the most popular combination among colleges that use two or more methods to determine students' college readiness.

Following high school performance, colleges use students' intended degree or certificate plans or general academic goals to guide placement. This method is more prevalent in math placement, with 30 percent of community colleges and 36 percent of public four-year colleges using students' planned course of study to guide placement decisions. Fewer colleges — 22 percent of community colleges and 16 percent of public four-year colleges — use students' planned course of study for reading and writing placement.

Other indicators of motivation or commitment, which include noncognitive assessments or counselor recommendations, are the least common measures used in placement decisions. Sixteen percent or fewer of two-year and four-year public colleges use these measures to determine college readiness in math and in reading and writing.

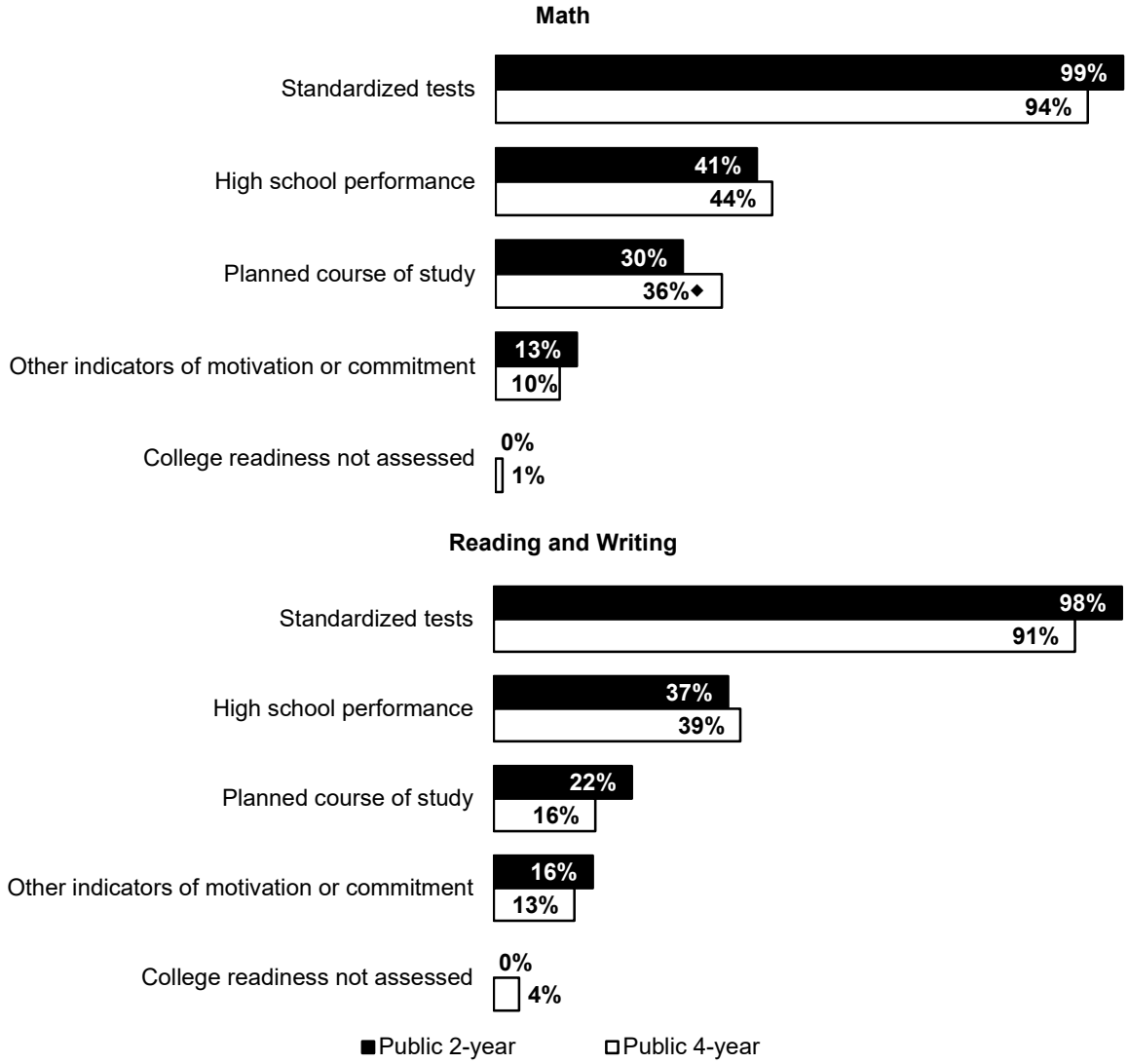
- **Most colleges do not use tests aligned with the Common Core State Standards in placement decisions.**

Many states and policymakers are concerned with alignment between the curriculum and content taught in K-12 schools and postsecondary education, arguing that fewer students would place into developmental education if these systems were well aligned. The Common Core was

[12]Fields and Parsad (2012).

Figure 2.3

Processes Used to Determine College Readiness Among Public Colleges, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTE: Distributions may not add to 100 percent because categories are not mutually exclusive.
Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

designed to address this need and became one of the most popular movements to align standards in these schools.[13] In 2013, at least 41 states nationwide had adopted the Common Core and, despite some controversy, many continue to use these standards today, making them a potentially good benchmark for considering recent high school graduates' college readiness.[14]

However, relatively few colleges use or plan to use assessments aligned with the Common Core, such as the Partnership for Assessment of Readiness for College and Careers (PARCC) or Smarter Balanced Assessments, for placement decisions. Community colleges are slightly more likely to use or intend to use assessments aligned with the Common Core as part of their developmental education placement process (20 to 25 percent) than public four-year colleges (12 percent).

This minimal use may be related to critiques of the Common Core in recent years. While CAPR fielded its survey, the Common Core received considerable scrutiny, which led a number of states to rename or replace it.[15] Ultimately, the use of the Common Core may be a less reliable indicator of colleges' efforts to align practices with K-12 schools than was originally intended at the time CAPR fielded its survey.

- **Some colleges use different measures to assess the college readiness of students who have not recently graduated high school.**

Some colleges may use different measures to assess the college readiness of recent high school graduates compared with older college students. Given this, the CAPR survey asked college leaders to specify whether they differentiate assessment and placement for these groups of students.

Relatively few colleges indicate that they differentiate assessment for recent high school graduates versus older students. Public four-year institutions are slightly more likely to differentiate the placement process for students in reading and writing (30 percent) and math (26 percent). Less than 25 percent of public two-year colleges differentiate assessment in these subject areas. Among the colleges that do have distinct processes for assessing college readiness, many were more likely to use high school performance data (25 percent more colleges). However, more than 63 percent of these colleges also reported using at least two methods to assess college readiness, suggesting that they do not rely solely on high school performance in their placement decisions.

Assessment and Placement in Private Four-Year Colleges

Private, nonprofit four-year colleges differ markedly from public institutions in assessment and placement.[16] For instance, fewer private four-year colleges (41 to 54 percent) than public colleges require students to have a minimum level of skill before enrollment, and about one-fourth of private four-year colleges do not assess college readiness at all (compared with 0 percent of public

[13]Common Core State Standards Initiative (2019).

[14]Achieve (2013); Common Core State Standards Initiative (n.d.); and Friedberg et al. (2018).

[15]Ujifusa, Bannerjee, and Tomko (2017).

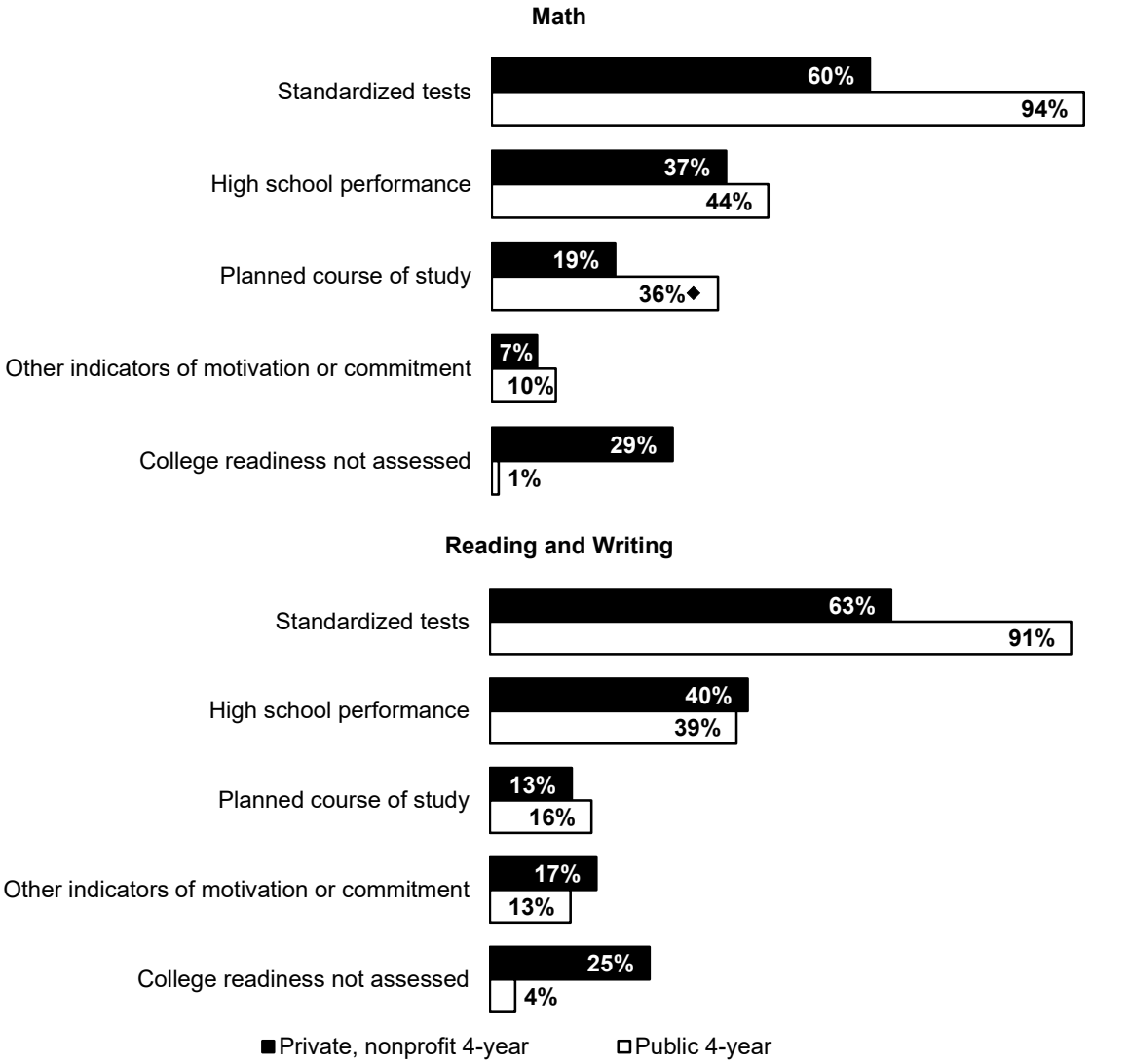
[16]Because of very low survey response rates for private two-year colleges and for-profit four-year colleges, the only private postsecondary schools included in the survey findings presented are private nonprofit four-year colleges. For more information about survey methodology and response rates by sector, see Appendix A.

two-year and less than 5 percent of public four-year colleges). When they do assess students' college readiness, about 40 to 50 percent use two or more methods in their assessment and placement decisions.

Private colleges shared similarities and differences with public colleges in their use of various measures for assessing students' college readiness. (See Figure 2.4.) For example, only about 60 percent of private colleges use standardized tests to determine college readiness,

Figure 2.4

Processes Used to Determine College Readiness Among Private Four-Year Colleges Compared with Public Four-Year Colleges, Academic Year 2015-2016



(continued)

Figure 2.4 (continued)

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Distributions may not add to 100 percent because categories are not mutually exclusive.
Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

compared with over 90 percent of public colleges. Relatively few (less than 20 percent) use planned course of study, substantially differing from the 36 percent of public four-year colleges that use planned course of study in math placement decisions. Private colleges were more similar to public colleges in their use of two other measures of college readiness, with nearly 40 percent of either type of college using high school performance and less than 20 percent using other indicators of motivation and commitment. Finally, very few private four-year colleges (about 2 to 3 percent) use Common Core–aligned assessments in student placement decisions in either subject area; relatively similar numbers differentiate assessment for students who have recently graduated high school (about one-fourth of private colleges).

Response rates for private nonprofit four-year colleges were, however, considerably lower (51 percent) than for public two-year colleges (86 percent) and public four-year colleges (90 percent). (See Appendix A for more information about survey fielding and methodology.) As such, their responses may be less representative of this population as a whole.

Summary

In conclusion, many colleges in the nation are changing the processes they use to measure incoming students' college readiness and decide on course placement. While most public colleges continue to have a minimum skill level for enrollment and use standardized tests to assess whether students are at this level, over half of public colleges are now using two or more methods to assess whether students are ready for college-level courses, a major change since 2011. After standardized tests, the most popular measure for assessing students' skills is high school performance, indicating that many colleges may be heeding recent research suggesting that students' high school grades are a more accurate predictor of their college success. A substantial number of colleges are also using students' planned course of study to decide about math course placement, which suggests that colleges may be more carefully considering how math courses align with students' career interests. Private colleges tend to be less likely to follow these trends, perhaps in part because many private colleges do not set minimum skill level requirements or assess college readiness.

Given that the CAPR researchers administered the survey in 2016, it is likely that colleges' practices may have shifted even further since then. For instance, in 2018, California

enacted a bill mandating the use of students' high school performance in course placement decisions — and that these measures be used to maximize the probability that a student will successfully complete gateway English and math college-level courses within one year.[17] A 2018 review of states' and systems' developmental education assessment and placement policies found that the use of multiple measures is a common occurrence; 19 states or systems now mandate or allow their use.[18] While not a nationally representative count of all the colleges that might be implementing these practices, these data suggest that even more institutions may have moved toward alternative measures for assessing and placing students into developmental and college-level courses since this survey was disseminated in 2015-2016.

[17]California Community Colleges (n.d.).

[18]Whinnery and Pompelia (2018).

Chapter 3

Reforms to Developmental Education Instruction

In addition to reforming assessment and placement processes, faculty members, college leaders, and policymakers have worked to revise the delivery of developmental education. This chapter examines the scope and scale of colleges' current developmental education course offerings as well as the implementation of new instructional approaches based on data from the nationally representative survey of college and system leaders that the Center for the Analysis of Postsecondary Readiness (CAPR) conducted. The survey asked leaders at broad-access two-year and four-year colleges to identify whether they offered developmental math, reading, and writing courses and the number of sections they had of these courses. Additionally, the survey asked them to identify the types of instructional approaches used at their institution (see Table 3.1 for descriptions of these approaches) and the scale of these interventions within the context of their overall developmental education course offerings.

This chapter primarily presents findings on developmental education practices at public two-year and four-year colleges. It also includes a discussion of how these practices at private, nonprofit four-year colleges differed.[1] Overall, the key findings in this chapter are:

- The vast majority of public colleges offer developmental education, and community colleges tend to offer many more sections of developmental education than public four-year colleges. The percentage of community colleges offering developmental education has remained steady, but more public four-year colleges offered courses in developmental education in 2016 than in 2000.
- Multi-semester, prerequisite course sequences continue to represent a large proportion of many institutions' developmental course offerings.
- Many colleges are experimenting with multiple reforms in developmental education instruction. The most prevalent are integrated reading and writing, multiple math pathways, corequisite, and compressed courses.
- While experimentation is widespread, colleges are generally not offering these approaches at scale, with most interventions making up less than half of their overall developmental course offerings.
- Private, nonprofit four-year colleges generally offer fewer developmental education courses than public four-year colleges.

[1]Because of low response rates from private two-year and private, for-profit four-year colleges, they are not included in this analysis. See Chapter 1 and Appendix A for more information.

Table 3.1

Approaches to Delivering Developmental Education Listed on the 2016 CAPR Survey

Approach	Description
Multiple math pathways	Rather than requiring students to complete developmental and college-level algebra courses to satisfy their math requirements, the types of math offered to students is diversified into multiple pathways that better align with students' intended majors or careers. Three popular pathways include quantitative literacy math courses for students pursuing humanities majors; statistics courses for health and social science majors; and algebra courses for science, technology, engineering, and mathematics (STEM) majors. In some multiple math pathways models, revised math content begins at the developmental level, with statistics and quantitative reasoning content integrated with the algebra content students commonly learn in these courses.
Integrated reading and writing	Developmental reading and developmental writing courses, which have traditionally been offered as two separate courses, are combined into one course.
Corequisite model	Students assessed as in need of developmental education are placed directly into gateway college-level courses with additional supports attached to the course. Additional supports range from required tutoring to a paired class. Also known as mainstreaming.
Compressed courses	This approach compresses two or more developmental courses into a shorter period — e.g., reducing a 16-week course to 8 weeks, which allows students to complete multiple developmental courses in 1 semester. In some cases, courses are eliminated from the developmental course sequence — e.g., reducing a 4-semester course sequence to a 2-semester course sequence.
Self-paced courses	Students pace their own learning, which can allow them to move more quickly than they would in a standard semester-long course. Often instruction is technology-driven, with students completing smaller computer-based mini-lessons or modules and instructors acting as facilitators to individual students.
Flipped classroom	Activities that are normally completed in the classroom, such as worksheets or readings, are assigned as homework or provided online, allowing students to spend class time on learning and application.
Learning communities	Students take 2 or more courses together as a cohort. In stronger models, teachers collaborate and build lessons together across these courses.

Developmental Education Practices in Public Institutions

Table 3.1 presents some of the most popular developmental education instructional models, many of which aim to limit the amount of time students spend in developmental education. For example, compressed courses offer developmental instruction in shorter periods, often allowing students to take more than one course in a semester. Corequisite course interventions place students assessed with developmental needs directly into gateway college-level courses with additional supports, such as required tutoring or an additional class. Another approach lets students establish

the pace for completing their developmental education course requirements, theoretically allowing them to move through the material more quickly than in a standard semester-long course.

Other instructional approaches revise the content and pedagogy of developmental education courses. Some colleges have created integrated reading and writing courses, which combine two traditionally separate courses into one.[2] Other colleges seek to have students build social supports by developing a learning community, in which students take two or more courses together, with instructors collaborating across courses in more intensive models.[3] Another approach, called "flipped classrooms," focuses on moving lectures and individualized work, which are commonly the focus of class meetings, online or into homework and reserving class time for more interactive learning and hands-on applications.[4] Finally, multiple math pathways have become a popular reform to developmental and college-level math courses. In this approach, the math courses students take to complete their math requirements are diversified based on their intended careers and majors, in contrast with the standard algebra-focused model.[5] In many cases, colleges may integrate these different types of instructional interventions simultaneously, such as providing multiple math pathways courses in a corequisite model, which places students with developmental needs into major-specific college-level math classes with additional supports.[6]

Findings from the CAPR Survey

The following narrative summarizes developmental education practices at public two- and four-year institutions based on the CAPR survey findings.

- **The vast majority of public two-year and four-year colleges offer developmental education courses. More public four-year colleges offered developmental education in 2016 than in 2000.**

The percentage of public two-year colleges offering developmental courses to students who have been identified as underprepared has remained steady over time, while in comparison, more public four-year colleges offered developmental courses in 2016 compared with 2000. According to data from a National Center for Education Statistics Postsecondary Education Quick Information System survey from 2003, at least 96 percent of two-year colleges offered developmental courses in reading, writing, or math in 2000. Similarly, in the 2015-2016 academic year, 99 percent of public two-year colleges report on the CAPR survey offering developmental courses in math or reading and writing. In contrast, in 2000, 78 percent of public four-year colleges offered developmental math courses and at least 49 percent offered developmental

[2]Saxon, Martirosyan, and Vick (2016); Bickerstaff and Raufman (2017).

[3]Weissman et al. (2009).

[4]Talbert (2017).

[5]Zachry Rutschow, Diamond, and Serna-Wallender (2017); Clyburn (2013); Cullinane and Treisman (2010).

[6]Logue, Watanabe-Rose, and Douglas (2016).

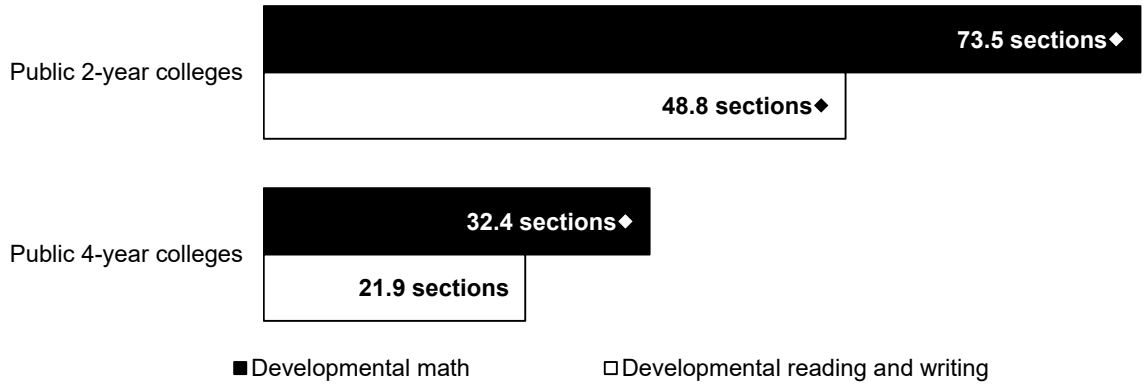
courses in reading or writing. By 2016, approximately 83 percent of public four-year colleges offered developmental courses in math and in reading and writing.[7]

- **Community colleges on average offer many more sections of courses in developmental education than four-year colleges, even though community colleges generally enroll slightly fewer undergraduate students. Both two-year and four-year public colleges offer more sections of developmental math than developmental reading and writing.**

As Figure 3.1 shows, among institutions offering developmental education, public two-year colleges offer more than twice as many sections of developmental education as public four-year colleges on average. The average two-year college offered 49 sections of developmental reading and writing, and 74 sections of developmental math during the 2015-2016 academic year, while the average four-year college offered more than 20 sections in each subject area. Given that

Figure 3.1

Average Number of Developmental Education Sections Among Public Colleges Offering Developmental Education, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTE: In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[7]Information about colleges' practices in 2000 comes from Parsad and Lewis (2003), who used different survey questionnaires and data collection methodologies, and attained different response rates from the CAPR survey. Additionally, Parsad and Lewis asked about reading and writing separately, whereas these subjects were combined on the CAPR survey. See Appendix A for more information about the limitations of comparing the CAPR survey with earlier surveys.

community colleges on average enroll slightly fewer undergraduate students than four-year colleges, this difference is especially noteworthy.[8]

Figure 3.1 also shows that both public two-year and four-year colleges offer more developmental math sections than developmental reading and writing sections. Two-year colleges on average offer about 50 percent more sections of developmental math (74 sections) than developmental reading and writing (49 sections). Similarly, on average, four-year colleges offer 32 sections of developmental math, compared with 22 sections of developmental reading and writing.

- **Most public two-year and many four-year colleges continue to use multi-semester, prerequisite course sequences to deliver developmental education to large proportions of their students.**

Figure 3.2 shows that a large proportion of two-year and four-year institutions offer developmental courses in multi-semester, prerequisite course sequences, the most often critiqued delivery method for developmental education. Public two-year institutions are more likely to use this approach than public four-year institutions. It is also more prevalent within developmental math, with approximately 86 percent of two-year institutions and 67 percent of four-year institutions using multi-course sequences for at least one developmental math section. The use of multi-semester, prerequisite courses in developmental reading and writing is also common, with 67 percent of public two-year colleges and 44 percent of public four-year colleges using this approach in at least one section of developmental reading and writing.

Additionally, as Figure 3.3 shows, many two-year and four-year colleges also continue to offer multi-semester course sequences at scale — half of the total sections offered or more. Fifty-nine percent of two-year colleges and 37 percent of four-year colleges offered half of their developmental math sections or more as multi-semester sequences. Multi-semester sequences in reading and writing are somewhat less widespread although still prevalent. They make up half of the course sections offered or more at 35 percent of two-year colleges and 22 percent of four-year colleges.

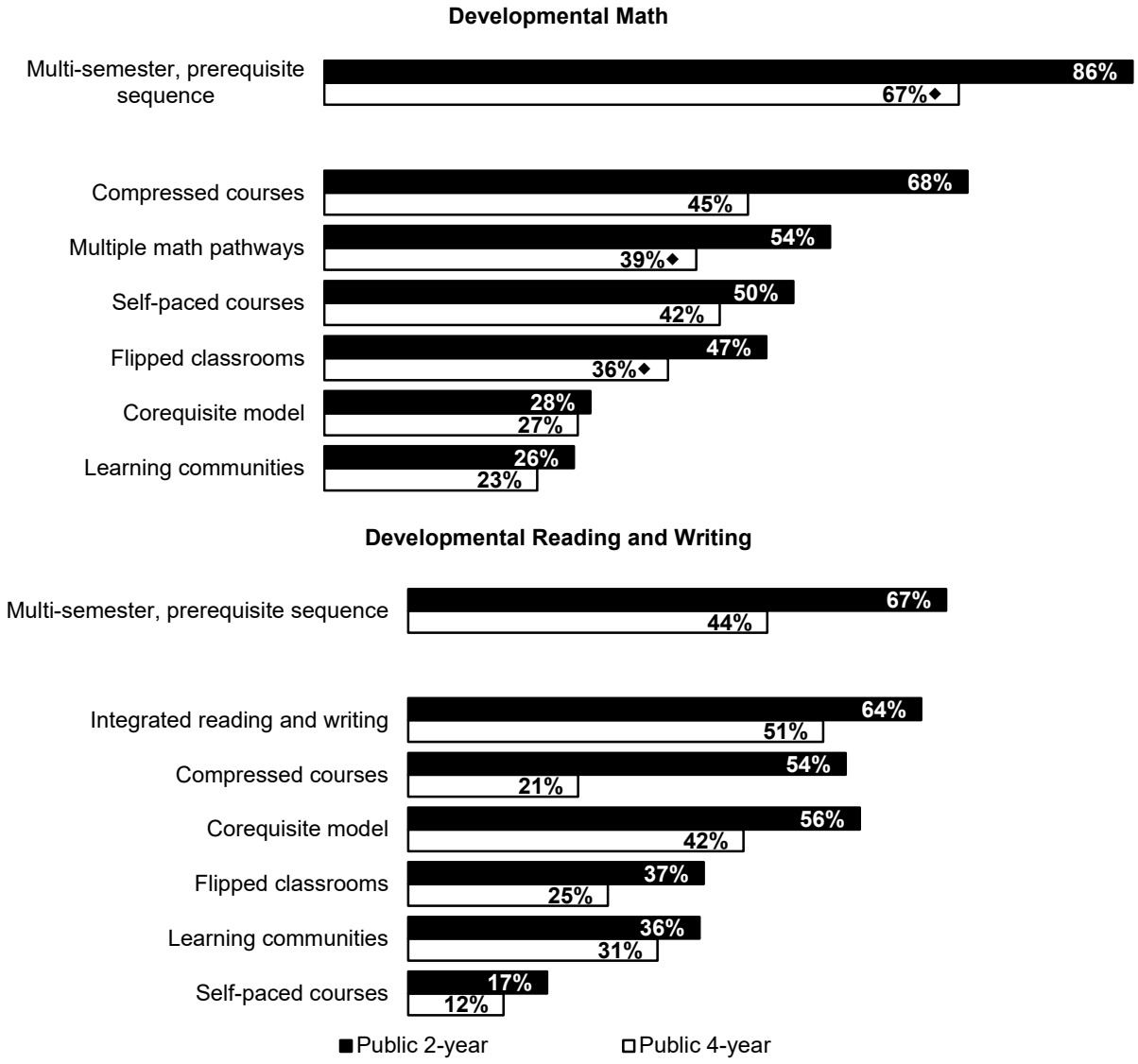
- **Most public colleges note that they use two or more instructional approaches in their developmental education courses.**

Despite the prevalence of multi-semester, prerequisite course sequences, most public two- and four-year colleges use multiple instructional approaches for developmental education, although the use of multiple approaches is more common in two-year colleges and in developmental math. Ninety-one percent of two-year colleges and nearly three-fourths of four-year colleges reported using at least two instructional approaches in developmental math, and a majority use three or more instructional approaches. The use of multiple approaches in developmental

[8]According to CAPR researchers' calculations using data drawn in 2015 from the Integrated Postsecondary Education Data System (IPEDS), the average undergraduate enrollment among colleges in the survey sample was approximately 8,800 students for public four-year colleges and 7,400 students for public two-year colleges.

Figure 3.2

Instructional Approaches to Developmental Education in Public Colleges, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Values represent percentages among public colleges that reported offering developmental courses. Colleges were counted as using an instructional method if any respondent indicated that they used it in at least one course section.

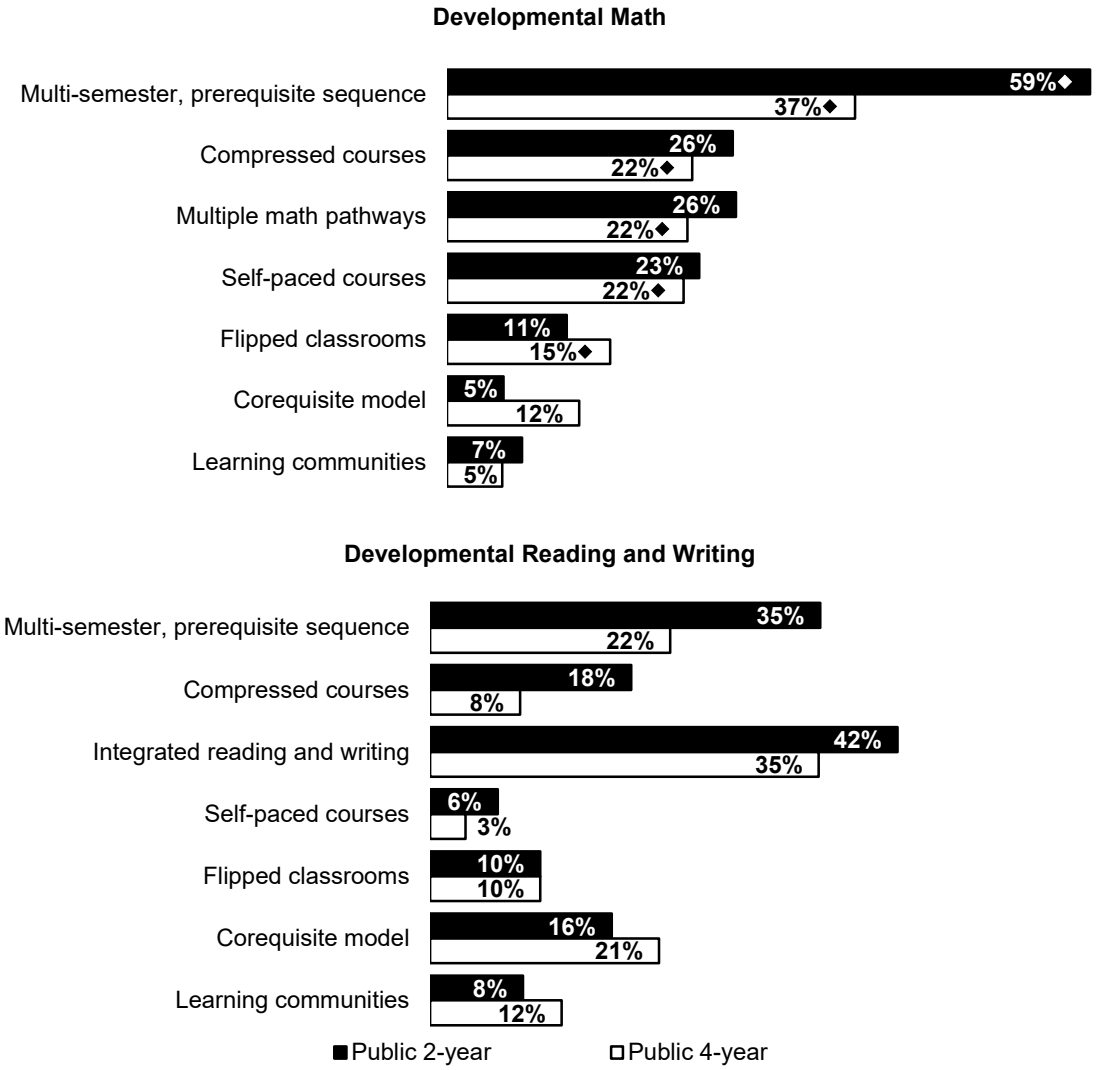
Distributions may not add to 100 percent because categories are not mutually exclusive.

Rounding may cause slight discrepancies between tables and figures.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

Figure 3.3

Percentage of Public Colleges Offering Developmental Instructional Methods at Scale Among Colleges Offering Developmental Courses, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Values represent percentages among public colleges that reported offering developmental courses. Colleges were counted as offering an instructional method at scale if any respondent indicated that they used it in half of their sections of developmental education or more.

Distributions may not add to 100 percent because categories are not mutually exclusive.

Rounding may cause slight discrepancies between tables and figures.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

reading and writing courses is slightly less frequent in both types of institutions, though still prevalent. Eighty-six percent of public two-year colleges and 60 percent of four-year colleges reported using two or more instructional approaches in at least one developmental reading and writing course, with 70 percent of two-year colleges and 40 percent of four-year colleges reporting that they use three or more approaches.

- **Experimentation with different instructional approaches is strong at public two-year colleges. In reading and writing, the most popular are corequisite courses, compressed courses, and integrated reading and writing. In math corequisite courses, self-paced courses and multiple math pathways are the most popular.**

Figure 3.2 presents data showing that there are six different instructional approaches being offered in at least one section of developmental education, other than multi-semester prerequisite sequences, at at least half of public two-year colleges. In developmental math, the majority of two-year colleges are implementing at least one section of compressed math courses (68 percent), multiple math pathways (54 percent), and self-paced math courses (50 percent) among their developmental math course offerings. In developmental reading and writing, more than half of two-year colleges are implementing at least one section of integrated reading and writing (64 percent), corequisite courses (56 percent), and compressed developmental reading and writing courses (54 percent). Over a third are also offering other approaches, such as flipped developmental math classes (47 percent), flipped reading and writing courses (37 percent), and developmental reading and writing learning communities (36 percent).

- **Fewer public four-year colleges are implementing different instructional models in their developmental education classes, though experimentation is still widespread in many institutions.**

While most two-year colleges are implementing multiple types of instructional models, integrated reading and writing is the only approach other than multi-semester prerequisite sequences that a majority of public four-year colleges are implementing in at least one section of developmental education (51 percent). That said, more than a third of these colleges are experimenting with different instructional approaches. Substantial proportions of four-year colleges are offering at least one section of compressed courses (45 percent), self-paced courses (42 percent), multiple math pathways (39 percent), and flipped classrooms (36 percent) among their developmental math courses. A substantial number are also offering corequisite courses in developmental reading and writing (42 percent).

- **Although many colleges are experimenting with instructional models, a large number of institutions are not implementing any of these approaches.**

Many public two-year and four-year colleges offer no sections of the various developmental instructional models that the CAPR survey asked about. For instance, many two-year and four-year colleges do not offer self-paced instruction (50 to 58 percent), flipped classroom models

(53 to 64 percent), corequisite courses (72 to 80 percent), or learning communities (74 to 83 percent) in developmental math. Furthermore, most institutions also do not offer self-paced (83 to 88 percent), flipped classrooms (63 to 76 percent), or learning communities (65 percent or more) as part of their developmental reading and writing course offerings.

- **Most institutions have not scaled these instructional approaches to reach a majority of students.**

Although survey data indicate that two-year and four-year colleges are trying various instructional approaches, as Figure 3.3 shows, few institutions are implementing these newer approaches at scale, where the colleges offer the reform in more than half of developmental course sections. Instead, colleges use these instructional models in some sections, but these models tend to make up fewer than half of course offerings. For instance, compressed reading and writing courses make up a majority of course sections at only 18 percent of two-year colleges and 8 percent of four-year colleges. Similarly, corequisite courses make up a majority of the developmental math sections at only 5 percent of two-year colleges and 12 percent of four-year colleges. The primary exception to this is integrated reading and writing courses, which make up half the course sections offered or more at 42 percent of public two-year colleges and 35 percent of four-year colleges.

- **The most highly scaled developmental instructional interventions at both two- and four-year institutions are integrated reading and writing courses. Multiple math pathways, self-paced math courses, and compressed math courses are also scaled at many institutions.**

Integrated reading and writing make up the majority of developmental course offerings at 42 percent of community colleges and 35 percent of four-year colleges — suggesting that these reforms are displacing multi-semester prerequisite developmental reading and writing sequences at these institutions. The next most-scaled instructional approach in two-year colleges is multiple math pathways (a majority of sections at 26 percent of colleges), followed by compressed math courses (a majority of sections at 26 percent of colleges) and self-paced math courses (a majority of sections at 23 percent of colleges). Among four-year institutions, the most-scaled interventions after integrated reading and writing are compressed math courses, self-paced math courses, and multiple math pathways courses (all 22 percent).

Developmental Education Instruction Practices in Private Four-Year Colleges

Overall, developmental education is less prevalent in private four-year colleges than in public two- and four-year colleges.[9] Half of private nonprofit four-year colleges reported offering developmental math courses (51 percent) and developmental reading and writing courses (49 percent), more than 30 percentage points lower than the 80 to 90 percent of public colleges that

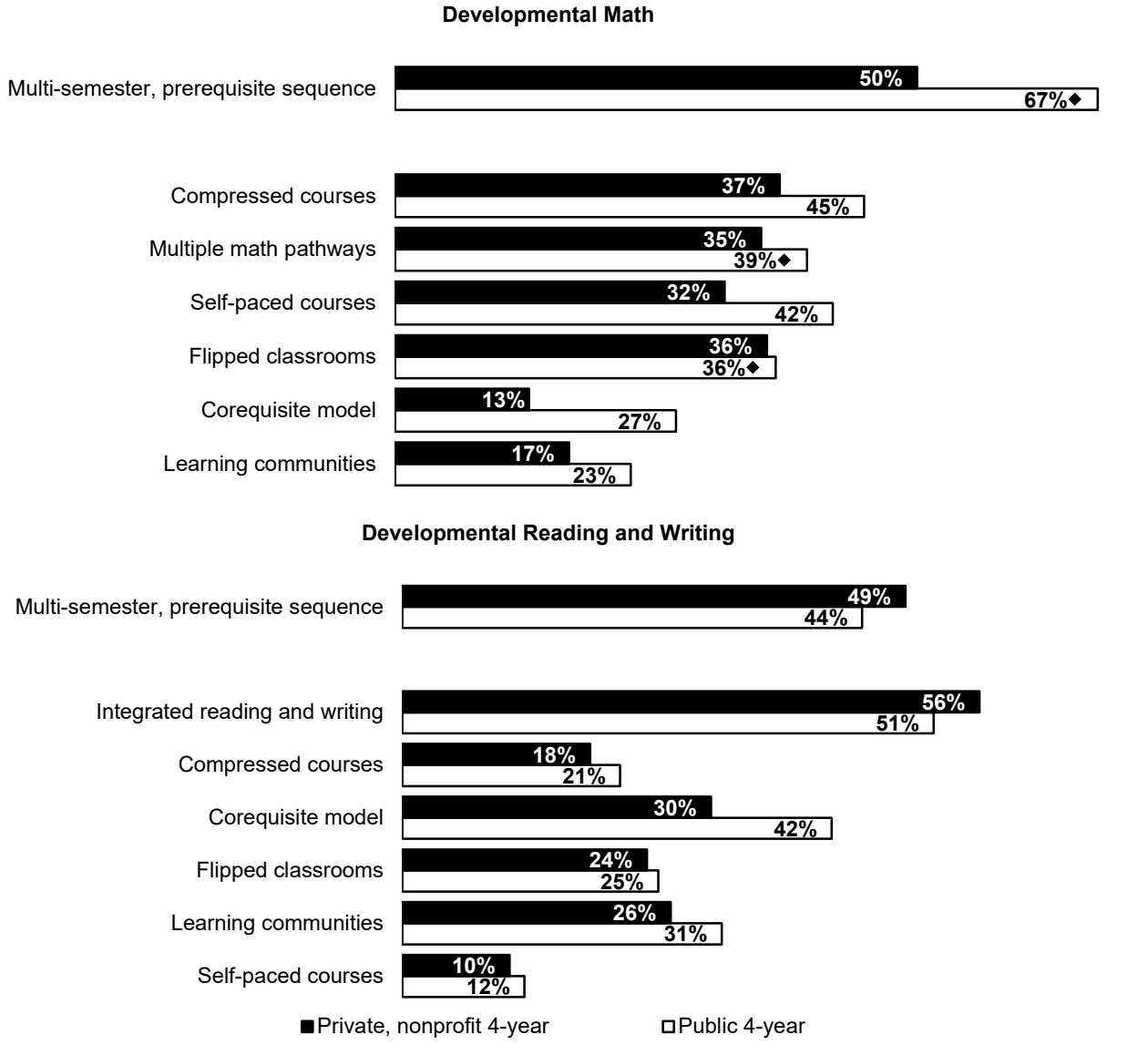
[9]These results may not be as representative, because the response rates among private, nonprofit four-year colleges were lower (51 percent) than those of public two-year colleges (86 percent) and public four-year colleges (90 percent).

offer these courses. About half of private colleges offer multi-semester sequences in developmental math (50 percent) and in developmental reading and writing (49 percent), figures lower in developmental math and comparable in developmental reading and writing to public four-year colleges.

As Figure 3.4 shows, more than half of private colleges (56 percent) offer integrated reading and writing courses to at least some of their students, slightly more than public four-year institutions. Thirty-two percent to 37 percent of private four-year colleges offer compressed

Figure 3.4

Instructional Approaches to Developmental Education in Private Four-Year Colleges Compared with Public Four-Year Colleges, Academic Year 2015-2016



(continued)

Figure 3.4 (continued)

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Values represent percentages among four-year colleges that reported offering developmental courses. Colleges were counted as using an instructional method if any respondent indicated that they used it in at least one course section.
Distributions may not add to 100 percent because categories are not mutually exclusive.
Rounding may cause slight discrepancies between tables and figures.
In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

courses, multiple math pathways, self-paced courses, and flipped classrooms as part of their developmental math offerings. Only slightly more public colleges (36 to 45 percent) offer these approaches in developmental math reforms. Fewer private colleges (30 percent or less) offer compressed courses, corequisite courses, flipped classrooms, self-paced models, and learning communities in developmental reading and writing.

Similar to public four-year colleges, most private four-year colleges have not scaled most of these interventions. Fewer than one-third of private colleges offer these interventions in more than half of their developmental course sections.

Summary

While the CAPR survey findings show that many colleges across the country continue to rely on multi-course, prerequisite sequences to teach developmental education courses, a growing number are also trying different approaches to delivering instruction to developmental education students. There appears to be more traction for these different models within two-year institutions across developmental math, and reading and writing, although four-year institutions are also implementing these models to a lesser extent. Overall, compressed courses, multiple math pathways, and self-paced courses are the most popular strategies used in developmental math, and corequisite courses, compressed courses, and integrated reading and writing are the most common instructional approaches in developmental reading and writing. However, the survey reveals that many institutions are not offering these instructional models at scale.

In addition, survey findings shed light on the developmental education practices at private four-year colleges, which tend to have fewer developmental courses than public four-year colleges. They also less frequently offer the variety of instructional models offered to students identified as requiring developmental education at public four-year colleges. Private colleges rely less frequently on multi-semester, prerequisite sequences in developmental math, although they are relatively similar to public four-year colleges in their use of these sequences in developmental reading and writing. As is the case at public four-year colleges, most instructional interventions are not offered at scale at most private institutions.

Chapter 4

Tutoring, Supplemental Instruction, and Other Services to Support Students in Developmental Education

In addition to considering innovative instructional approaches, many colleges have also sought to improve the academic success of students referred to developmental education by implementing stronger academic and nonacademic supports. Table 4.1 lists examples of these interventions, which are the supports that the Center for the Analysis of Postsecondary Readiness (CAPR) survey asked colleges about. These services include tutoring labs or computer-based learning sessions, where students have extra time to work on class-based assignments;[1] supplemental instruction models, which attach a tutor or peer leader to a particular developmental course to provide students additional academic help; and boot camps or pre-matriculation courses, which provide students with short-term academic skill-building sessions designed to improve their placement level before they enroll in classes.

Other interventions have focused on providing students with more social supports. For instance, many colleges provide academic advising to help students navigate their college careers. However, research has shown that many advisors are overloaded and unable to meet with students regularly, or that students do not take advantage of these services.[2] A popular approach to help mitigate these challenges has been to provide students with "success courses," which introduce students to college life and expectations, or "success coaches," who can act as supplemental advisors.[3]

The findings discussed in this chapter provide a summary of the range and scale of different support systems at two-year and four-year colleges. The chapter primarily addresses developmental education at public two-year and four-year colleges but includes a brief discussion of how private, nonprofit four-year colleges differed.[4] Overall, key findings in this chapter include:

- Public two-year and four-year colleges offer multiple types of support services for students in developmental courses, particularly in developmental math.
- The use of support services is slightly higher at community colleges than at public four-year colleges.
- The most popular and most highly scaled support approach for developmental students at both two-year and four-year colleges is tutoring or supplemental instruction. Student success courses or coaches are also popular.

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[1]Center for Student Success (2007); Weissman et al. (2009).

[2]Grubb (2001).

[3]Zachry Rutschow and Schneider (2011); Scrivener, Sommo, and Collado (2009); Zeidenberg, Jenkins, and Calgano (2007).

[4]Because of low response rates from private two-year and private for-profit four-year colleges, they are not included in this analysis. See Chapter 1 and Appendix A for more information.

Table 4.1

Non–Classroom-Based Student Services and Supports Listed on the 2016 CAPR Survey

Type of Support	Description
Tutors or supplemental instructors	Targeted instruction or support in a specific subject (e.g., math or English)
Student success coaches or courses	Individuals or courses that help students learn about college life, introduce them to the supports available to promote their success, and help them to explore their career goals
Computer-based learning sessions	Self-paced learning outside of class using computer-based instruction
Pre-matriculation program or boot camp	Programming that occurs before a student officially enrolls at a college, which is aimed at helping students boost their skills before entering college

- The use and scale of computer-based learning sessions and boot camps varies by subject and by type of institution.

Findings from the CAPR Survey

This section summarizes developmental education support services at public two-year and four-year colleges.

- **Public two-year and four-year colleges offer multiple types of support services for students in developmental courses, particularly developmental math.**

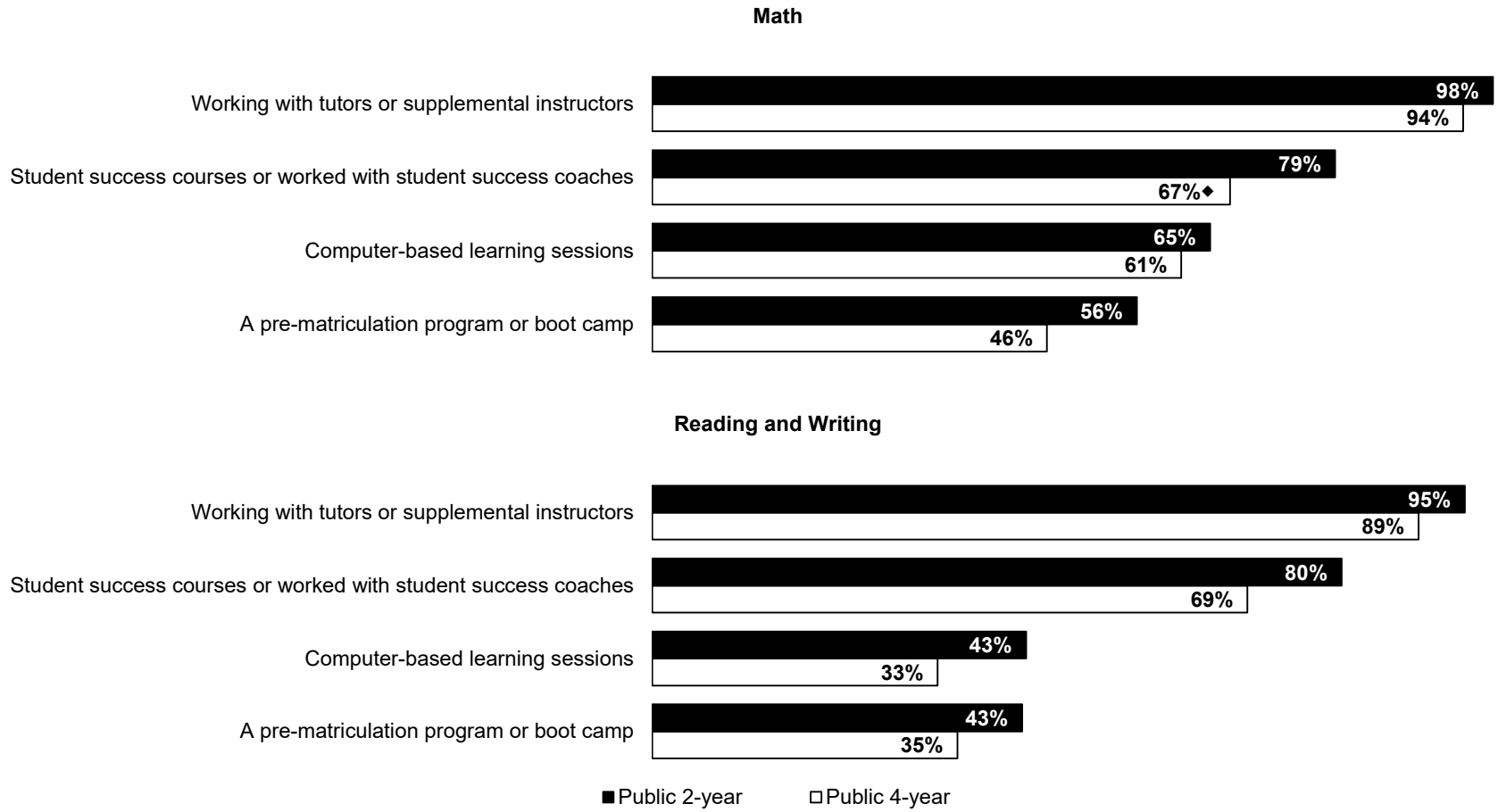
Three different support services are being offered to students in developmental math courses in more than half of two-year and four-year colleges. Figure 4.1 shows that student success courses, computer-based learning sessions, and tutors or supplemental instructors are offered to students in developmental math courses at over 60 percent of two-year and four-year colleges. A large proportion of two-year colleges (56 percent) and four-year colleges (46 percent) also have pre-matriculation programs or boot camps for students with developmental math needs, meaning that many colleges may have up to four different types of supports for these students. More than two-thirds of colleges also provide student success courses and tutors or supplemental instructors for students in developmental reading and writing courses. However, more colleges tend to have services for students in developmental math than in developmental reading and writing.

- **Use of support services is slightly higher at public two-year colleges than at public four-year colleges.**

Figure 4.1 shows that although both two-year and four-year colleges had many students using multiple types of support services, uptake of services tends to be higher among students at two-year colleges. For instance, 79 to 80 percent of public two-year colleges reported having developmental students in success courses or having success coaches in math, reading, and writing compared with 67 to 69 percent of four-year colleges. Public two-year colleges have higher uptake among every support service the CAPR survey asks about.

Figure 4.1

Percentage of Public Colleges with Students Identified as Underprepared Using Student Support Services, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Colleges were counted as having students who used support services if they reported that less than half or more than half of their students used these services.

Distributions may not add to 100 percent because categories are not mutually exclusive.

Rounding may cause slight discrepancies between tables and figures.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

- **The approach most widely available and with the highest uptake among developmental students at both two-year and four-year colleges is tutoring or supplemental instruction. Student success courses or coaches are also common and popular.**

Almost all public two-year and four-year institutions have students in developmental courses working with tutors or supplemental instructors. As Figure 4.1 shows, over 90 percent of public two-year colleges reported that at least some of their developmental students use these services, as do nearly as many four-year colleges. The use of tutoring is also high at many colleges. Figure 4.2 shows that colleges reported that most developmental students worked with tutors or supplemental instructors at 42 percent of two-year colleges, and 49 to 52 percent of four-year colleges have half or more of their students in developmental courses using these services. As noted above, success courses and coaches are also highly popular. Most students are in success courses or have success coaches at 31 to 45 percent of public two-year and four-year colleges.

- **Computer-based learning sessions are more common in developmental math and popular among developmental math students than among reading and writing students.**

Over 60 percent of two-year and four-year colleges have at least some students in developmental math courses using computer-based learning sessions. Uptake is also high at many institutions, with more than half of students using these services at 36 percent of two-year colleges and 32 percent of four-year colleges. However, computer-based learning sessions are less common in developmental reading and writing, with 43 percent of two-year colleges and 33 percent of four-year colleges having some students that used these services. The uptake is also lower: only 18 percent of two-year colleges and 11 percent of four-year colleges have a majority of students using these services for developmental reading and writing.

- **Boot camps are also more widely available and more popular among students in developmental math than in developmental reading and writing.**

Boot camps for developmental math are also a popular support at many two-year colleges, with 56 percent of colleges having developmental math students using these services. This support is also common at four-year colleges; 46 percent of four-year colleges report that at least some of their developmental math students participated in boot camps. Boot camps are less often used by developmental reading and writing students at both types of colleges. Additionally, very few colleges highly scaled boot camps; less than 7 percent have more than half of their developmental students participating in boot camps in any subject.

Developmental Education Support Services in Private Colleges

As Figure 4.3 shows, the use of support services by developmental students at private four-year colleges is often about 10 to 30 percentage points lower than their use at public four-year

Figure 4.2

Uptake of Services by Students Identified as Underprepared in Public Colleges, Academic Year 2015-2016

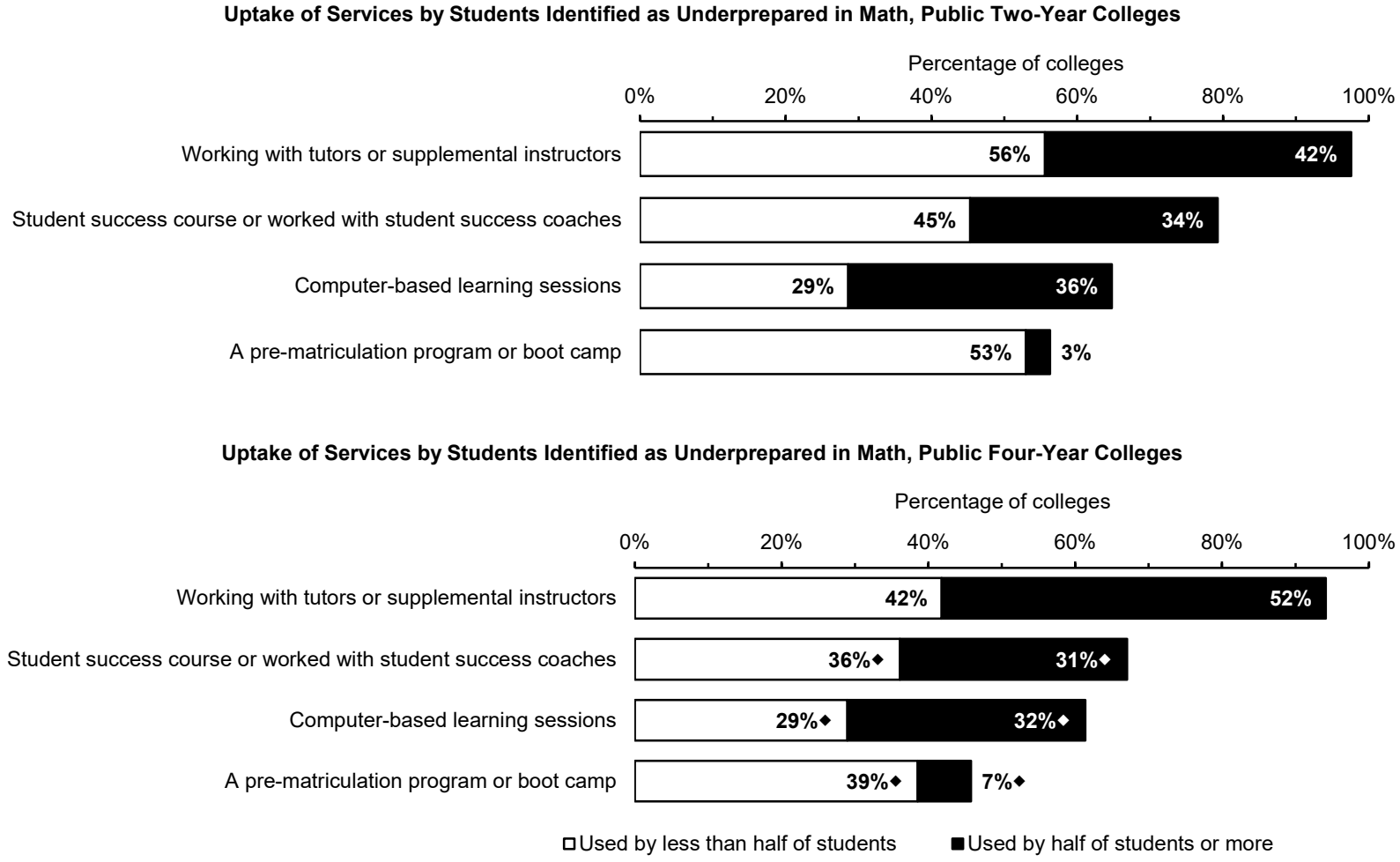


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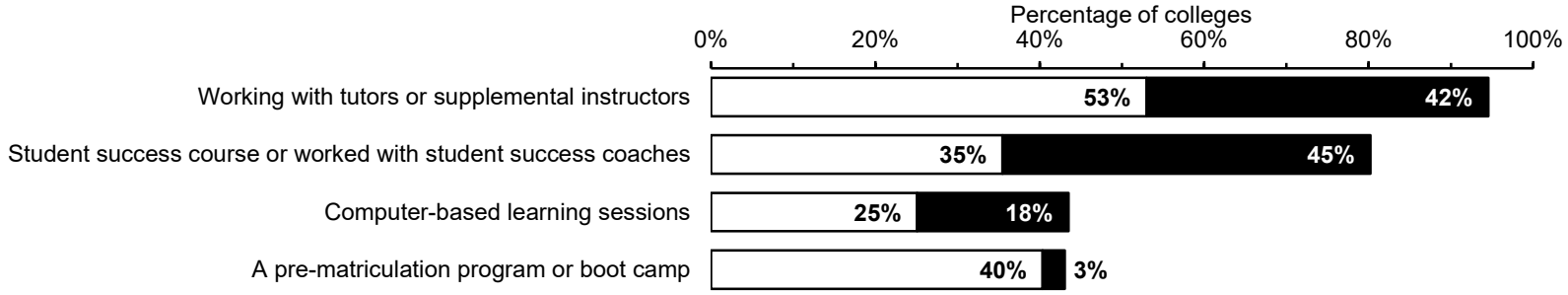
Figure 4.2 (continued)

Uptake of Services by Students Identified as Underprepared in Reading and Writing, Public Two-Year Colleges



Uptake of Services by Students Identified as Underprepared in Reading and Writing, Public Four-Year Colleges

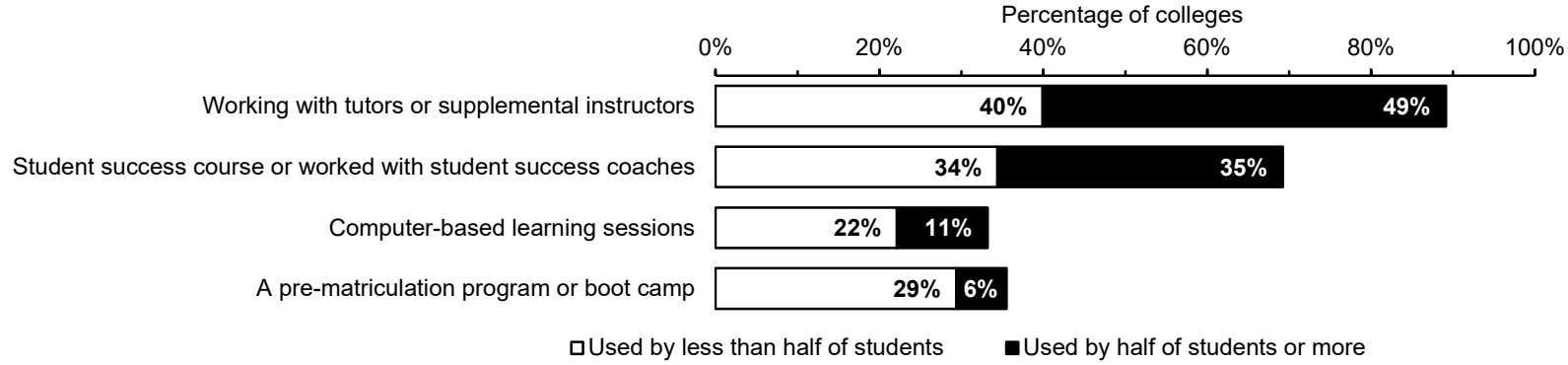


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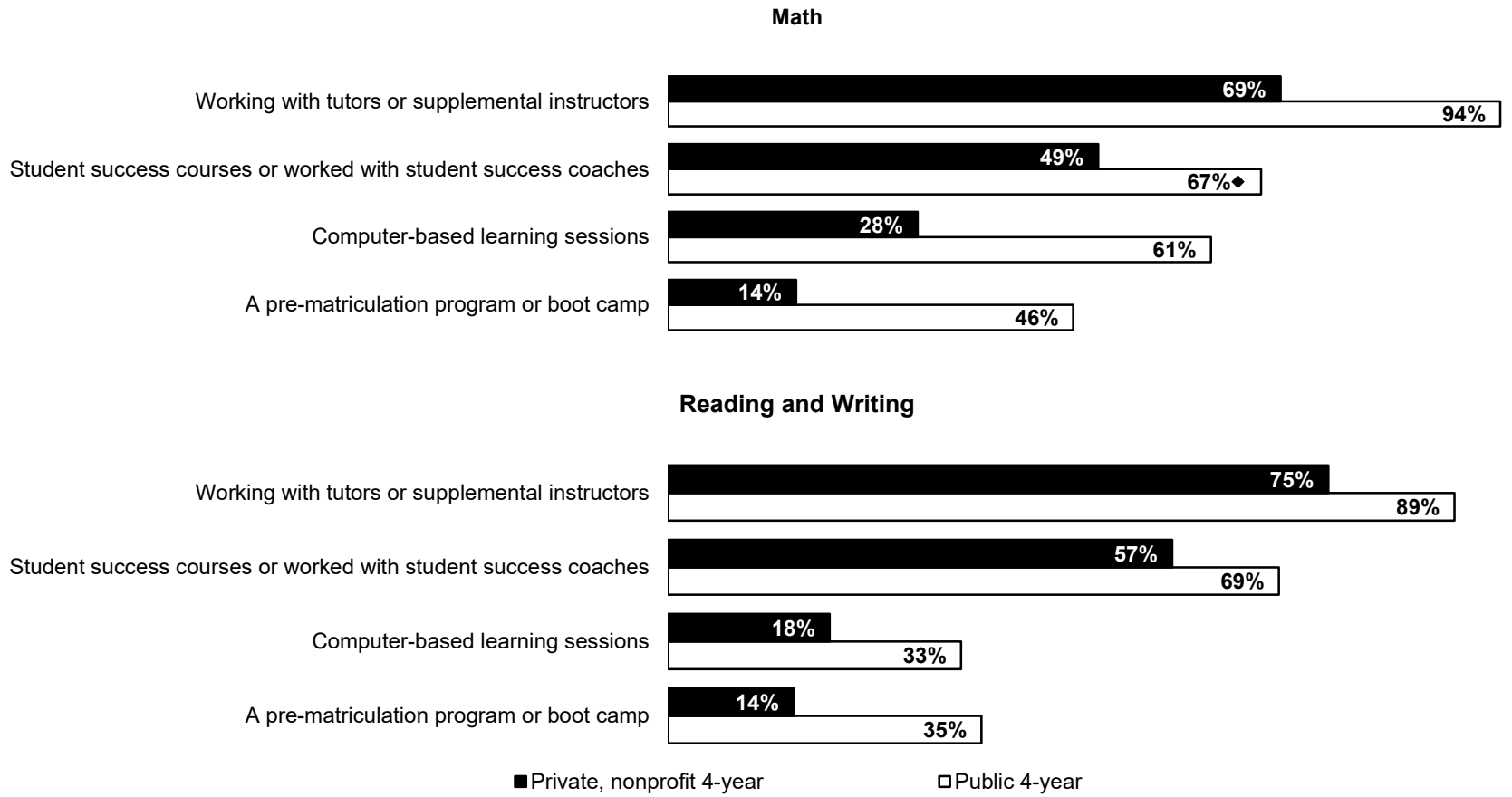
Figure 4.3

Percentage of Private Four-Year Colleges with Students Identified as Underprepared Using Student Support Services, Compared with Public Four-Year Colleges, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Colleges were counted as having students who used support services if they reported that less than half or more than half of their students used these services.

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colleges.[5] For instance, while over two-thirds of public four-year colleges reported having some students in developmental courses enrolled in success courses or having success coaches, only 49 to 57 percent of private colleges reported developmental students using these services. Such differences can also be seen in the use of boot camps, computer-based learning sessions, and tutoring or supplemental instruction. However, similar to public four-year colleges, most private colleges also use support services at scale, or are used by half or more of their students.

Summary

The CAPR survey findings show that more and more colleges are implementing different tactics to provide additional academic and nonacademic supports to developmental education students. Students in developmental courses are using multiple types of support services at many colleges. Students at two-year colleges are using support services somewhat more frequently than those at four-year colleges. The most popular support services at both types of institutions are tutoring and student success courses or coaches, though they tend to be used by less than half of developmental students at most colleges. Overall, private four-year colleges reported that students identified as needing developmental education use fewer support services, compared with students at public four-year colleges. However, as is the case at public four-year colleges, most private institutions do not offer support interventions at scale.

[5]These results may not be as representative, because response rates among private, nonprofit four-year colleges was lower (51 percent) than for public two-year colleges (86 percent) and public four-year colleges (90 percent).

Chapter 5

Drivers of Developmental Education Practices

The differences outlined in Chapters 3 and 4 in how colleges deliver developmental education raise questions about what drives some institutions to change their educational practices while others maintain the status quo. Prior research points to the importance of understanding the catalysts for change, which can provide insight into the conditions that spur reform.[1] For example, funding and fiscal constraints may limit the scope and scale of new approaches colleges adopt, whereas faculty members' knowledge could shape the extent to which the institution adopts new pedagogical approaches. Beginning around 2010, state- and system-level policies have increasingly exerted direct influence on institutions' developmental education practices.[2] However, few nationally representative studies have examined how institutions are implementing these mandates and recommendations on the ground — and how much colleges see this as a driver in their practices.

This chapter analyzes the potential drivers of developmental education practices using data from the Center for the Analysis of Postsecondary Readiness (CAPR) survey and qualitative interviews undertaken with college faculty and staff members, college administrators, and leaders of state college systems. The survey asked college leaders to identify whether one factor or several factors drove their efforts to improve the math, reading, and writing skills of students in developmental courses, thus allowing for a nationally representative analysis of these drivers. Potential factors included faculty members' input, research conducted by the institution, availability of resources, practices at other colleges, research conducted elsewhere, and state policies. The chapter also includes analyses of interviews to help illustrate how various factors may interact with one another. Finally, to better understand how state policy may affect institutions, the chapter concludes with an analysis of the practices and drivers in colleges in three states that had statewide policies aimed at revising colleges' developmental education practices. The main findings in this chapter include:

- Most colleges reported that a variety of factors are driving their developmental education practices. Key among these factors is faculty members' input, which can manifest in a variety of ways.
- Financial incentives and the availability of resources also drive the approaches colleges adopt. Particularly, interviews with system and institutional leaders suggest that state policies regarding college funding encouraged or required colleges to adopt new approaches.

[1]Edgecombe, Cormier, Bickerstaff, and Barragan (2013).

[2]Whinnery and Pompelia (2018).

- Examples from three states suggest that state- and system-level policy may play a more complex and influential role in colleges' practices than the overall CAPR survey results reflect.

What Factors Drive Colleges' Efforts to Improve Students' Math, Reading, and Writing Skills

Analysis of survey and interview data reveals that numerous factors drive college leaders' efforts to improve the reading, writing, and math skills of students identified as being in need of developmental courses. As Figure 5.1 shows, a majority of public two-year and four-year colleges reported that each of the factors listed on the survey (faculty members' input, internal research conducted by the institution, the availability of resources, practices at other colleges, research conducted elsewhere, and state policies) is a driver of their developmental education practices. The most frequently named factor driving practices at both two-year and four-year colleges is faculty members' input (over 85 percent of colleges).[3] At least 65 percent of two-year colleges also named each of the other factors on the survey as driving their efforts, with four-year colleges naming these factors slightly less frequently. State policy is cited least often, although at least 58 percent of public colleges see state policy as important. A deeper discussion of these factors and the interplay between them based on interviews with faculty members, staff members, and administrators is provided below.

- **Faculty members' input is a driver behind many approaches, but higher-level administrators play an important role in mediating or supporting their work.**

Figure 5.1 shows that 92 to 93 percent of public two-year college leaders and 87 percent to 92 percent of public four-year colleges name faculty members' input as a factor driving their institutions' developmental education practices, a finding that interviews with college and system leaders underscore. However, the interviews also reveal the important interplay that can occur between faculty members and higher-level administrators in trying to institute a reform on a larger scale. In many cases, faculty members' input is provided indirectly through other college leaders, such as deans and department heads. As one administrator put it,

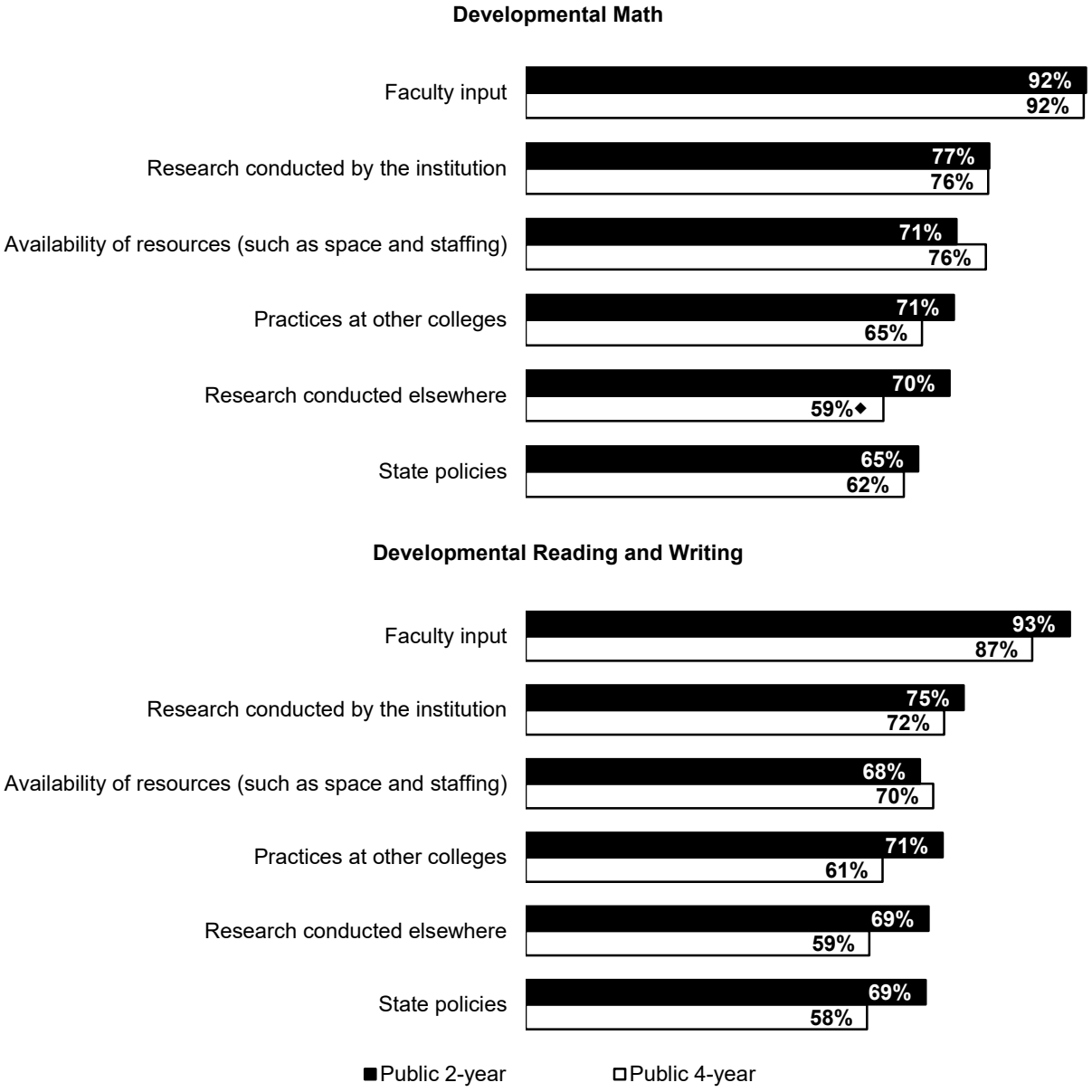
> Faculty are involved in all of the decisions that are made, or at least the chairs of those divisions are. And those chairs are very receptive to their faculty. As a dean, I meet with the division chairs monthly, and then they go back and talk to their faculty and come back, and then we make decisions together.

Faculty members themselves can drive the implementation of new reforms in some cases, according to some administrators. For instance, one administrator explained that their investment in modularization — the breaking down of semester-long developmental courses into smaller, multi-week lessons — came from a faculty member's experience with the approach:

[3]The survey did not ask individuals to rank the importance of one driver over another.

Figure 5.1

Major Factors Driving Public Colleges' Institutional Practices for Improving Skills of Students Identified as Underprepared, Academic Year 2015-2016



SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: Distributions may not add to 100 percent because categories are not mutually exclusive.

Rounding may cause slight discrepancies between figures and tables.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

> For example, the modularization of the curriculum really came more from one faculty member who had been working on it. We saw it as a best practice; we applied for some grants at a college level to try and promote that model but used some of her basic foundational work in developing it. So that's one example of where it kind of bubbled up from the faculty level.

These comments suggest that faculty members' input can manifest in a variety of ways. In some cases, higher-level college leaders may initiate new interventions and then seek out faculty members' thoughts and perspectives on the idea. In other cases, a new initiative may come from a faculty member, but require administrative approval and more institutional legwork to come to fruition, such as garnering grants to support the reform's broader implementation. Regardless of where and when faculty members' input comes into play, an institutional investment from higher-level leaders is also seen as important in helping get reforms off the ground.

- **Resources and funding streams, and the policies attached to them, can play an important role in which approaches colleges adopt.**

Many college representatives indicated on the survey and during interviews that the availability of resources informs their decision to adopt new approaches to developmental instruction. Figure 5.1 shows that between 68 and 76 percent of two-year and four-year colleges reported on the survey that resources, such as space and staffing costs, influence institutional decisions for improving developmental education practices.

In interviews, respondents discussed several different ways that resources influence their practices. On a practical note, some leaders discussed how the availability of material resources determines whether they adopt resource-intense approaches, such as technology-mediated instructional models, which typically require colleges to acquire and maintain a large number of computers in addition to giving faculty members training in how to use the technology. When asked to discuss challenges associated with implementing technology-mediated instruction, a system leader emphasized that finding funding to purchase the technology, particularly when institutions have different levels of access to resources, can be difficult.

Some leaders described how state policies regarding college funding push them to adopt new approaches. In particular, system leaders discussed the influence of new state-mandated performance-based funding models, a strategy that revises states' standard enrollment-based funding for colleges to funding based their performance in helping students achieve particular milestones, such as the completion of developmental education courses. According to a system administrator,

> We changed the performance system so that colleges don't get a point for a student successfully completing a pre-college course; they get points when a student successfully remediates and finishes the series of developmental education courses.

College leadership similarly discussed how these types of policies inform how they deliver developmental education. A college administrator explained, "Funding in [state] is tied to completion rates, so they are trying anything and everything to boost completion." More specifically,

many leaders discussed how these policies motivate them to eliminate multi-course sequences for developmental education and attempt to accelerate students into college-level classes.[4]

In addition to state-level financial incentives, some administrators explained that external grants, such as the federal government's Fund for the Improvement of Postsecondary Education (FIPSE), are often important in helping them develop new approaches. For instance, college leaders in Tennessee reported that a FIPSE grant administered by the state's Board of Regents served as an impetus for system-wide changes to developmental education. In other cases, individual institutions leveraged seed money from their state to pilot new approaches. For instance, one administrator at a two-year institution discussed using state funds to implement integrated reading and writing course reforms. Another administrator explained that academic deans sometimes helped to secure a grant that allowed the institution to align developmental course outcomes with the skills students need for college-level courses.

- **Internal research drives the practices at many colleges. Interviews suggest that college leaders use these data to promote specific approaches to developmental education and convince others of its importance.**

Close to 75 percent of community colleges and public four-year colleges report on the CAPR survey that research conducted by their institution is a driver in their efforts to improve the skills of students in developmental education courses. In some interviews, administrators described using internal data to build momentum and inform faculty members about new approaches for developmental education. For instance, one college administrator explained that faculty members were initially resistant to shortening the developmental education course sequence in math, reading, and writing. However, after attending a presentation at which institutional leaders presented the statistics on the likelihood of success for students who started in remediation, many faculty members were convinced about the change. The administrator explained,

> All of a sudden the whole atmosphere in the room changed. I think that faculty that teach remedial students, they focus on the ones that make it all the way through their course. They may become very close to these students, they nurtured them, but what they don't see is all the ones that have fallen by the wayside, which, of course, is what we see when we are looking at the big picture. So, I would say that once they saw the data on how ineffective the structure was, most of them came along with pretty good hearts.

In other cases, system-level leaders discussed how they analyzed data from institutions across the state to build the case for new approaches in their system. For instance, one system leader discussed conducting a statewide analysis of the outcomes of students enrolled in corequisite courses, in which students assessed as needing developmental education courses are placed directly into college-level classes with additional academic supports. They found that more students were moving forward into credit-bearing courses within one semester or within one academic year than in traditional developmental education course sequences.

[4]Burke and Modarresi (2001).

- **Practices and research outside of colleges and college systems also have an important influence on developmental education practices.**

Colleges also cite practices at other institutions and research conducted elsewhere as important drivers. Approximately 70 percent of two-year colleges cite these factors as important influences on their developmental math and developmental reading and writing practices. However, four-year colleges were slightly less likely to report these factors as important to their practices in developmental math and developmental reading and writing.

Administrators explained in interviews how research conducted at other colleges informed system-level decisions on developmental education. In one state, a system-level administrator explained that a task force recommended that all colleges adopt the corequisite model for remediation based on preliminary evidence emerging from other systems that demonstrated this approach's effectiveness at moving students into and through college-level courses in math and English. Institutional leaders also described instances where research from other institutions informed campus-level decisions. When asked to explain how research informs their decision making, a faculty member stated,

> Usually it comes from something sort of semi-organic, where a faculty member here speaks with a colleague at another school and they say, "Oh, we are doing this program." And if it's a school where the program is really established, like, for example, learning communities, and they publish a ton of research on the success of these programs. And so, they will look at something like that, get that research to back up a proposal.

Leaders also turn to research stemming from institutions within the same system when deciding on developmental education approaches. According to one administrator, the institution reviewed performance-indicator data from other colleges within their system and observed that the smaller colleges had better student outcomes. Following up on this information, the administrator reached out to those schools to learn more about what types of academic and nonacademic supports they offer students. Based on that information, the college decided to create smaller communities to encourage stronger relationships between students and instructors in hope of improving student retention and completion

- **State policy is cited less frequently than other factors.**

As shown in Figure 5.1, the CAPR survey data indicate that 58 to 69 percent of two-year and four-year colleges view state policy as a driver of their efforts to improve developmental education. The number of colleges naming state policy as a driver is much lower than those that cite faculty members' input as a driver, with a nearly 30 percentage point difference in most cases.

While the role of state policy varies across the country, in recent years states and systems have been turning to mandates as a way to change developmental education and try to improve developmental students' success in college. For example, Virginia's and North Carolina's community college systems initiated major reforms to colleges' developmental course offerings,

requiring colleges to break down their semester-long developmental courses into shorter modules.[5] In other states, such as Florida, Connecticut, Tennessee, and Texas, state legislators have mandated particular reforms, such as the use of certain placement measures to assess students' college readiness or requiring that most developmental courses be offered in the corequisite model.[6] Other states, such as Tennessee, have limited or eliminated developmental courses in four-year colleges.[7]

These examples suggest that state- and system-level policy may play a more complex and influential role in colleges' practices than the overall CAPR survey results reflect. In order to explore this theory, the next section considers how colleges' practices — and the factors that they say drive them — may vary in different state policy environments.

The Influence of State Policy: A Consideration in Three States

While fewer institutions noted state policy as a driver of their practices than other factors, the use of state policy as a lever for change is often instrumental in developmental education reform. As noted above, 19 states have revised assessment policies and 15 states have altered instructional policies in an effort to change practice at a wider scale. The CAPR survey affords an opportunity to look at how these state policy levers may be affecting the actual practices of institutions on the ground and thus allow a deeper understanding of how influential these policies may be.[8] What follows is an analysis of the practices at institutions in three states in which legislators or the state-level coordinating bodies for public colleges have implemented system- or state-level developmental education reform mandates or recommendations that are intended to influence the practices of institutions under their purview. These provide interesting insights into when state policy may be an effective lever for change — and when it may not.

Tennessee

In 2010, the Tennessee state legislature passed the Complete College Tennessee Act,[9] which was aimed at improving student success in public colleges. The act broadly empowers the Tennessee Higher Education Commission to develop a statewide plan for increasing students' educational attainment at Tennessee's public two-year and four-year postsecondary institutions.

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[5]Kalamkarian, Raufman, and Edgecombe (2015).

[6]Hu et al. (2016, 2019); Daugherty et al. (2018); Mattson and Klafehn (2016); Turk, Nellum, and Soares (2015).

[7]Mattson and Klafehn (2016).

[8]While survey responses are presented for three states — Tennessee, Georgia, and Texas — the survey sample was not stratified by state. In addition, because of the small sample sizes, survey responses reported by state have higher margins of error than the national sample. See Appendix Table C.13 for more information.

[9]The Complete College Tennessee Act, or Senate Bill No. 7006, was developed as part of Tennessee's involvement with Complete College America, a college advocacy organization focused on increasing college completion rates across the country. For more information about Complete College America, see: https://completecollege.org/about/.

Along with creating a more unified governing body for the states' two-year public colleges,[10] the legislation mandated two important developmental education policies.[11] First, public four-year institutions are no longer allowed to offer noncredit developmental courses; instead, four-year colleges were asked to partner with two-year colleges that could provide these courses.[12] Additionally, using the authority granted from the Complete College Tennessee Act, the Tennessee Board of Regents mandated the states' 13 community colleges to implement developmental math, reading, and writing courses using the corequisite model.[13] The Tennessee Board of Regents defined the parameters for these corequisite courses, specifying the types of supports that colleges could provide as part of this model. In short, students' need for developmental education courses could not longer delay their enrollment into college-level courses, and any exceptions to this rule required approval from the Board of Regents. The Board of Regents additionally established benchmarks and annual performance indicators designed to monitor institutions' developmental education programs.[14] Public four-year colleges were permitted to provide learning supports as part of entry-level college courses if they were attached to a college-level course, or they could coordinate with community colleges to provide developmental services to four-year students.[15]

CAPR survey data suggest that these policies may be influencing developmental education at public higher education institutions.[16] All community colleges surveyed in Tennessee report implementing the corequisite model in both subjects for students referred to developmental education. Additionally, none of the public two-year college respondents offer the multi-semester, prerequisite developmental education course sequences typical at most colleges across the nation. While in somewhat lower proportions, four-year colleges surveyed in Tennessee are also using these practices: all four-year college respondents report using the corequisite courses in math, and 75 percent report using this approach in developmental reading and writing. All surveyed two-

[10]The University of Tennessee Board of Trustees governs University of Tennessee system schools. Other public four-year colleges were previously governed by the Tennessee Board of Regents but are now independent as of 2017 as a result of the FOCUS Act (H.B. 2578; for more information, see Tennessee Office of the Governor, 2015).

[11]Tennessee also mandated other developmental education reforms, including establishing pre-college initiatives to strengthen alignment between high school and postsecondary education course work, and moving from traditional lecture-style remediation to self-paced, competency-based learning support courses. However, these reforms are not measured on the CAPR survey, and are not analyzed here. For more information, see Mattson and Klafehn (2016).

[12]Mattson and Klafehn (2016).

[13]Corequisite courses have been a central recommendation of Complete College America and has become a common strategy for reforming developmental education across the country. For more information, see Complete College America (n.d.).

[14]Tennessee Board of Regents (2019); and Tennessee Board of Regents Office of the Vice Chancellor for Academic Affairs (n.d.).

[15]Mattson and Klafehn (2016).

[16]The size of the Tennessee sample is very small, with only 4 two-year colleges and 5 to 6 four-year colleges completing the math and reading and writing sections of the survey, meaning that individual college responses can greatly affect these percentages.

year colleges and 67 to 80 percent of surveyed four-year colleges in Tennessee cited state policy as a factor influencing their developmental reading, writing, and math practices.

Georgia

Similar to Tennessee, Georgia undertook a statewide change to developmental education practices as part of its Complete College Georgia campaign.[17] Georgia's governor, Nathan Deal, launched the Complete College Georgia initiative in 2011, with the goal of increasing the number of state residents who had a postsecondary credential or degree. The strategy and planning for the implementation of this broad directive was undertaken jointly by the University System of Georgia (USG) and the Technical College System of Georgia (TCSG), the two coordinating entities for Georgia's public four-year and two-year colleges, respectively.[18]

USG and TCSG had two different strategies for implementing these recommendations. USG formed two task forces in 2013 — one in math and the other in English and reading — to consider ways to revise colleges' developmental education. The task forces consisted of campus faculty and staff members, USG system-level staff, consultants from out-of-state institutions, and representatives from Complete College America. These taskforces issued a report recommending, among other things, that all colleges adopt the corequisite model for developmental education. Following this report, committees for both math and English planned for implementation of these recommendations and solicited feedback from around the state about implementing developmental education reform statewide.[19]

Based on this plan, the USG created a detailed manual that outlined requirements and suggested best practices and recommendations for developing and implementing corequisite courses in public four-year colleges in Georgia.[20] For instance, the manual mandated that all colleges admitting students whose high school grade point averages or standardized test scores indicate developmental need offer corequisite courses. It also outlined a common set of course prefixes, numbers, titles, and course descriptions that USG colleges were required to use and suggested scheduling models for corequisite courses to best fit the needs of the institutions and students. Finally, the USG established reporting requirements for enrollment in developmental education, using common placement and exit codes to track students.[21] During the initial implementation period, the USG allowed colleges to enroll lower-testing students in a prerequisite remedial course prior to enrolling in corequisite courses. However, based on internal data showing very high attrition for students enrolling in the prerequisite developmental course compared with those assigned to corequisite courses, the USG later switched to offering only corequisite support.[22]

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[17]Complete College Georgia (2011). See, also, https://completega.org.

[18]Complete College George (n.d.[a]).

[19]Complete College Georgia (n.d.[b]).

[20]University System of Georgia (2019c).

[21]University System of Georgia (2019b, 2019c).

[22]University System of Georgia (2019c).

TCSG similarly redesigned developmental education in Georgia's community colleges. It developed modules in developmental math, reading, and English, allowing students to complete coursework only in the areas in which they have demonstrated developmental need, and at their own pace. TCSG additionally recommended coupling this modular approach with corequisite classes.[23] To implement these recommendations across the college system, institutions appear to operate with more autonomy than USG institutions. The TCSG required its colleges to develop an institutional completion plan; worked with each college to develop individualized benchmarks for certificate, diploma, and degree attainment; and continues to collect annual reports presenting the colleges' improvement on certain key metrics. To date, many of the colleges within its system have developed, piloted, and improved on corequisite models unique to their institutional context.[24]

Given the Complete College Georgia initiative's groundwork, it is perhaps not surprising that a large proportion of the Georgia two-year and four-year colleges that responded to the CAPR survey reported state policy as an influence on their practices. All public four-year colleges and about 80 percent of community colleges that responded to the CAPR survey report that state policy is a driving factor behind their developmental education practices. While the two-year and four-year college respondents see state policy as an influence, the CAPR survey data reveal that by 2016, far fewer two-year college respondents had implemented corequisite reforms. One hundred percent of four-year institutions that responded to the survey reported using the corequisite model in at least one developmental math class and 83 percent in at least one developmental reading and writing class.[25] In comparison, only 64 percent of two-year colleges surveyed use this approach for developmental math instruction and 60 percent for developmental reading and writing. The differing proportions of college respondents implementing corequisites in Georgia also contrast with Tennessee, where all public two-year college respondents reported using corequisite remediation. The different approaches USG and TCSG took to implement corequisites may have influenced their colleges' practices. USG institutions were mandated to implement specific corequisite models, while TCSG guidelines were more general and offered different options for developmental education reform. However, the majority of colleges in Georgia that responded to the survey reported that they still offered developmental courses in multi-semester, prerequisite sequences, revealing that state policy may not always be the most influential factor in institutions' developmental education practices.

Texas

Over the past 10 years, the Texas state legislature has mandated a number of reforms to developmental education in public colleges and has granted the Texas Higher Education Coordinating Board (THECB), the primary coordinating body for the state's public two-year and four-

[23]Delaney and Beaudette (2013).

[24]Technical College System of Georgia (n.d., 2014, 2018).

[25]The size of the Georgia sample is very small, with only 10 to 11 two-year colleges and 6 to 7 four-year colleges completing the math and reading and writing sections of the survey, meaning that individual college responses can greatly affect these percentages.

year institutions, the authority to design, enact, and monitor these reforms.[26] In 2013, the legislature gave the THECB the authority to create a single set of state college readiness standards, allowing the THECB to establish the Texas Success Initiative (TSI), a program aimed at improving students' success in college.[27] Previously, Texas colleges used a variety of placement tests to determine college readiness and used their own discretion in setting cut-off scores. Through the TSI, the THECB launched a single standardized placement test, the TSI Assessment, and set specific statewide cut-off scores at which students are deemed college ready.[28]

In 2015, the THECB made an additional adjustment to colleges' assessment and placement processes, requiring them to use at least one other measure in addition to the TSI Assessment to assess students' college readiness, such as students' previous academic performance or noncognitive factors such as motivation or self-efficacy, a practice called multiple measures assessment.[29] Finally, all public institutions were required to integrate their exit-level (the level closest to college readiness) developmental reading and writing courses into a single course by spring 2015.[30]

Many of the institutions in Texas responding to the CAPR survey recognize the role that the THECB and legislators have played in developmental education policy. Ninety-six percent of two-year colleges and 100 percent of four-year institutions in Texas that responded to the CAPR survey cite state policy as an influential factor. However, like colleges in Georgia, Texas colleges range in their level of implementation of these policies. Most public colleges surveyed in Texas report using standardized tests, suggesting that they are implementing the TSI Assessment. Many surveyed colleges also reported that they have implemented multiple measures assessment, but a substantial proportion have not — for example, only approximately 64 percent of two-year college respondents reported using two or more measures to assess students' college readiness in all subjects despite the 2015 policy. More public four-year college respondents report using multiple measures in assessing math readiness (72 percent); however, only about half (54 percent) report using multiple measures in reading and writing placement decisions. However, most public colleges surveyed are implementing integrated reading and writing courses (100 percent of community colleges and 92 percent of four-year colleges), suggesting that state policy may have been more influential.[31]

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[26]The Texas Higher Education Coordinating Board (2016). This report focuses solely on developmental education policy changes that could be measured on the 2016 CAPR survey. Since then Texas has made additional changes to developmental education policies that are not documented here.

[27]Texas Education Code, Chapter 51, Subchapter F-1 ("Texas Success Initiative"). The THECB oversees the mix of flagship, state four-year institutions, and community and technical colleges in the state.

[28]Daugherty et al. (2018).

[29]Texas Administrative Code, Title 19, Part 1, Chapter 4(C), Rule 4.55. See, also, Daugherty et al. (2018).

[30]Texas Administrative Code, Title 19, Part 1, Chapter 4(C), Rule 4.62. See, also, Texas Higher Education Coordinating Board (2016).

[31]Like Tennessee and Georgia, the size of the Texas sample is small, with only 25 two-year colleges and 13 four-year colleges completing the survey, meaning that individual college responses can greatly affect these percentages.

Several factors may explain this varying uptake of state policies. When the THECB mandated the change to the TSI Assessment, it required all colleges to use this assessment and report developmental education students' status based on their scores on this test. Similarly, the THECB updated its academic course guide manual to include an integrated reading and writing course and specified that separate developmental reading and writing courses may only be provided at the lower levels of developmental education. Additionally, the THECB established reporting requirements, which enabled the THECB to evaluate institutions' progress with implementing the reform and the overall effectiveness of the TSI.[32] Institutions' compliance with state mandates is reported to the Texas state legislature and governor's office, and institutions failing to meet certain benchmarks may be subject to an audit by the THECB or the Texas comptroller and can lose funding.[33] These system-level changes and additional accountability mechanisms may have influenced colleges further implementation of the TSI Assessment and the integration of developmental reading and writing courses.

Previous experience implementing some of these reforms may also explain some of this uptake. According to several institutional leaders interviewed, colleges in Texas had already begun implementing the integrated reading and writing developmental courses prior to the fall 2015 mandate, which may have contributed to the uptake of this approach.

Summary

Findings presented in this chapter illuminate the multitude of factors driving the different approaches to developmental education and have implications for states beginning to implement state-based developmental education policies (for example, California). Although CAPR survey data indicate that multiple factors are influential, data suggest that faculty members' input is important across the board at all institutions. Interviews with institutional leaders illustrate how faculty members' input can manifest in a variety of ways, including direct participation in developing state or institutional policy and initiating new approaches or indirectly through offering advice to department chairs.

Among the various factors driving developmental education practices, state- and system-level policy is cited less frequently than other factors on the CAPR survey. Yet examples from three states undergoing developmental education change suggest that state- and system-level policy can be influential when it mandates approaches and establishes as well as enforces accountability measures. Therefore, states that do not have such policies in place or a high level of authority in defining colleges' institutional practices may temper the national survey results.

[32]Texas Higher Education Coordinating Board (n.d.[a]); Texas Administrative Code, Title 19, Part 1, Chapter 4(C), Rule 4.60.

[33]Texas Higher Education Coordinating Board (2018).

Chapter 6

Assessing Progress and Next Steps in Developmental Education Reform

The results from the survey that the Center for the Analysis of Postsecondary Readiness (CAPR) conducted and their interviews with leaders at broad-access two-year and four-year colleges confirms what current reviews of state policies and colleges' practices have already suggested: that many colleges are experimenting with multiple developmental education reforms. However, they also reveal that this change may not be occurring as widely as many reformers would want or that students need. CAPR's study shows that colleges tend to implement these reforms on a limited scale, with the reforms generally making up half or less of their course offerings. Additionally, a majority of colleges continue to use many of the practices that research has shown to be less effective, including a reliance on standardized tests as the only measure of students' college readiness and the sequences of multi-semester, prerequisite sequences of developmental courses that students have had trouble completing. Such findings show that while the field is changing, many colleges may be doing little to revise their practices.

This chapter considers what the findings from the CAPR survey and interviews with institutional and state leaders have to say about colleges' movement toward developmental education reform and future directions in policy, practice, and research. The chapter begins with an assessment of how far the field has moved over the past decade when concerns about developmental education were first being raised. It then concludes with a consideration of the directions that policymakers, practitioners, and researchers may follow to further support the implementation of practices that promote student success.

How Far Have We Come? Assessing Progress and Challenges

This section considers what the CAPR survey and interview findings suggest about how far the field has come in implementing developmental education reforms and what this means for students identified as in need of remedial intervention across the nation's public broad-access colleges.

- **The pace of the implementation of developmental education reforms is increasing.**

Findings from the CAPR survey reveal that over half of the nation's public two-year and four-year colleges are adopting policies and practices designed to accelerate and better align students' remedial coursework with college-level coursework. More than a third of colleges use stronger indicators to measure college readiness, such as high school grades, and more than a third have sought to accelerate students' progress by shortening the length of these courses, allowing students to set their own pace for completing developmental education requirements, or instituting revisions to math course content so that it better aligns with students' careers.

These shifts in practice are notable given the relatively short time that these reforms have been in the field. For instance, in 2011, the field had only begun to discuss the challenges in using standardized tests to assess students' college readiness and the potential for high school performance to serve as a better measure. However, from 2011 to 2016, colleges' use of alternative measures such as high school grades has grown by at least 30 percentage points.[1] Similarly, the concept of diversifying the math courses required for college completion (multiple math pathways) was only beginning to emerge in 2011. By 2016, 54 percent of public two-year colleges and 39 percent of four-year colleges had offered at least one course section using a multiple math pathways model, and a large proportion of those colleges offered multiple math pathways at scale.

These numbers have likely grown in the past few years as more states and colleges have adopted new practices. CAPR survey findings indicate that less than one-third of two-year colleges had implemented reforms that place students identified as needing developmental math directly into college courses with added supports (known as corequisite courses). However, the Education Commission of the States' 2018 survey found that at least 15 states now recommend or mandate corequisite courses for all the colleges in their postsecondary systems.[2] Similarly, California and Texas now require that colleges use students' high school performance in developmental education placement decisions,[3] and 19 states now allow for or are encouraging the use of multiple measures assessment for entering students.[4] These statistics suggest that the pace of reform may have intensified since CAPR disseminated its survey in 2016.

- **Colleges are implementing more complex reforms to developmental education.**

While the pace of reform has increased, the types of changes that colleges are making are also remarkable; some reforms are relatively complex and require substantial revisions to institutional policies and practices. For instance, the use of high school performance in placement decisions can be highly challenging for open-access colleges that generally do not require high school transcripts for entry. Colleges must figure out new ways to obtain these data, which may entail new relationships with K-12 schools or new data systems to process these measures, both of which may require lengthy negotiations and implementation.[5] Similarly, the implementation of multiple math pathways requires colleges to revise the math requirements for many fields of study, change advising procedures so that they place students in the correct pathway, and reform the content of math classes.[6] These changes may even require hiring new faculty members equipped to teach non-algebra intensive math courses, which are growing in popularity.

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[1]2011 data are from Fields and Parsad (2012); 2016 data are from the CAPR institutional survey.

[2]Whinnery and Pompelia (2018).

[3]California: California State University Executive Order 1110 and Education Code Statute 78213 (which applies to California community colleges). Texas: Texas Administrative Code, Title 19, Part 1, Chapter 4(C), Rule 4.55; see, also, Daugherty et al. (2018).

[4]Whinnery and Pompelia (2018).

[5]Barnett et al. (2018); Barnett and Reddy (2017).

[6]Zachry Rutschow and Diamond (2015); Hartzler and Blair (2019).

These changes suggest that many colleges are moving beyond efforts to tweak certain parts of their developmental education courses or sequences and are more readily adopting practices that lead toward wholesale reform. Given that many policymakers and states are pushing these changes across the board, their adoption will likely continue to increase in the years ahead.

- **Revisions to developmental course content and instructional reforms are gaining ground, although there is probably considerable variation in how these reforms look on the ground.**

Prior research suggests that structural changes to developmental education, such as changes to the timing or sequencing of courses, have been more widespread within the developmental education reform space than changes in curriculum and pedagogy, which tend to be more challenging to implement and scale.[7] However, CAPR survey findings reveal that this may be changing as more colleges are experimenting with content and instructional reforms. For example, over half of two-year and four-year colleges are integrating reading and writing courses, and a large proportion (nearly 40 percent or more) are offering multiple math pathway courses and self-paced developmental math courses. Both multiple math pathways and integrated reading and writing courses require substantive revision of course content, which means that students may be learning qualitatively different subject matter than in more traditional developmental courses. Similarly, self-paced courses fundamentally change the student-teacher interaction and locus of control as students learn content via technology and determine the pace at which they complete their lessons. These findings suggest that schools are tackling content and instructional changes, even if they are more challenging to implement.

While the CAPR survey looked at different modes of instruction, it did not examine how these practices are implemented on the ground and what variation may exist in the classroom. Research has shown that colleges often have diverse interpretations of a particular reform and that the implementation of that reform may vary substantially from institution to institution.[8] For instance, a recent analysis of corequisite reforms in developmental English classes in Texas found that colleges had at least five different ways that they implemented these reforms in the classroom, ranging from pairing developmental and college-level courses, to providing extended instructional time in college-level courses, to using technology-mediated approaches to teaching. Researchers also found major differences in the materials and curricula used, the assignments students receive, and instructional methods teachers use to lead the courses.[9] This suggests that although colleges may be implementing nominally identical reforms, these changes may look quite different in practice — which can have important implications for students' learning and academic success.

[7]Edgecombe, Cormier, Bickerstaff, and Barragan (2013).

[8]Zachry Rutschow and Schneider (2011); Kalamkarian, Raufman, and Edgecombe (2015).

[9]Daugherty et al. (2018).

- **While change is happening, many public colleges may not be making changes — or moving as fast as policymakers would hope, particularly with revisions to developmental math courses.**

While many colleges are making changes to their developmental education practices, there is a substantial proportion of colleges that are not taking on these reforms — or at least not to the degree that some policymakers believe is warranted. Nearly 40 percent or more of public colleges use one measure to assess college readiness, the majority of which rely exclusively on standardized tests. Additionally, a large proportion of two-year colleges continue to offer multi-semester, prerequisite courses in developmental math (86 percent) and reading and writing (67 percent). Forty-four to 67 percent of four-year colleges also do the same. The prevalence of these courses is also high, with multi-semester prerequisite courses making up the majority of developmental classes at over half of two-year colleges and a third of four-year colleges.

These results suggest that traditional developmental education practices continue to play an important role in colleges' developmental course offerings and the mechanisms they use to assess students' skills and place them into courses. However, this may be changing more recently. For instance, Complete College America, a postsecondary advocacy organization focused on increasing college completion rates, notes that more than 40 states have been working to implement their recommended strategies (such as implementing math pathways and corequisite reforms) in an effort to improve students' success.[10] Future research on colleges' implementation of these practices can help determine whether and how these polices are actually being implemented on the ground.

- **Students are likely encountering different development course structures and sequences depending on what type of college they attend.**

Multi-semester developmental course sequences continue to be highly prevalent at two-year colleges, making up more than half of the developmental math courses offered at most of these colleges and more than half of their developmental reading and writing courses at over a third of colleges. Multi-semester sequences are much less common in broad-access four-year institutions, with only 22 to 37 percent reporting offering those sequences as half of developmental courses or more. Two-year colleges also offer far more developmental course sections than four-year colleges, with the average two-year college offering 74 sections in developmental math, and 49 sections in developmental reading and writing, while the average four-year college offers 32 in math and 22 in reading and writing. These results suggest students entering two-year colleges are likely taking many more developmental courses than are students entering four-year institutions, despite the fact that both colleges are considered broad access.

- **State policy may be a strong lever of change, but the implementation of these policies varies depending on the context.**

[10]For more information, visit Complete College America's website.

CAPR survey data indicate that many college leaders have multiple influences on their efforts to improve underprepared students' success, including faculty members' input, internal and external research, other colleges' practices, and state policy. Interestingly, state policy was the least-cited factor in the overall survey (58 to 69 percent of public colleges) when compared with other factors. However, analyses revealed more colleges viewed state policy as an influence in states that had legislated these changes or where college systems had broader authority to mandate or recommend these reforms. For instance, 67 to 100 percent of two-year and four-year colleges in Tennessee, Texas, and Georgia that responded to the survey say state policy influenced their practices in developmental math, reading, and writing.[11]

Interestingly, although more colleges in these states cited state policy as a factor in their practices, colleges' actual implementation of these practices varied. For instance, in Tennessee, 75 to 100 percent of all public colleges implemented Tennessee's corequisite reform policy, whereas fewer Georgia colleges implemented these reforms, despite the fact that it was also mandated by Georgia's two statewide college systems. These findings suggest that state policy can have an important influence on colleges' practices, but that other factors may be at play when it comes to their implementation of reforms.

- **There is a lot we still don't know about private colleges.**

As noted in the introduction to this report, the CAPR research team had difficulty contacting and getting private two-year colleges and private, for-profit four-year colleges to respond to the survey despite multiple outreach attempts. Consequently, the results from these colleges are not representative and the research team dropped them from the analysis. However, private two-year colleges play an important role on the postsecondary scene, particularly among traditionally underrepresented student groups such as low-income students or African-American and Latino students.[12] Additionally, private for-profit colleges tend to have fewer accountability mechanisms than public colleges, making their practices suspect among some audiences.[13] As such, far more research needs to be done on these institutions and their practices — and the difficulties in contacting them suggest that researchers may need more creative approaches to build these relationships.

Going Forward: Considerations for Next Steps in Developmental Education Reform Policy, Practice, and Research

The CAPR survey data and interviews suggest that much change is occurring in colleges' developmental education practices. However, the data also suggest that much still needs to be done. Below are a few considerations for next steps.

[11]While survey responses are presented for three states — Tennessee, Georgia, and Texas — the CAPR survey sample was not stratified by state and are therefore not representative of the state. In addition, due to small sample sizes, survey responses reported by state have higher margins of error than the national sample. See Appendix Table C.13 for more information.

[12]Fry and Cilluffo (2019).

[13]Ashford (2019).

- **Continue to improve the evidence of what works so that policymakers and practitioners can implement the programs and policies that have the greatest chance of improving students' success.**

The urgency in the field to improve the success of students enrolled in developmental education courses has led many institutions, systems, and states to push for reforms that have not necessarily been demonstrated to be effective in improving student outcomes. Research indicates some reforms such as compressed courses, student success courses, and self-paced instructional models may have limited effectiveness in helping students advance into college-level courses and, in some cases, may slow students' progress.[14] These findings underscore the importance of getting clear evidence of effectiveness to the field to ensure that colleges use the practices that have the most potential for improving student outcomes. Additionally, it suggests that practitioners and policymakers should try to remain nimble in decision making around differing reforms and be open to shifting practices as more evidence becomes available about which reforms may best improve student outcomes.

- **The slow pace of scaling may provide opportunities for more rigorous research.**

While experimentation with new practices is high, colleges tend not to be implementing these reforms for large groups of students, which allow opportunities to test what types of interventions may be most effective. Practitioners and researchers could take advantage of the natural timeline often needed to implement new practices to do more rigorous analyses of the outcomes of students who receive a new intervention in contrast with those who have not. Finding natural marriages between these two interests represents one way that both practitioners and researchers may be able to advance the field more quickly — and effectively — toward improving student outcomes.

- **Deeper understanding is needed on the interplay among different drivers of reform.**

The findings from this descriptive study suggest a number of areas where more information may help the field continue to understand the scope and scale of developmental education reforms and the key drivers behind their implementation. For instance, although state policy appears to be a strong driver of colleges' implementation of developmental reforms, the actual implementation of these reforms varied from state to state. Additionally, many college leaders identified the important role that internal and external research as well as faculty members played in the implementation of these reforms.

The survey does not allow for a deep analysis into the interplay between these different drivers and the potential ways that they may be facilitating or hindering continuing change. For instance, the contexts in which state policy reforms are implemented and the role that faculty

[14]Karp and Stacey (2013); Weiss et al. (2011); Zachry Rutschow, Cullinan, and Welbeck (2012); Bickerstaff, Fay, and Trimble (2016); Kalamarkian, Raufman, and Edgecombe (2015); Fay (2017); Boatman (2012); Weiss and Headlam (2018).

members play in their development appears to have important implications for how colleges translate these recommendations into practice. States or systems that mandate developmental education reforms may limit the agency that faculty members have in changing developmental education course structure or practice. While this study has shown that these state and system policies can be strong drivers of change, there is little data on how faculty members' engagement may hinder or facilitate the implementation of these practices on the ground.

- **The field needs a better understanding of how to implement multiple developmental reforms simultaneously.**

Similarly, while this study indicates that many colleges are implementing developmental reforms, it does not clarify how colleges are implementing these reforms and whether such practices are driving change in student outcomes. Recent research on more comprehensive reforms to students' course-taking, supports, and financial assistance reveal that the integration of reforms in one package may hold the most promise for increasing students' academic progress and graduation.[15] The high incidence of developmental reforms revealed in the survey as well as analyses of state and system mandates indicate that some colleges are likely to be implementing multiple developmental education reforms at the same time or are implementing developmental education reforms as an instrumental part of larger collegewide reforms. More information on how colleges are undertaking these reforms would help the field better understand how to successfully implement comprehensive developmental reform.

- **The field needs to know more about the reforms being implemented and what works for specific kinds of students, particularly those with multiple developmental needs.**

Critical challenges persist in knowing what types of developmental reforms may best help certain kinds of students, and, in particular, students assessed as having multiple developmental needs. In their attempt to improve developmental students' success, many colleges have reduced or eliminated developmental course offerings, particularly for students whose assessment results suggest lower-level skills. When possible, the schools refer such students to adult basic education programs or other resources to help them prepare for college enrollment.[16] This reduction in services may seem reasonable given research showing that little good comes from enrolling students in multiple levels of developmental courses.[17] However, this may also mean that many students who originally entered college with an opportunity to improve their skills may not have services available to them, or those services may be much harder to access than they were previously, as colleges turn to other agencies (such as Adult Basic Education or workforce development) for help.[18] A better understanding of what services are available — and which are most effective — for students with differing skill levels is an important question for understanding

[15]Scrivener et al. (2015, 2018); Sommo, Cullinan, and Manno (2018).

[16]Visher, Cerna, Diamond, and Zachry Rutschow (2017).

[17]Xu and Dadgar (2017).

[18]Visher, Cerna, Diamond, and Zachry Rutschow (2017).

whether the scaling of developmental reforms may be hindering or helping certain populations over others.

- **The field should seek to learn more about how teachers are implementing these instructional reforms at the classroom level and how variations in implementation may affect students' outcomes.**

In comparison to what research has revealed about the changes in developmental course structure and sequencing, there is far less information about how teachers are implementing developmental reforms at the classroom level and how diverse practices may have differing effects on students' outcomes. The CAPR survey results indicate that many colleges are implementing reforms such as integrated reading and writing or multiple math pathways; however, how these reforms may be changing the instruction and learning in developmental and college-level classes is unclear. Some studies indicate that instructional methods such as contextualization and active learning may hold important promise for improving students' learning as well as their academic and labor market outcomes.[19] Research also suggests that many forms of online and technology-based instruction have mixed to negative effects on students' academic success while others (namely those that have regular and constructive interactions between teacher and students) can help students feel more committed to a course and achieve better grades.[20] These findings suggest that there needs to be much more research about the implementation and effectiveness of content and instructional reforms in postsecondary education, and how these reforms may contribute to students' learning and engagement in college.

Summary

As part of the reauthorization of the Higher Education Act, which provides federal resources aimed at strengthening postsecondary education and financial assistance for students, Congress is currently considering a number of provisions aimed at reducing the rates of postsecondary remediation and encouraging the adoption of evidence-based reforms. This report suggests that while many colleges have already moved toward the implementation of these practices, many more may be affected as federal funding and support is tied to students' success. This is likely to have important implications for the many colleges that have not yet started down the road to reform — underscoring the urgency of understanding what reforms may be most effective and how to take them to scale nationwide.

[19]Zachry Rutschow, Diamond, and Serna-Wallender (2017); Martinson, Cho, Gardiner, and Glosser (2018); Hodara (2011).

[20]Jaggars, Edgecombe, and Stacey (2013); Jaggars and Xu (2016).

Appendix A

2016 CAPR Survey Methods

Introduction

The Center for the Analysis of Postsecondary Readiness (CAPR) was established in 2014 with the mission to document current practices in developmental math and English education across the United States and to rigorously evaluate innovative assessment and instructional practices. The purpose of CAPR's research is to help advance a second generation of developmental education innovation in which colleges and state agencies design, implement, and scale more effective and more comprehensive reforms that improve student outcomes.

This appendix details the methodology of a multi-mode national survey of developmental education practices at broad-access two-year and four-year colleges. This survey is part of a descriptive study, one of CAPR's three foundational studies, designed to understand the scope and scale of colleges' current developmental education practices. To assist with data collection, CAPR partnered with the Temple University Institute for Survey Research (ISR). Survey design and development began in July 2014; and the research team finalized questionnaire content and survey methodology in February 2016. Data collection for the survey occurred in two distinct phases: March to June 2016; and October 2016 to January 2017.

Survey Population and Sample Design

CAPR's research team defined the survey population and sample in March 2015 using data from the Integrated Postsecondary Education Data System (IPEDS), a national database of postsecondary institutions that participate in federal student financial aid programs. They defined the survey population as U.S.-based degree-granting, undergraduate-serving institutions, although some institutions in the sample also offer graduate degrees. The population was limited to open-access (open-admission) two-year institutions, and broad-access four-year institutions (institutions that admitted 70 percent or more of their applicants in 2013–2014). A total of 3,127 institutions met these criteria, from which the researchers randomly drew a sample of 1,712 institutions, as shown in Appendix Table A.1. They then further stratified the population by institutions' program length (two-year vs. four-year) and institutional control (public vs. private). Within each of these strata, the researchers randomly selected a sample whose size achieved equal margins of error of approximately

Appendix Table A.1

Original 2016 CAPR Survey Population and Sample, by Sector

Sector	Population	Sample
Public 2-year	911	481
Private 2-year	585	389
Public 4-year	372	298
Private 4-year	1,259	544
Total	3,127	1,712

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations using data from the U.S. Department of Education, Integrated Postsecondary Data System (IPEDS) 2013-2014.

NOTE: Private institutions include for-profit and nonprofit colleges.

3.8 percent, assuming a 95 percent confidence interval and an 80 percent response rate within each stratum and applying a finite population correction.

Survey Development

As they developed the survey questions, CAPR researchers heard several consistent messages from other researchers and college leaders concerning the challenges of surveying postsecondary institutions:

1. Potential appropriate respondents are busy and difficult to contact.
2. There are most likely various people at any institution that will have the knowledge to answer questions but few who could answer for both math and English.
3. Institutions do not necessarily share a common vocabulary when referring to assessment, placement, or instruction practices in developmental education.

The sections below describe the approaches the research team used to address these challenges as they developed the survey questionnaire and strategies for data collection.

Questionnaire Content

Through an iterative process of reviewing existing literature and past research, interviewing external experts, drafting questions, and discussing the questions as a team, CAPR researchers developed the original content for the questionnaire. At different stages within the drafting process, CAPR researchers shared their work with others familiar with the topics to be covered and the issues faced in collecting data from postsecondary institutions. In this way they gained critical information for refining both the questionnaire's content and their data-collection strategies. While the research team relied heavily on original questions developed for this research initiative, they sought to leverage and build upon the work of two other nationally representative surveys about developmental education: the National Center for Education Statistics Postsecondary Education Quick Information System survey from 2000, which provides national estimates of the prevalence and characteristics of development courses;[1] and the National Assessment Governing Board survey from 2011, which was developed to survey the standardized tests used in postsecondary education and their cut-off scores.[2] The CAPR survey covered several of the same topics as these two preceding surveys, providing a point of comparison, although it is important to note differences did exist in the questionnaires, sample construction, and fielding methodology. See the Limitations of Comparisons Against Earlier Surveys section at the end of this appendix for more information.

Based on the experience of other researchers and their input, the CAPR researchers divided the questionnaire into two sections — one focusing on policies and practices in developmental math education assessment, placement, and instruction; and a parallel section focusing on

[1]Parsad and Lewis (2003).
[2]Fields and Parsad (2012).

reading and writing. Each section asked a wide range of nearly identical questions concerning institutions' policy and practices for the 2015-2016 academic year related to two broad areas:

1. **College readiness assessment and placement practices.** The survey posed questions to college leaders concerning how their institutions determined college readiness, such as through standardized tests, high school grades, or planned course of study. The questionnaire also asked whether these practices differ for recent high school graduates, compared with nontraditional students.

2. **Delivery of developmental education.** The survey included questions about the number and types of developmental education courses offered, the types of non-classroom-based support services offered to students, and factors driving these institutional practices. The questions about instructional practices were intended to capture the wide variety of ways that postsecondary institutions deliver developmental education. Generally, the math and reading and writing sections were identical; the only difference was in the type of developmental reforms asked about — the reading and writing section specifically asked about integrated reading and writing; and the math section asked about multiple math pathways.

To ensure that respondents would understand the intent of the questions, CAPR researchers pursued two strategies. First, they shared their draft widely with others familiar with the topics and postsecondary institutions and elicited feedback on the wording, structure, and response formats for the questionnaire. This was particularly helpful for identifying areas that would likely be difficult to answer and the types of challenges that may arise, as well as suggestions for how to address these problems. Second, because of time and resource constraints, CAPR researchers decided to conduct a series of cognitive interviews with eligible respondents, instead of a formal pilot of the surveys. Cognitive interviewers ask individuals to share their understanding of terms and question items as well as discuss their understanding of the questions and how they might be structured to facilitate accurate responses. The cognitive interviews yielded information the researchers needed to finalize the questionnaire's content and design strategy.

See Appendix B for the full questionnaire.

Cognitive Interviewing

In order to ensure that the questionnaire used terminology common and understandable to a wide variety of college faculty and staff members, CAPR partnered with ISR to conduct a series of cognitive interviews with leaders at postsecondary institutions. A trained senior-level interviewer from ISR conducted a cognitive interview that included detailed questions about specific questionnaire items or vocabulary to ensure that each one was understandable and easy to answer. For each question, the interviewer asked respondents to give their understanding of the question in their own words, to define terms they were unfamiliar with, and to indicate whether they were uncertain or confused about any of the questions or how they were supposed to respond. Respondents also had to provide the specific wording

that their institution used to describe the specific concepts (such as a particular delivery method for developmental education) or response options.

Initially, the researchers nonrandomly selected a sample of 20 colleges for the pretest, drawn from the population of 3,127 U.S. degree-granting and undergraduate-serving broad-access colleges participating in federal student financial aid programs. This sample specifically included five colleges from California, New York, Tennessee, and Texas, and included a mix of public, private, two-year, four-year, for-profit, and nonprofit colleges. Schools of different sizes and localities (for instance, urban or rural) were also included. Over the course of the cognitive interviewing pretest, the researchers contacted 63 potential respondents affiliated with the original sample of 20 institutions for an interview.

The researchers successfully completed a total of nine and a half cognitive interviews with eight different respondents — five math sections and four and a half reading and writing sections.[3] The research team intended to conduct 16 cognitive interviews; however, given that the questionnaire was significantly longer than expected and would take respondents more than an hour to complete, it was challenging to elicit the necessary cooperation from respondents. Furthermore, despite multiple emails and telephone calls, few individuals responded. In cases where ISR interviewers had some limited contact with nonrespondents, it seemed that they were choosing not to participate for reasons such as individuals choosing to ignore unsolicited email or phone calls; the perceived burden of the questionnaire; lack of interest in the topics; and/or the person's belief that they lacked the necessary knowledge on the subject matter.

Despite the challenges in contacting respondents, the cognitive interviewing process provided rich data for revising the questionnaire. The cognitive interviews helped finalize the terminology used in the survey so that it was commonplace, meaningful, and easily understandable to institutional representatives. In addition, the cognitive interviews helped identify areas of the questionnaire that could be eliminated, revised, or condensed in such a manner that it would be possible for each section to be completed in approximately 10 to 12 minutes.

Data-Collection Modes and Strategies

Given that potential respondents were busy people with competing demands on their time, CAPR researchers decided to design a questionnaire that could be administered either over the telephone by an interviewer, or at the respondent's convenience using a self-administered online web-based questionnaire. The rationale for this approach was that for some people, completing a personal telephone interview would be the least burdensome, and for others having the ability to do it on their own terms, own time, and own schedule would be the most appealing. By giving respondents choices, CAPR researchers designed a data-collection strategy that minimized barriers to participation.

The wording, programming, and format of the questionnaire was further designed to minimize measurement differences across these different modes of administration. For example, the

[3]Two respondents answered both the math and reading and writing sections of the questionnaire.

online questionnaire was programmed to mimic telephone administration by an interviewer. If respondents did not select an answer and attempted to move forward in the questionnaire, they would be prompted with a message urging them to select a response or to select "Don't know" or "Decline to answer," and those two choices would be presented as response options for the first time on the screen, similar to how an interviewer might probe for a response. If respondents still chose not to answer, then the survey would advance and a response of "Decline to answer" would be imputed as the response, similar to how an interviewer would be trained to react. Furthermore, to accommodate busy schedules and unanticipated interruptions, the online and telephone surveys had the ability to be completed in more than one session. Respondents were able to exit the survey before completing it and then return to the last unanswered question the next time they logged in. Once the survey was completed, it was no longer accessible.

The researchers developed the questionnaire with a high degree of flexibility for both the number of respondents for an institution and the questions that they would answer. It was possible for one person to answer both the math and reading and writing sections, for one person to answer the reading and writing section and another person to answer the math section, or for multiple respondents to answer either or all sections. The survey communications and the questionnaire also included built-in prompts to identify willing and knowledgeable respondents. This flexibility was designed to overcome the barrier for respondents who would not have been willing to answer if they did not feel that they could answer for both math and reading and writing. It also allowed for some respondents who thought that they were not the appropriate person after completing questions to identify someone else who could also be asked to provide information. This design choice allowed CAPR researchers to maximize the amount of information they collected from any one institution within the sample.

The researchers recognized that individuals who chose to complete both the reading and writing and math sections on behalf of their institutions would find the experience time consuming. To avoid response bias that may occur with survey fatigue, for respondents who agreed to complete both the math and reading and writing sections, the order in which these sections were presented was randomized — either the math section was shown first, or the reading and writing section was shown first. Therefore, neither subject area would be systematically affected if respondents' attention flagged or if respondents chose to end the survey before finishing.

Data Collection

Because of challenges in identifying respondents to represent institutions in the sample, the researchers fielded the survey in two waves: March to June 2016, and October 2016 to January 2017. The sections below detail how they identified prospective survey respondents and the strategies they used for data collection.

Identifying Survey Respondents

In order to field the survey, CAPR researchers had to first identify college administrators and staff who could serve as respondents. IPEDS data provide general information on each

institution, but do not include names of the college leadership team or developmental education leads, the people most likely to be knowledgeable respondents for the CAPR survey. Therefore, CAPR researchers needed to identify a source and develop a process to collect the contact information needed to communicate with potential survey respondents.

In February 2015 and as part of the preparation for a cognitive interviewing pretest (see the Cognitive Interviewing section for more information about the pretest), the CAPR research team attempted to pilot the following process for identifying appropriate respondents and obtaining accurate contact information. For each of the 20 colleges included in the cognitive interview pretest, the research team identified the apparent head of the institution and collected the person's name, mailing address, telephone number, and email address. Then they sent letters and emails to these people informing them about the upcoming study and requested their assistance with identifying the appropriate person at the institution to answer questions. Institution leaders were directed to a website to record the names and contact information for colleagues who they believe should respond to the survey, but they could also call a member of the research team or respond by email if it was more convenient. Few institutional heads responded to the first letter or email, and as a result the research team sent a follow-up letter, multiple follow-up emails, and eventually telephoned in an effort to obtain the names and contact information for appropriate respondents. From this process, 39 potential respondents were identified for 18 of the 20 institutions.[4]

However, despite these efforts to obtain contact information in advance of the cognitive interview pretest, once outreach began it became apparent that some of the contact information was inaccurate, and that some respondents did not feel that they were knowledgeable enough to participate. In response to these challenges, the research team piloted an alternative and less labor-intensive method to identify new respondents and their contact information by purchasing a sample list with predefined variables from a higher education directory service. The predefined variables consisted of the names, telephone numbers, mailing addresses, and email addresses for people with a wide variety of titles that possibly indicated their ability to answer at least one section of the questionnaire.[5] Neither source provided information for all of the institutions selected for the cognitive interview pretest. In the end, the researchers identified and contacted a total of 63 potential respondents as part of the cognitive interviewing process.

For the full survey fielding beginning in 2016, the CAPR researchers started again with purchasing contact information from a higher education directory service and supplemented with information identified from the Internet, prior to contacting people to ascertain their appropriateness or willingness to participate. This process, while less labor-intensive than the initial method used for the cognitive pretest, still proved challenging and time-consuming. To give the research team more time to identify survey respondents, they split the survey into two waves, with the first wave fielding from March to early June 2016, and the second wave fielding from September 2016

[4]Of the 20 institutions selected for a pretest, two were found to be closing and would not be open when pretesting was set to occur. The research team attempted to replace the colleges but were ultimately unsuccessful.

[5]Examples of such titles include, but are not limited to, dean of students, dean of academic affairs, dean of student affairs, director of enrollment, director of assessment, chair of math, chair of English, campus director, school director, and vice president or dean of student success.

to early January 2017. Respondents in both fielding waves were asked about their institution's developmental education practices in the 2015-2016 academic year.

However, the first wave of survey fielding encountered many of the same challenges as the cognitive interviewing process: much of the purchased contact information was inaccurate or out of date. This resulted in a final modification to the process for identifying survey respondents for the second wave. ISR integrated a process for identifying respondents and their contact information into survey fielding similar to the original process used to contact prospective participants for the cognitive interviewing pretest. ISR would first contact a college provost or president through the mail and email, following up with telephone calls, to introduce the CAPR survey and to seek the institution's cooperation. ISR would then ask the institution to nominate one or more people to complete the math or reading and writing sections of the questionnaire. Finally, ISR would reach out to these nominated people to seek their help, send reminders, in some cases ask the institutional leadership to persuade those whom they nominated to help.

This revised strategy had two advantages over prior methods. First, respondent identification became more accurate and up to date than previous methods that had sometimes yielded outdated contact information as a result of the unknown age of purchased information, the lag in updated online personnel information, and the unpredictable timing and duration of some academic appointments. Second, involvement by senior officials helped encourage nominated respondents to successfully complete the survey; senior officials' involvement was a critical component for gaining cooperation. As a result, the interviewers needed to make fewer contact attempts, and this integrated approach to building the sample and collecting data proved to be the most effective for achieving the high response rate goals for the survey.

First Wave of Survey Fielding

The first wave of the data collection began in March 2016. ISR sent an introductory email to the identified survey respondents for the reading and writing or math sections of the questionnaire. The invitation included a website URL embedded with a unique user ID and password. Respondents could either complete the questionnaire or refer another college staff person who was more knowledgeable to complete the survey. If a referral was made, ISR ceased contacting the original person and sent an invitation to the person referred. In some cases, multiple individuals were referred to complete one or both sections of the questionnaire on behalf of the institution. ISR would continue to contact these individuals with repeated email and telephone reminders until the survey section was completed for the institution, the individual referred someone else to complete the survey, or fielding closed in June 2016.

The response rate during the first wave of fielding was much higher at public institutions and private, nonprofit four-year institutions than other types of private institutions. At most 26 percent of private two-year colleges and 22 percent of private, for-profit four-year colleges completed at least one section of the survey. This is in comparison to the other types of colleges; more than 50 percent of the public colleges and at least 45 percent of the private, nonprofit four-year colleges fielded in the first wave completed at least one section of the survey. The low response

rate at private two-year institutions was the result of two primary factors: the contact information available online or for purchase was more likely to be unavailable or inaccurate compared with other types of institutions; and private two-year institutions were more likely to be identified as no longer operating, merging with other schools, changing names and purposes, or not offering developmental education classes (for example, religious schools, mortuary science schools, cosmetology institutes, etc.). In addition, people at these institutions were less likely to respond to the survey invitation once contacted than those at the rest of the institutions in the sample.

Given the overall experience of the first wave of data collection, to conserve resources and achieve higher final response rates, the CAPR research team decided to restrict the survey sample to three types of institutions: public two-year, public four-year, and private nonprofit four-year institutions. Therefore, private two-year and private, for-profit four-year colleges were dropped from the final sample, and any data collected from these schools are not included in the analyses of this report. See Appendix Table A.2 for the survey's revised population and sample.

Appendix Table A.2

Revised 2016 CAPR Survey Population and Sample, by Institution Type

Institution Type	Population	Sample
Public 2-year	911	481
Public 4-year	372	298
Private, nonprofit 4-year	629	276
Total	1,912	1,055

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations using data from the U.S. Department of Education, Integrated Postsecondary Data System (IPEDS) 2013-2014.

Second Wave of Survey Fielding

The second wave of survey fielding began in early October 2016. Researchers fielded the survey to institutions that were not contacted during the first wave. They also fielded the survey a second time to institutions they had contacted in the first wave but which had not completed one or more sections of the questionnaire. If an institution had completed only one of the sections, it would only be asked to complete the remaining section, and if it had not completed either section, it would have an opportunity to complete both.

Additionally, the researchers contacted all system schools — institutions with multiple campuses or affiliate institutions in the sample — in the second wave. There was a total of 24 schools representing four different systems randomly drawn from IPEDS. For these institutions, if the system maintained the same policy and practices for all schools in the system, ISR identified one respondent to complete the survey for the entire system. However, if there were different policy and practices at different institutions within the system, the individual identified would either nominate separate respondents for the colleges included in the sample or detail the differences for each college for each question. A senior researcher from ISR recorded survey responses for systems on paper to capture variance across schools within the system and to minimize the burden on the respondent. ISR then later entered this information into the online questionnaire by college.

During the second wave of survey fielding, the researchers encountered some special cases and handled them as follows:

- Two institutions were closed, closing soon, or merging with another institution. These institutions were kept in the sample and counted as not responding to the survey.
- 27 institutions were religious and did not offer math or English instruction. For these institutions, the researchers imputed survey responses (that is, "readiness not assessed," "no course sections offered," etc.) and counted the institution as having responded to the survey. These institutions were primarily private, nonprofit four-year institutions.

Survey Fielding Results

Fielding for the survey closed in early January 2017. The final response rates for each wave of the survey, as well as the survey overall, appear in Appendix Table A.3. Appendix Table A.4 presents the approximate margins of error for each section of the survey (math and reading and

Appendix Table A.3

2016 CAPR Survey Final Response Rates, by Institution Type

Response Rates (%)	Private, nonprofit 4-year	Public 2-year	Public 4-year	All
Wave 1				
Completed math section	45.8	51.9	60.8	53.2
Completed reading and writing section	45.2	52.2	58.4	52.5
Completed both sections	39.4	47.3	52.2	47.0
Sample size	155	347	209	711
Wave 2				
Completed math section	68.6	83.8	83.1	80.6
Completed reading and writing section	71.9	79.3	86.2	80.0
Completed both sections	66.1	73.2	75.7	72.6
Sample size	121	314	189	624
Overall				
Completed math section	55.8	90.6	93.0	82.2
Completed reading and writing section	56.9	88.4	93.3	81.5
Completed both sections	51.1	85.9	89.6	77.8
Sample size	276	481	298	1,055

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations.

NOTE: Institutions fielded in Wave 1 that did not respond or submitted incomplete surveys were refielded in Wave 2.

Appendix Table A.4

2016 CAPR Survey Margin of Error, by Institution Type and Survey Section

Margin of Error (%)	Private, nonprofit 4-year	Public 2-year	Public 4-year
Math section	6.9	3.4	3.0
Reading and writing section	6.8	3.5	3.0

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations.

NOTE: Margin of error values are reported for the total number of respondents by institution type. Errors vary based on the number of responses to a survey question.

writing), given the response rates achieved for the overall survey and assuming a 95 percent confidence interval. Finally, Appendix Table A.5 summarizes the responses by data-collection mode. Note that Appendix Table A.5 is respondent-level rather than institution-level — as a result, all denominators are different than preceding tables.

Multiple Responses

At a limited number of colleges, more than one representative of the institution completed a section of the survey. In these cases, researchers collapsed responses into one observation per institution using the following logic:

- For questions that required reporting a number or selecting an estimate (continuous and categorical variables), they used the highest number indicated by any respondent.
- For yes/no questions or check-all-that-apply type questions, if any respondent answered "yes," the researchers coded the institution's response as a "yes."

This treatment of multiple responses may bias the overall results of some survey questions upward. Among private, nonprofit four-year institutions, any potential bias is small, as the researchers received multiple responses for fewer than 2 percent of institutions for any particular survey question. Among public two-year and four-year institutions, the potential bias was larger: researchers received multiple responses for up to about 9 percent of institutions for particular survey questions in both sectors for the math section of the survey, and up to about 6 percent of institutions for particular survey questions in both sectors for the reading and writing section of the survey. Questions where researchers received multiple differing responses for more than 5 percent of institutions in a particular sector are marked with a diamond (◆) in figures and tables.

Appendix Table A.5

2016 CAPR Survey Response Rates, by Mode

Share of Responses (%)	Private, nonprofit 4-year	Public 2-year	Public 4-year	All
Wave 1				
Completed by phone	22.6	17.9	19.6	19.3
Completed by web	77.4	82.1	80.4	80.7
Completed by other	0.0	0.0	0.0	0.0
Number of responses	93	246	184	523
Wave 2				
Completed by phone	23.1	29.9	39.9	32.2
Completed by web	44.2	57.5	51.7	53.7
Completed by other	32.7	12.7	8.4	14.1
Number of responses	104	395	238	737
Overall				
Completed by phone	22.8	25.3	31.0	26.8
Completed by web	59.9	66.9	64.2	64.9
Completed by other	17.3	7.8	4.7	8.3
Number of responses	197	641	422	1,260

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations.

NOTE: This table is respondent-level rather than institution-level. As a result, all denominators are different from those in Appendix Tables A.2 and A.3.

Nonresponse Bias Analysis

A nonresponse bias analysis was conducted to determine whether nonrespondent institutions systematically differed from institutions that responded to the survey on measures available in public data. Researchers collected data on several college characteristics from IPEDS, including college size (as measured by undergraduate enrollment), location (as measured by urban/suburban/rural location), historically black institutional (HBCU) status, land grant institution status, and whether the college was part of a multi-institution organization. They ran a test of joint statistical significance on these characteristics. The researchers tested each sector separately (public two-year, public four-year, private nonprofit four-year), and for overall response to the survey (responded to any section) as well as response to the math and reading and writing sections specifically. These tests did not reveal any statistically significant differences between respondent and nonrespondent institutions.

Limitations of Comparisons with Earlier Surveys

This report compares responses from this survey to the National Center for Education Statistics Postsecondary Education Quick Information System (PEQIS) survey from 2000[6] and the National Assessment Governing Board (NAGB) survey from 2011.[7] While these three surveys are broadly similar in content and purpose, there are significant differences that may be helpful to keep in mind when reviewing results from the two surveys side-by-side.

First, the CAPR survey and the previous surveys used different questionnaires and data-collection methodologies. While the PEQIS survey questionnaire addressed developmental education practices, and the NAGB survey covered topics related to assessing students' college readiness, all surveys asked their questions differently and collected information with varying degrees of detail. One notable difference was that the CAPR questionnaire asked about reading and writing assessment policies and practices together, while the PEQIS survey asked about these subjects separately and the NAGB survey only included reading. Both the PEQIS and NAGB surveys were also designed as self-administered paper forms that could be mailed, faxed, or emailed back to the research team and used more limited telephone data collection; in contrast, the CAPR survey was designed as a web-based or telephone interview-administered questionnaire. To the extent that mode of administration can influence how people respond, there may be effects on the ability to compare results.

Second, both of the earlier surveys selected their sample differently. Similar to CAPR, the PEQIS and NAGB surveys stratified the population of postsecondary institutions by length of program (two-year vs. four-year) and institutional control (public vs. private), and for-profit vs. nonprofit (within private institutions). However, unlike the CAPR survey, they also stratified by the institutions' highest level of offering (doctorate, master's, bachelor's, other) and enrollment size. Furthermore, the PEQIS survey stratified by status as a higher education institution versus a postsecondary institution, a distinction that the U.S. Department of Education no longer recognizes. Finally, the earlier survey teams randomly selected samples in proportion to each strata's size within the broader population of postsecondary institutions. Both earlier surveys report weighted results and response rates within each sector. Because the CAPR researchers did not stratify their survey sample within sectors or pool sectors for any comparisons, it is only possible to report unweighted results and response rates.

Finally, the PEQIS and NAGB surveys used a different approach to reconciling differences between survey respondents. Rather than taking all of the affirmative responses, they contacted the institution to try to resolve any differences.

[6]Parsad and Lewis (2003).
[7]Fields and Parsad (2012).

Appendix B

2016 CAPR Survey Questionnaire

Introduction

The Center for the Analysis of Postsecondary Readiness (CAPR) was established in 2014 with the mission to document current practices in developmental math and English education across the United States and to rigorously evaluate innovative assessment and instructional practices. The purpose of CAPR's research is to help advance a second generation of developmental education innovation in which colleges and state agencies design, implement, and scale more effective and more comprehensive reforms that improve student outcomes.

This appendix provides the questionnaire for a multi-mode national survey of developmental education practices at broad-access two-year and four-year colleges. The data from the survey are discussed in CAPR's descriptive study of colleges' developmental education practices, one of CAPR's three foundational studies, designed to determine the scope and scale of colleges' current developmental education practices.

The CAPR survey includes two sections — one focused on policies and practices in developmental math, and the other on developmental reading and writing. Each section contains a range of questions relating to college readiness assessment and placement practices, and the delivery of developmental education for the 2015-2016 academic year.[1] The questionnaire contains largely original content largely original content developed by the CAPR research team, with some questions designed to align with two previous nationally representative surveys: the National Center for Education Statistics Postsecondary Education Quick Information System survey from 2000 and the National Assessment Governing Board survey from 2011.[2]

An interviewer administered the survey over the telephone with some respondents; other respondents chose to complete a self-administered online questionnaire. The questionnaire was designed to minimize differences across these two different modes of administration — for instance, if the respondent attempted to skip a question, the response options "Don't know" or "Decline to answer" would appear for the first time on screen with a message urging the respondent to select a response. Respondents could complete the survey in more than one session, but once the survey was completed, it was no longer accessible.

Because more than one person per institution could contribute responses, the survey included prompts allowing respondents to identify another colleague to complete to the survey. Respondents could also choose to complete one section of the survey, but for those who chose to answer both the math and reading and writing sections of the survey, the order in which these sections appeared was randomized.

[1] Although the researchers fielded the survey throughout 2016, the questionnaire directed all survey respondents to answer regarding the 2015–2016 academic year. Thus, the researchers directed survey respondents who received the survey in March to June 2016 to answer for the current academic year, and respondents who received the survey in October 2016 to January 2017 to answer for the previous academic year. The researchers updated the questionnaire between fielding periods to reflect this.

[2] Parsad and Lewis (2003); and Fields and Parsad (2012).

For more information about the survey methodology, including how the researchers identified survey respondents and the rationale behind key questionnaire design decisions, see Appendix A.

2016 CAPR Survey Questionnaire

Section A: Introduction and Instructions

Welcome to the College Readiness Survey funded by the Institute of Education Sciences in the U.S. Department of Education through the Center for the Analysis of Postsecondary Readiness (CAPR). Thank you for taking the time to help.

The survey's questions concern your institution's policies and practices regarding college readiness in math, reading, and/or writing; approximately half of the survey concerns math and the other reading and writing. You only need to answer questions in the area that you feel most knowledgeable.

Are you able to answer questions concerning the skills assessment and instruction of students in math, reading, or writing at [INSTITUTION]?

(Please select one. This is the only required question on the survey — it will help guide you through the most appropriate path through the questionnaire.)

1. Math
2. Reading and/or writing
3. All of the above
4. None of the above
9. *Decline to answer*

[If survey respondent selected that they don't feel knowledgeable about developmental education practices at their institution]

It is very important for the research that we contact someone who is able to provide information about [INSTITUTION]'s policies and practices with respect to student skill assessment in math, reading, or writing. Could you please provide us with the name of someone at your institution who would be able to assist us?

1. Yes
2. No
9. *Decline to answer*

[*If respondent selects yes*] Please provide us with the name of someone at your institution who would be able to assist us.

You are not required to complete all fields. Please provide as much information as you can. Thank you.

First Name_____

Last Name_____

Title Department/ Institution_____

Email_____

Telephone Number_____

Notes_____

9. Decline to answer

There are a few things to keep in mind before continuing:

- **This should take approximately 10 minutes to complete any one section of the survey.** It is not necessary to answer all of the questions at one time — you can start, stop, and come back.
- **Participation is voluntary.** Your name and your institution's name will never appear in any public document published by CAPR. Survey data may be shared with other researchers but will not include your personally identifiable information (such as your name or position). Similarly, data shared with other researchers will not include your institution's name, state, or address.
- If you have any questions or concerns about this study, please contact [CAPR researcher] at [phone number] or by emailing [email].
- If you are having technical difficulties, please contact ISR at [ISR email and telephone number] or by clicking on the "Help" button at the bottom of any page.

Section B: Math

Let's discuss how [INSTITUTION] assesses students' math skills and determines their appropriate course placement.

B4. Are students required to have a minimum level of academic skills in math before they enroll in classes at your institution?

(Please select one.)

1. Yes

2. No

8. Don't have information

9. Institution declines to answer

B1. How would you describe [INSTITUTION's] current process for determining whether a first-time student is "college-ready" in mathematics? From the following list please select the statements that best describe the current processes. [INSITUTION]….

(Select all that apply.)

1. **uses standardized tests**, such as COMPASS, ACCUPLACER, ACT, or SAT, or state-developed test.
2. **uses indicators of high school performance**, such as class rank, math course-taking, or grades.
3. **takes into account student goals or programs of study**, which allows for different standards of college readiness for different types of goals or programs.
4. **uses other indicators of student motivation or commitment** to succeed in math, such as noncognitive test results or counselor recommendations.

7. Some other process (*Please specify:* _____)

5. Institution does not assess students' math skills [skip to Question B3]

8. Don't know

9. Decline to answer

B2. Does this/these math placement process(es) differ for students who have not recently graduated from high school compared to students who are coming straight from high school?

(Please select one.)

1. Yes
2. No

8. Don't know

9. Decline to answer

B3. Does your institution use or plan to use any Common Core State Standard aligned math assessments for determining entering students' placement?

Examples of Common Core aligned math assessments include the Partnership for Assessment of Readiness for College and Careers (PARCC) or Smarter Balanced Assessments (SBA).

(Please select one.)

1. Yes
2. No
8. *Don't have information*
9. *Decline to answer*

We would like to discuss math courses at [INSTITUTION] that are designed to improve the skills of entering students who are underprepared for entry-level college courses. Institutions may refer to these courses as "developmental," "preparatory," "compensatory," "remedial," "transitional," or "basic skills" courses. These are formal courses listed in the college's catalog, but they typically do not count for credit toward graduation.

We would like to ask about instructional models your institution is using during the current academic year (2015–2016) these types of courses. For our purposes, these courses are termed "developmental or basic skills."

B5.

{Adapted from Parsad and Lewis (2003)} During the current academic year (2015–2016), did [INSTITUTION] offer any such math courses for students who were underprepared for college-level math?

(Please select one.)

1. Yes
2. No [Skip to B14]
8. *Don't have information [Skip to B14]*
9. *Decline to answer [Skip to B14]*

B6. Taking into account all the developmental or basic skills math courses offered by your institution, approximately how many total sections were offered in the current academic year (2015–2016)? *Your best guess is fine*.

_____Number

98. *Don't have information*
99. *Decline to answer*

B7. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are offered as part of a **multi-semester, prerequisite sequence** that students must complete before enrolling in college-level math?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

B8. How many of the developmental or basic skills math sections at [INSTITUTION]

…….use a **self-paced model,** where students work through course content independently?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

B9. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are **compressed courses**, which allow students to complete two developmental math courses in one semester, or streamline developmental math content into a single semester course?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

B10. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are part of a **corequisite model**, in which these students are placed directly into a college-level course, while the developmental course serves as a learning support for this course?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more

8. Don't have information

9. Decline to answer

B11. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are part of a **developmental learning communities model**, in which students co-enroll in a developmental math course and at least one other course that is <u>not</u> a college-level math course?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more

8. Don't have information

9. Decline to answer

B12. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are part of a **multiple math pathways model**, designed to give students math skills relevant to their degree requirements and program of study?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more

8. *Don't have information*

9. *Decline to answer*

B13. How many of the developmental or basic skills math sections at [INSTITUTION]

…….are delivered under a **flipped classroom** model, in which students are exposed to content outside of class often through online materials, while most in-class time is devoted to activities, projects, and discussion?

(Please select one.)

2. None

3. One or two sections only

4. Less than half but more than two

5. Half or more

8. *Don't have information*

9. *Decline to answer*

We want to learn about non-classroom programs and services [INSTITUTION] may offer for students who were underprepared for college-level math and approximately how many students use them.

These programs or services may be offered in addition to formal developmental or basic skills coursework, or instead of these classes.

B14. Among the entering students this past fall who were underprepared for college-level math, how many enrolled in **pre-matriculation programs or boot camps** to improve their math skills or performance on placement tests?

(Please select one.)

1. None

2. Less than half of these students

3. Half or more of these students

4. This was not offered

8. *Don't have information*

9. *Decline to answer*

B15. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level math enrolled in **student success courses or worked with student success coaches** to help them succeed in college-level coursework?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered

8. Don't have information

9. Decline to answer

B16. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level math used **computer-based learning sessions,** in which students engage in self-paced learning outside of class using computer-based instruction in math?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered

8. Don't have information

9. Decline to answer

B17. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level math enrolled directly in college-level math through a **mainstreaming model,** which requires them to receive targeted learning support outside of class?

(Please select one.)

1. None
2. Less than half of these students

3. Half or more of these students

4. This was not offered

8. Don't have information

9. Decline to answer

B18. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level math worked **with math tutors or supplemental instructors**?

(Please select one.)

1. None

2. Less than half of these students

3. Half or more of these students

4. This was not offered

8. Don't have information

9. Decline to answer

B19. Finally, please select from the following list the major factors that drive [INSTITUTION]'s practices for improving the math skills of students identified as underprepared for college-level math.

(Please select all that apply.)

1. State policies

2. Research conducted by your institution

3. Research conducted elsewhere

4. Faculty input

5. Availability of resources, such as space and staffing costs

6. Practices at other colleges

8. Don't have information

9. Decline to answer

Section C: Reading and Writing

Let's discuss how [INSTITUTION] assesses students' reading and writing skills and determines their appropriate course placement.

Please do not include English as a second language (ESL) or other programming for English language learners (ELL) when answering these questions.

C4. Are students required to have a minimum level of academic skills in reading and writing before they enroll in classes at your institution?

(Please select one.)

1. Yes
2. No

8. Don't have information

9. Decline to answer

C1. How would you describe [INSTITUTION's] current process for determining whether a first-time student is "college-ready" in reading and writing? From the following list please select the statements that best describe the current processes. [INSTITUTION]…

(Select all that apply.)

1. **uses standardized tests**, such as COMPASS, ACCUPLACER, ACT, or SAT, or state-developed test.
2. **uses indicators of high school performance**, such as class rank, reading and writing course-taking, or grades.
3. **takes into account student goals or programs of study**, which allows for different standards of college readiness for different types of goals or programs.
4. **uses other indicators of student motivation or commitment** to succeed in reading and writing, such as noncognitive test results or counselor recommendations.

7. Some other process (*Please specify:* _____)

5. Institution does not assess students' reading and writing skills [Skip to Question C3]

8. Don't know

9. Institution declines to answer

C2. Does this/Do these reading and writing placement process(es) differ for students who have not recently graduated from high school compared to students who are coming straight from high school?

(Please select one.)

1. Yes
2. No
8. *Don't know*
9. *Decline to answer*

C3. Does your institution use or plan to use any Common Core State Standard aligned reading and writing assessments for determining entering students' placement?

Examples of Common Core aligned reading and writing assessments include the Partnership for Assessment of Readiness for College and Careers (PARCC) or Smarter Balanced Assessments (SBA).

(Please select one.)

1. Yes
2. No
8. *Don't have information*
9. *Decline to answer*

We would like to discuss reading and writing courses at [INSTITUTION] that are designed to improve the skills of entering students who are underprepared for entry-level college courses. Institutions may refer to these courses as "developmental," "preparatory," "compensatory," "remedial," "transitional," or "basic skills" courses. These are formal courses listed in the college's catalog, but they typically do not count for credit toward graduation.

The next few questions ask about instructional models your institution is using during the current academic year (2015–2016) to teach students who are underprepared for college-level reading and writing. For our purposes, these courses are termed "developmental or basic skills" courses.

Please do not include English as a second language (ESL) or other programming for English language learners (ELL) when answering these questions.

C5. {Adapted from Parsad and Lewis (2003)} During the current academic year (2015–2016), did [INSTITUTION] offer any such reading and writing courses for students who were underprepared for college-level reading and writing?

Please do not include English as a second language (ESL) or other programming for English language learners (ELL) when answering.

(Please select one.)

1. Yes
2. No [Skip to C14]
8. *Don't have information* [Skip to C14]
9. *Decline to answer* [Skip to C14]

C6. Taking into account all the developmental or basic skills reading and writing courses offered by your institution, approximately how many total sections were offered in the current academic year (2015–2016)? *Your best guess is fine*.

Again, please do not include English as a second language (ESL) when answering this question.

_____Number

98. Don't have information

99. Decline to answer

C7. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are offered as part of a **multi-semester, prerequisite sequence**?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

C8. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….use a **self-paced model,** where students work through course content independently?

(Please select one.)

1. None
2. One or two sections only

3. Less than half but more than two

4. Half or more

8. Don't have information

9. Decline to answer

C9. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are **compressed courses**, which allow students to complete two developmental reading and writing courses in one semester?

(Please select one.)

1. None

2. One or two sections only

3. Less than half but more than two

4. Half or more

8. Don't have information

9. Decline to answer

C10. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are part of a **corequisite model**, in which these students are placed directly into a college-level course, while the developmental course serves as a learning support for this course?

(Please select one.)

1. None

2. One or two sections only

3. Less than half but more than two

4. Half or more

8. Don't have information

9. Decline to answer

C10a. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are an **integrated reading and writing model**, in which reading and writing skills are taught together in a developmental English course?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

C11. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are part of a **developmental learning communities model**, in which students co-enroll in a developmental reading and writing course and at least one other course that is <u>not</u> a college-level reading and writing course?

(Please select one.)

1. None
2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

[Note that there is no C12 on the survey. The questions in this section were numbered from 1 to 11, and then from 13 to 19.]

C13. How many of the developmental or basic skills reading and writing sections at [INSTITUTION]

…….are delivered under a **flipped classroom** model, in which students are exposed to content outside of class often through online materials, while most in-class time is devoted to activities, projects, and discussion?

(Please select one.)

1. None

2. One or two sections only
3. Less than half but more than two
4. Half or more
8. *Don't have information*
9. *Decline to answer*

We want to learn about non-classroom programs and services [INSTITUTION] may offer for students who were underprepared for college-level reading and writing and approximately how many students use them.

These programs or services may be offered in addition to formal developmental or basic skills coursework, or instead of these classes.

C14. Among the entering students this past fall who were underprepared for college-level reading and writing, how many enrolled in **pre-matriculation programs or boot camps** to improve their reading and writing skills or performance on placement tests?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered
8. *Don't have information*
9. *Decline to answer*

C15. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level reading and writing enrolled in **student success courses or worked with student success coaches** to help them succeed in college-level coursework?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students

4. This was not offered

8. Don't have information

9. Decline to answer

C16. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level reading and writing used **computer-based learning sessions,** in which students engage in self-paced learning outside of class using computer-based instruction in reading and writing?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered

8. Don't have information

9. Decline to answer

C17. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level reading and writing enrolled directly in college-level reading and writing through a **mainstreaming model,** which requires them to receive targeted learning support outside of class?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered

8. Don't have information

9. Decline to answer

C18. During the current academic year (2015–2016),

…….how many students who were underprepared for college-level reading and writing worked **with reading and writing tutors or supplemental instructors**?

(Please select one.)

1. None
2. Less than half of these students
3. Half or more of these students
4. This was not offered
8. *Don't have information*
9. *Decline to answer*

C19. Finally, please select from the following list the major factors that drive [INSTITUTION]'s practices for improving the reading and writing skills of students identified as underprepared for college-level reading and writing?

(Please select all that apply.)

1. State policies
2. Research conducted by your institution
3. Research conducted elsewhere
4. Faculty input
5. Availability of resources, such as space and staffing costs
6. Practices at other colleges
8. *Don't have information*
9. *Decline to answer*

Before closing, we would like to ask you to share any additional information about your institution's policies and practices regarding college readiness in math, reading, and/or writing that could provide any context that you believe might help us understand better.

_____

Thank you very much for your time and thoughtful responses! Your participation in this research will contribute to a growing understanding of postsecondary institutions' policies and practices with respect to assessing and improving students' preparedness for college-level math, reading, and writing. This information will help.

If you have any questions about this research project or the Center for the Analysis of Postsecondary Readiness please call [CAPR researcher].

Again, thank you.

[Redirect to CAPR Page]

[If the survey respondent ends before completing the survey]

Your responses have been saved! You can return at any time to finish answering questions where you left off by using the link provided. When you resume, you will be returned to the last question you completed.

If you have any questions, please contact ISR, the firm conducting this survey at [email and phone].

[For survey respondent refusals]

Thank you for your time. We are sorry that you do not want to answer our questions. If you change your mind and wish to complete the survey, you can return to it by using the provided link.

If you have any questions, please contact ISR, the firm conducting this survey at [email and phone].

Appendix C

2016 CAPR Survey Response Tables

Appendix Table C.1

Responses to CAPR Survey Math Section, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Assessment			
Process used to determine college readiness includes[a] (%)			
Standardized tests	59.7	99.1	93.5
High school performance	37.0	41.3	43.7
Planned course of study	19.5	29.6	35.7 ◆
Other indicators of motivation or commitment	7.1	12.8	10.1
College readiness not assessed	28.6	0.0	1.1
Number of methods of assessment used (%)			
1	31.2	42.9	39.0
2	21.4	31.4	31.0
3 or more	18.8	25.5	28.9
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*25.9*	*21.8*	*26.1*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	2.7	24.1	11.8
Students are required to have a minimum level of skill before enrollment (%)	41.4	56.5	64.7
Instruction			
Institution offers developmental courses for students who are underprepared (%)	50.6	99.3	83.6
Among institutions offering developmental courses, number of sections offered	*12.0*	*73.5* ◆	*32.4* ◆
Did not respond (%)	*5.1*	*9.7*	*11.8*
Among institutions offering developmental courses, at least one course section is part of[a] (%)			
Multi-semester, prerequisite sequence	*50.0*	*85.7*	*67.3* ◆
Compressed courses	*36.8*	*68.2*	*44.9*
Multiple math pathways	*35.1*	*53.7*	*39.4* ◆
Self-paced courses	*31.6*	*49.8*	*41.9*
Flipped classrooms	*35.6*	*46.9*	*36.4* ◆
Corequisite model	*12.8*	*28.2*	*26.9*
Learning communities	*16.7*	*26.5*	*22.6*

(continued)

Appendix Table C.1 (continued)

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Among institutions offering developmental courses, number of instructional methods used (%)			
1	*14.1*	*7.2*	*17.5*
2	*16.7*	*15.9*	*19.7*
3 or more	*47.4*	*74.8*	*53.5*
Non-classroom services used by underprepared students[a] (%)			
Working with tutors or supplemental instructors	69.3	97.6	94.1
Student success courses or worked with student success coaches	48.6	79.3	67.1 ◆
Computer-based learning sessions	28.2	64.8	61.4
A pre-matriculation program or boot camp	14.5	56.3	45.8
A mainstreaming model	13.7	17.5	23.1
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)			
Faculty members' input	73.3	92.5	92.1
Research conducted by your institution	43.8	76.5	76.3
Availability of resources, such as space and staffing costs	50.7	71.1	75.9
Practices at other colleges	43.8	70.7	65.4
Research conducted elsewhere	29.5	70.0	59.0 ◆
State policies	6.2	64.8	62.4
Sample size (total = 867)	154	436	277

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Responses limited to a subgroup of institutions are shown in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.2

Responses to CAPR Survey Reading and Writing Section, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Assessment			
Process used to determine college readiness includes[a] (%)			
Standardized tests	62.8	98.4	91.0
High school performance	40.4	36.7	38.6
Planned course of study	12.8	21.6	15.9
Other indicators of motivation or commitment	16.7	15.5	12.6
College readiness not assessed	25.0	0.0	4.0
Number of methods of assessment used (%)			
1	29.5	49.4	45.8
2	25.0	28.0	30.3
3 or more	21.8	22.4	20.2
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*26.1*	*18.0*	*29.6*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	2.0	19.7	11.6
Students are required to have a minimum level of skill before enrollment (%)	53.8	63.4	69.3
Instruction			
Institution offers developmental courses for students who are underprepared (%)	49.0	99.3	82.6
Among institutions offering developmental courses, number of sections offered	*9.6*	*48.8* ◆	*21.9*
Did not respond (%)	*2.6*	*9.3*	*14.0*
Among institutions offering developmental courses, at least one course section is part of[a] (%)			
Multi-semester, prerequisite sequence	*48.7*	*66.7*	*44.5*
Compressed courses	*18.2*	*54.2*	*21.1*
Integrated reading and writing	*55.8*	*63.6*	*51.4*
Self-paced courses	*10.4*	*17.2*	*11.8*
Flipped classrooms	*23.7*	*36.6*	*24.8*
Corequisite model	*29.9*	*56.0*	*41.6*
Learning communities	*26.0*	*36.1*	*30.9*

(continued)

Appendix Table C.2 (continued)

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Among institutions offering developmental courses, number of instructional methods used (%)			
1	*28.6*	*10.3*	*22.7*
2	*24.7*	*15.3*	*20.4*
3 or more	*36.4*	*70.3*	*39.6*
Non-classroom services used by underprepared students[a] (%)			
Working with tutors or supplemental instructors	74.8	94.6	89.1
Student success courses or worked with student success coaches	57.1	80.2	69.2
Computer-based learning sessions	18.3	43.5	33.2
A pre-matriculation program or boot camp	14.2	43.0	35.5
A mainstreaming model	27.7	25.6	36.2
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)			
Faculty members' input	76.6	93.2	86.8
Research conducted by your institution	52.6	75.1	71.7
Availability of resources, such as space and staffing costs	50.6	67.6	69.8
Practices at other colleges	46.1	71.4	61.1
Research conducted elsewhere	35.7	69.0	58.9
State policies	9.7	68.5	58.5
Sample size (total = 860)	157	425	278

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.3

Scaling of Math Instructional Delivery Practices Among Institutions Offering Developmental Courses, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Multi-semester, prerequisite sequence		◆	◆
No sections	50.0	14.3	32.7
1 to 2 sections	23.7	9.7	14.0
More than 2 but less than half of sections	3.9	17.1	15.9
Half of sections or more	22.4	58.9	37.4
Compressed courses			◆
No sections	63.2	31.8	55.1
1 to 2 sections	13.2	17.1	10.1
More than 2 but less than half of sections	7.9	25.0	12.3
Half of sections or more	15.8	26.2	22.5
Multiple math pathways			◆
No sections	64.9	46.3	60.6
1 to 2 sections	9.1	12.3	7.8
More than 2 but less than half of sections	6.5	14.9	9.6
Half of sections or more	19.5	26.5	22.0
Self-paced courses			◆
No sections	68.4	50.2	58.1
1 to 2 sections	7.9	9.7	7.8
More than 2 but less than half of sections	1.3	17.0	12.4
Half of sections or more	22.4	23.1	21.7
Flipped classrooms			◆
No sections	64.4	53.1	63.6
1 to 2 sections	5.5	16.4	11.7
More than 2 but less than half of sections	8.2	19.5	9.8
Half of sections or more	21.9	11.0	15.0
Corequisite model			
No sections	87.2	71.8	73.1
1 to 2 sections	7.7	12.7	9.0
More than 2 but less than half of sections	1.3	10.4	5.8
Half of sections or more	3.8	5.2	12.1
Learning communities			
No sections	83.3	73.5	77.4
1 to 2 sections	5.1	11.6	12.4
More than 2 but less than half of sections	3.8	8.0	5.1
Half of sections or more	7.7	6.9	5.1
Sample size (total = 740)	78	433	229

(continued)

Appendix Table C.3 (continued)

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Responses are limited to institutions offering developmental education courses. Sample sizes may vary by question.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

Appendix Table C.4

Scaling of Reading and Writing Instructional Delivery Practices Among Institutions Offering Developmental Courses, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Multi-semester, prerequisite sequence			
No sections	51.3	33.3	55.5
1 to 2 sections	17.1	13.6	13.8
More than 2 but less than half of sections	6.6	18.0	9.2
Half of sections or more	25.0	35.0	21.6
Compressed courses			
No sections	81.8	45.8	78.9
1 to 2 sections	6.5	16.9	8.1
More than 2 but less than half of sections	1.3	19.3	4.9
Half of sections or more	10.4	18.1	8.1
Integrated reading and writing			
No sections	44.2	36.4	48.6
1 to 2 sections	19.5	11.2	10.8
More than 2 but less than half of sections	6.5	10.4	5.7
Half of sections or more	29.9	42.0	34.9
Self-paced model			
No sections	89.6	82.8	88.2
1 to 2 sections	6.5	7.8	4.5
More than 2 but less than half of sections	0.0	3.4	4.1
Half of sections or more	3.9	6.1	3.2
Flipped classrooms			
No sections	76.3	63.4	75.2
1 to 2 sections	2.6	12.4	6.4
More than 2 but less than half of sections	3.9	14.4	8.4
Half of sections or more	17.1	9.9	9.9
Corequisite model			
No sections	70.1	44.0	58.4
1 to 2 sections	13.0	20.7	10.5
More than 2 but less than half of sections	3.9	19.0	10.5
Half of sections or more	13.0	16.3	20.5
Learning communities			
No sections	74.0	63.9	69.1
1 to 2 sections	5.2	16.2	9.5
More than 2 but less than half of sections	3.9	11.5	9.5
Half of sections or more	16.9	8.4	11.8
Sample size (total = 724)	77	419	228

(continued)

Appendix Table C.4 (continued)

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Responses are limited to institutions offering developmental education courses. Sample sizes may vary by question.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

Appendix Table C.5

Scaling of Math Non-Classroom-Based Supports, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Working with tutors or supplemental instructors			
Not offered	25.5	1.0	4.7
No students	5.2	1.4	1.2
Less than half of students	35.3	55.6	41.8
Half or more of students	34.0	42.0	52.3
Student success courses or worked with student success coaches			◆
Not offered	39.9	10.4	21.8
No students	11.5	10.4	11.1
Less than half of students	21.6	45.3	36.1
Half or more of students	27.0	34.0	31.0
Computer-based learning sessions			◆
Not offered	50.3	12.6	19.3
No students	21.5	22.6	19.3
Less than half of students	8.7	28.6	29.0
Half or more of students	19.5	36.2	32.4
A pre-matriculation program or boot camp			◆
Not offered	63.2	19.1	30.2
No students	22.4	24.6	24.0
Less than half of students	11.8	53.0	38.5
Half or more of students	2.6	3.3	7.3
A mainstreaming model		◆	◆
Not offered	55.6	30.7	31.8
No students	30.7	51.8	45.1
Less than half of students	5.9	13.7	11.4
Half or more of students	7.8	3.8	11.7
Sample size (total = 867)	154	436	277

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent or more of the sample.

Appendix Table C.6

Scaling of Student Reading and Writing Non-Classroom-Based Supports, by Institution Type, Academic Year 2015-2016

Response	Private, nonprofit 4-year	Public 2-year	Public 4-year
Working with tutors or supplemental instructors			
Not offered	23.2	1.5	5.0
No students	1.9	4.0	5.8
Less than half of students	29.7	53.0	39.9
Half or more of students	45.2	41.6	49.2
Student success courses or worked with student success coaches			
Not offered	35.1	9.0	15.4
No students	7.8	10.8	15.4
Less than half of students	24.0	35.5	34.4
Half or more of students	33.1	44.7	34.8
Computer-based learning sessions			
Not offered	50.3	18.2	30.5
No students	31.4	38.3	36.3
Less than half of students	11.1	25.1	22.1
Half or more of students	7.2	18.4	11.1
A pre-matriculation program or boot camp			
Not offered	51.0	19.1	34.4
No students	34.8	37.9	30.2
Less than half of students	12.9	40.3	29.4
Half or more of students	1.3	2.7	6.1
A mainstreaming model			
Not offered	46.5	25.1	29.1
No students	25.8	49.3	34.6
Less than half of students	11.0	15.9	18.5
Half or more of students	16.8	9.8	17.7
Sample size (total = 860)	157	425	278

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes private, nonprofit four-year; public two-year; and public four-year institutions.

Rounding may cause slight discrepancies between values reported in tables and figures, and in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

Appendix Table C.7

Responses to CAPR Survey Math Section, by Institution Type, Academic Year 2015-2016, Among Tennessee Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	100.0	100.0
High school performance	0.0	33.3
Planned course of study	25.0	50.0
Other indicators of motivation or commitment	0.0	0.0
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	50.0	0.0
2	50.0	66.7
3 or more	0.0	33.3
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*25.0*	*20.0*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	0.0	0.0
Students are required to have a minimum level of skill before enrollment (%)	50.0	83.3
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	40.0
Among institutions offering developmental courses, number of sections offered	*38.8◆*	*85.0*
Did not respond (%)	*0.0*	*0.0*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*0.0*	*0.0*
Compressed courses	*50.0*	*0.0*
Multiple math pathways	*100.0*	*100.0*
Self-paced courses	*75.0*	*0.0*
Flipped classrooms	*0.0*	*50.0*
Corequisite model	*100.0*	*100.0*
Learning communities	*25.0*	*0.0*
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*0.0*	*0.0*
2	*0.0*	*50.0*
3 or more	*100.0*	*50.0*

(continued)

Appendix Table C.7 (continued)

Response	Public 2-year	Public 4-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	100.0	60.0
Student success courses or worked with student success coaches	75.0◆	80.0
Computer-based learning sessions	50.0	60.0
A pre-matriculation program or boot camp	100.0	16.7
A mainstreaming model	50.0	0.0
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	100.0	83.3
Research conducted by your institution	100.0◆	66.7
Availability of resources, such as space and staffing costs	75.0	100.0
Practices at other colleges	50.0	50.0
Research conducted elsewhere	50.0◆	50.0
State policies	100.0	66.7
Sample size (total = 10)	4	6

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Tennessee, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for institutions from Tennessee may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.8

Responses to CAPR Survey Reading and Writing Section, by Institution Type, Academic Year 2015-2016, Among Tennessee Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	100.0	100.0
High school performance	0.0	20.0
Planned course of study	0.0	40.0
Other indicators of motivation or commitment	0.0	0.0
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	100.0	40.0
2	0.0	60.0
3 or more	0.0	0.0
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*50.0*	*25.0*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	0.0	20.0
Students are required to have a minimum level of skill before enrollment (%)	25.0	100.0
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	80.0
Among institutions offering developmental courses, number of sections offered	*68.0*	*38.8*
Did not respond (%)	*0.0*	*0.0*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*0.0*	*25.0*
Compressed courses	*25.0*	*0.0*
Integrated reading and writing	*0.0*	*25.0*
Self-paced courses	*0.0*	*0.0*
Flipped classrooms	*0.0*	*0.0*
Corequisite model	*100.0*	*75.0*
Learning communities	*0.0*	*0.0*
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*75.0*	*75.0*
2	*25.0*	*25.0*
3 or more	*0.0*	*0.0*

(continued)

Appendix Table C.8 (continued)

Response	Public 2-year	Public 4-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	75.0	100.0
Student success courses or worked with student success coaches	25.0	80.0
Computer-based learning sessions	25.0	40.0
A pre-matriculation program or boot camp	100.0	0.0
A mainstreaming model	25.0	20.0
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	75.0	80.0
Research conducted by your institution	50.0	60.0
Availability of resources, such as space and staffing costs	75.0	60.0
Practices at other colleges	50.0	20.0
Research conducted elsewhere	50.0	40.0
State policies	100.0	80.0
Sample size (total = 9)	4	5

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Tennessee, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for institutions from Tennessee may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.9

Responses to CAPR Survey Math Section, by Institution Type, Academic Year 2015-2016, Among Georgia Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	100.0	100.0
High school performance	0.0	71.4 ◆
Planned course of study	18.2	42.9
Other indicators of motivation or commitment	0.0	42.9
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	81.8	14.3
2	18.2	28.6
3 or more	0.0	57.1
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*9.1*	*42.9*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	0.0	0.0
Students are required to have a minimum level of skill before enrollment (%)	90.9	100.0
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	100.0
Among institutions offering developmental courses, number of sections offered	*54.1* ◆	*26.4* ◆
Did not respond (%)	*0.0*	*28.6*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*70.0*	*100.0*
Compressed courses	*36.4*	*28.6* ◆
Multiple math pathways	*27.3*	*85.7*
Self-paced courses	*63.6*	*28.6*
Flipped classrooms	*20.0*	*42.9*
Corequisite model	*63.6*	*100.0*
Learning communities	*54.5* ◆	*57.1* ◆
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*9.1*	*0.0*
2	*18.2*	*14.3*
3 or more	*72.7*	*85.7*

(continued)

Appendix Table C.9 (continued)

Response	Public 2-year	Public 4-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	100.0	85.7
Student success courses or worked with student success coaches	70.0 ◆	42.9 ◆
Computer-based learning sessions	50.0	42.9
A pre-matriculation program or boot camp	40.0 ◆	28.6
A mainstreaming model	20.0	71.4 ◆
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	100.0 ◆	100.0
Research conducted by your institution	70.0	71.4 ◆
Availability of resources, such as space and staffing costs	90.0 ◆	100.0
Practices at other colleges	60.0	85.7
Research conducted elsewhere	40.0	71.4
State policies	80.0	100.0
Sample size (total = 18)	11	7

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Georgia, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for institutions from Georgia may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.10

Responses to CAPR Survey Reading and Writing Section, by Institution Type, Academic Year 2015-2016, Among Georgia Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	100.0	100.0
High school performance	0.0	83.3
Planned course of study	0.0	33.3
Other indicators of motivation or commitment	0.0	33.3
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	100.0	0.0
2	0.0	66.7
3 or more	0.0	33.3
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*0.0*	*33.3*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	0.0	20.0
Students are required to have a minimum level of skill before enrollment (%)	90.0	100.0
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	100.0
Among institutions offering developmental courses, number of sections offered	*40.7*	*12.0*
Did not respond (%)	*0.0*	*16.7*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*30.0*	*83.3*
Compressed courses	*20.0*	*0.0*
Integrated reading and writing	*40.0*	*66.7*
Self-paced courses	*40.0*	*0.0*
Flipped classrooms	*30.0*	*50.0*
Corequisite model	*60.0*	*83.3*
Learning communities	*20.0*	*50.0*
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*20.0*	*16.7*
2	*10.0*	*0.0*
3 or more	*60.0*	*83.3*

(continued)

Appendix Table C.10 (continued)

Response	Public two-year	Public four-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	100.0	83.3
Student success courses or worked with student success coaches	50.0	66.7
Computer-based learning sessions	60.0	50.0
A pre-matriculation program or boot camp	20.0	33.3
A mainstreaming model	40.0	40.0
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	90.0	100.0
Research conducted by your institution	60.0	66.7
Availability of resources, such as space and staffing costs	90.0	83.3
Practices at other colleges	70.0	66.7
Research conducted elsewhere	40.0	83.3
State policies	80.0	100.0
Sample size (total = 16)	10	6

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Georgia, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for Georgia institutions may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.11

Responses to CAPR Survey Math Section, by Institution Type, Academic Year 2015-2016, Among Texas Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	100.0	100.0
High school performance	40.0	42.9◆
Planned course of study	56.0	42.9
Other indicators of motivation or commitment	36.0	35.7
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	36.0	28.6
2	16.0	28.6
3 or more	48.0	42.9
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*16.0*	*21.4*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	20.0	23.1
Students are required to have a minimum level of skill before enrollment (%)	60.0	92.9◆
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	92.9
Among institutions offering developmental courses, number of sections offered	*104.0*	*29.2*◆
Did not respond (%)	*16.0*	*15.4*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*92.0*	*75.0*
Compressed courses	*72.0*	*25.0*◆
Multiple math pathways	*80.0*	*53.8*◆
Self-paced courses	*56.0*	*50.0*◆
Flipped classrooms	*60.0*	*23.1*◆
Corequisite model	*44.0*	*58.3*
Learning communities	*32.0*	*50.0*◆
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*4.0*	*15.4*
2	*4.0*	*15.4*
3 or more	*92.0*	*69.2*

(continued)

Appendix Table C.11 (continued)

Response	Public 2-year	Public 4-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	92.0	100.0
Student success courses or worked with student success coaches	87.5	85.7◆
Computer-based learning sessions	72.0	71.4◆
A pre-matriculation program or boot camp	72.0	53.8
A mainstreaming model	36.0	38.5
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	84.0	71.4◆
Research conducted by your institution	80.0	71.4
Availability of resources, such as space and staffing costs	72.0	85.7◆
Practices at other colleges	68.0	64.3◆
Research conducted elsewhere	72.0	64.3◆
State policies	96.0	100.0
Sample size (total = 39)	25	14

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Texas, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for Texas institutions may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.12

Responses to CAPR Survey Reading and Writing Section, by Institution Type, Academic Year 2015-2016, Among Texas Public Colleges

Response	Public 2-year	Public 4-year
Assessment		
Process used to determine college readiness includes[a] (%)		
Standardized tests	96.0	100.0
High school performance	48.0	38.5
Planned course of study	44.0	46.2
Other indicators of motivation or commitment	44.0	30.8
College readiness not assessed	0.0	0.0
Number of methods of assessment used (%)		
1	36.0	46.2
2	16.0	0.0
3 or more	48.0	53.8
Among institutions that assess students for college readiness, process differs for students recently out of high school (%)	*12.5*	*9.1*
Institution uses or plans to use any Common Core State Standard for determining student placement (%)	25.0	30.8
Students are required to have a minimum level of skill before enrollment (%)	60.0	76.9
Instruction		
Institution offers developmental courses for students who are underprepared (%)	100.0	92.3
Among institutions offering developmental courses, number of sections offered	*32.8◆*	*16.4*
Did not respond (%)	*20.8*	*8.3*
Among institutions offering developmental courses, at least one course section is part of[a] (%)		
Multi-semester, prerequisite sequence	*70.8*	*33.3*
Compressed courses	*58.3◆*	*36.4*
Integrated reading and writing	*100.0*	*91.7*
Self-paced courses	*45.8*	*41.7*
Flipped classrooms	*41.7*	*30.0*
Corequisite model	*62.5*	*66.7*
Learning communities	*50.0*	*33.3*
Among institutions offering developmental courses, number of instructional methods used (%)		
1	*4.2*	*0.0*
2	*8.3*	*41.7*
3 or more	*87.5*	*58.3*

(continued)

Appendix Table C.12 (continued)

Response	Public 2-year	Public 4-year
Non-classroom services used by underprepared students[a] (%)		
Working with tutors or supplemental instructors	87.5	100.0
Student success courses or worked with student success coaches	95.7	75.0
Computer-based learning sessions	45.8	46.2
A pre-matriculation program or boot camp	65.2	41.7
A mainstreaming model	52.2	61.5
Major factors that drive institutional practices for improving skills of underprepared students[a] (%)		
Faculty input	91.7	69.2
Research conducted by your institution	70.8	84.6
Availability of resources, such as space and staffing costs	75.0	84.6
Practices at other colleges	66.7◆	46.2
Research conducted elsewhere	66.7	61.5
State policies	95.8	100.0
Sample size (total = 38)	25	13

SOURCE: Academic year 2015-2016 data are from the Center for the Analysis of Postsecondary Readiness institutional survey, fielded in 2016.

NOTES: The sample includes public two-year and public four-year institutions.

As a result of the small sample sizes in Texas, the survey responses reported above have higher margins of error than the national sample. Appendix Table C.13 presents these margins of error. Additionally, the sample was not stratified by state, so the survey responses for Texas institutions may not be representative of the state.

Responses limited to a subgroup of institutions appear in italics. Sample sizes may vary by question.

Rounding may cause slight discrepancies in reported sums and differences.

In some instances, multiple respondents completed a survey for an institution. In cases where multiple respondents answered for an institution, the maximum number of sections or students indicated is used for the analysis. For yes/no questions, if at least one respondent from an institution answered "yes," the institution is counted as having answered "yes." A diamond (◆) indicates that institutions' multiple responses to a question affected the reported value(s) for 5 percent of the sample or more.

[a]Distributions may not add to 100 percent because categories are not mutually exclusive.

Appendix Table C.13

2016 CAPR Survey Population, Sample, and Margin of Error for Colleges in Selected States

State and Institution Type	Survey Population (n)	Sampled (n)	Math		Reading and Writing	
			Responded (n)	Margin of Error (%)	Responded (n)	Margin of Error (%)
Tennessee						
Public 2-year	8	4	4	37.0	4	37.0
Public 4-year	7	6	6	16.3	5	25.3
Georgia						
Public 2-year	29	14	11	23.7	10	25.5
Public 4-year	9	8	7	18.5	6	24.5
Texas						
Public 2-year	63	27	25	15.3	25	15.3
Public 4-year	17	14	14	11.3	13	13.6

SOURCE: Center for the Analysis of Postsecondary Readiness (CAPR) calculations.

NOTE: Margin of error values are reported for the total number of respondents for each subject. Errors vary based on the number of responses to a survey question.

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CAPR \ Center for the Analysis of Postsecondary Readiness

Teachers College, Columbia University
525 West 120th Street, Box 174, New York, NY 10027
P 212.678.3091 | @CAPR_deved
capr@columbia.edu | postsecondaryreadiness.org

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