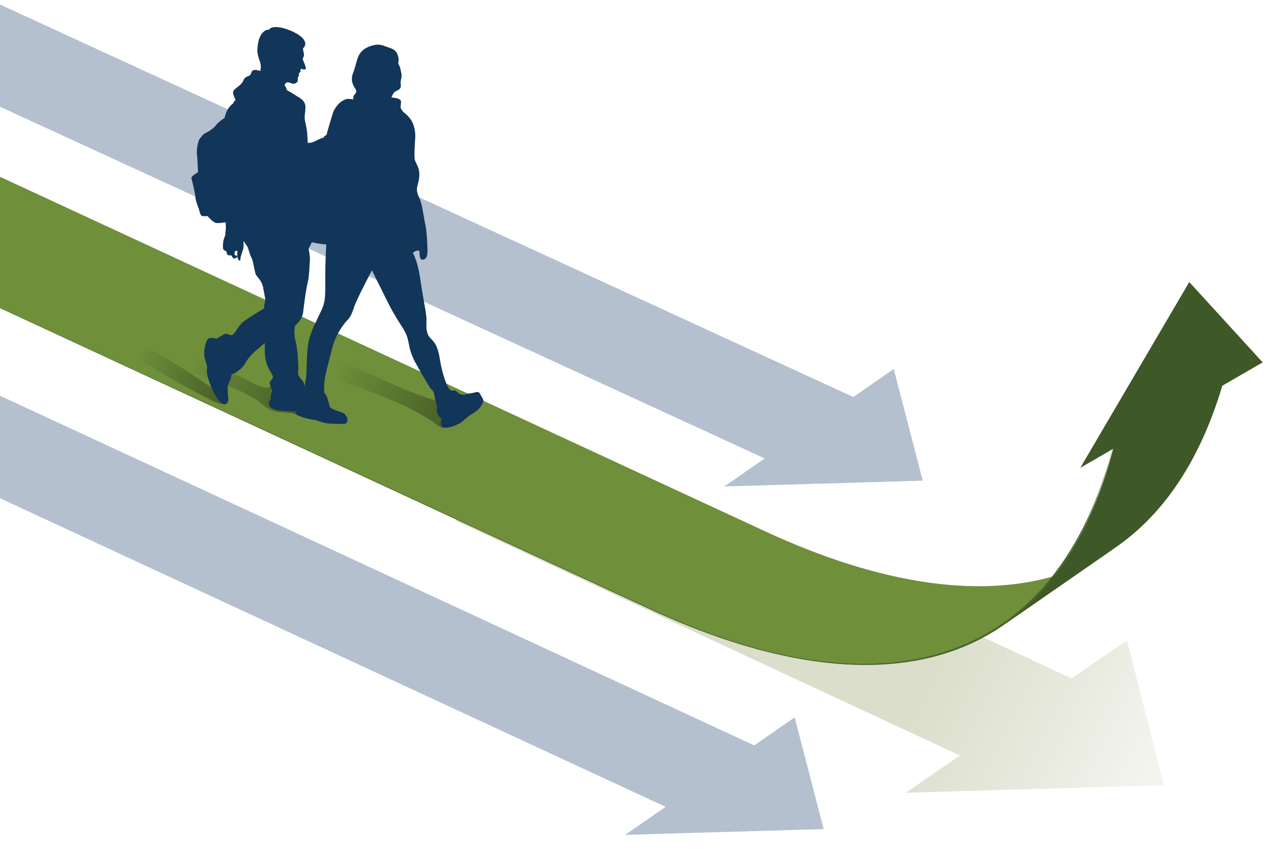
HITTING THEIR STRIDE:
THE NEXT CHAPTER OF DEVELOPMENTAL EDUCATION REFORM

PART 2:
SUPPLIER LANDSCAPE



BABSON Survey Research Group

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EXECUTIVE SUMMARY

Developmental education has long been a critical issue in higher education. Historical approaches required students to take a multi-semester sequence of non-credit-bearing courses. The year or more spent in developmental education left many students discouraged and financially strapped. Those who dropped out left with high levels of debt and no college credit to show for it.

Schools have responded to this cycle by adopting new policies and practices aimed at reducing the amount of time students spend in developmental education courses. Changes vary but largely fall into two categories: policies that impact placement practices, and policies that impact curriculum models.

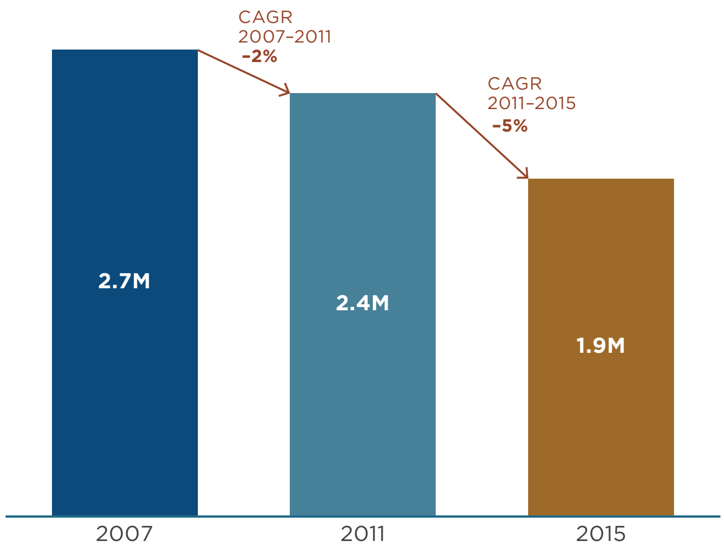
- A multiple measures placement practice uses many different inputs rather than one test score to more accurately place a student in a course. Institutions may use high-stakes exams in conjunction with other measures such as high school grades, extracurricular activities, recommendations, and non-school-based test scores.
- Changes to curriculum practices have wide variation. One of the better-known approaches is the corequisite model, where students are co-enrolled in a credit-bearing gateway course at the same time as they are going through developmental education.

Some curriculum models are strongly connected to schools' implementation of Guided Pathways, while others are more narrowly focused on ensuring that students progress successfully through college-level math and English courses. In either case, both curriculum models are discussed in this series, which examines the policies, practices, and products most closely connected to developmental education.

From 2007 to 2015, there was a 3.8% annual reduction in the number of students taking developmental education courses.

Figure 1

DEVELOPMENTAL EDUCATION ENROLLMENTS HAVE DECLINED OVER THE PAST DECADE

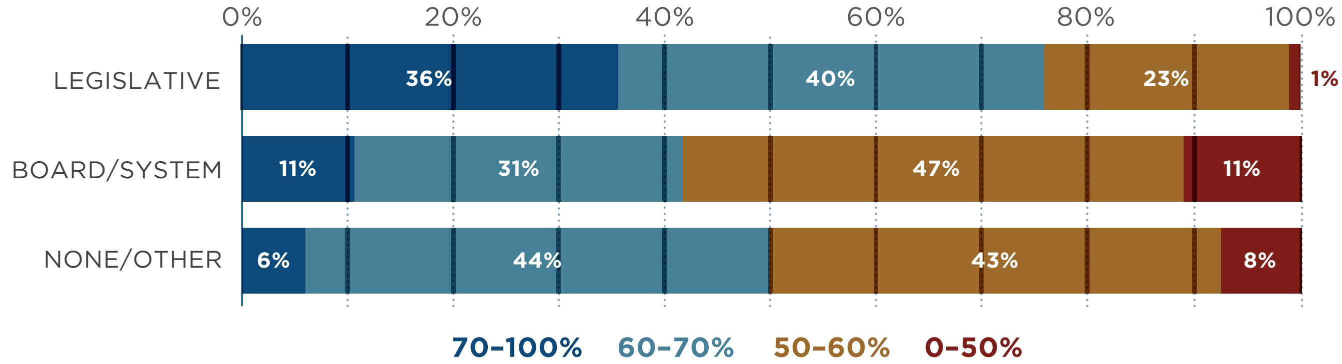


Note: "CAGR" is compound annual growth rate

Furthermore, in states where there have been corequisite or multiple measures policy reforms enacted at the legislative level, retention rates at both two-year and four-year schools have improved.

Figure 2

LEGISLATIVE-DRIVEN POLICIES ON MULTIPLE MEASURES ARE CORRELATED WITH HIGHER RETENTION RATES*

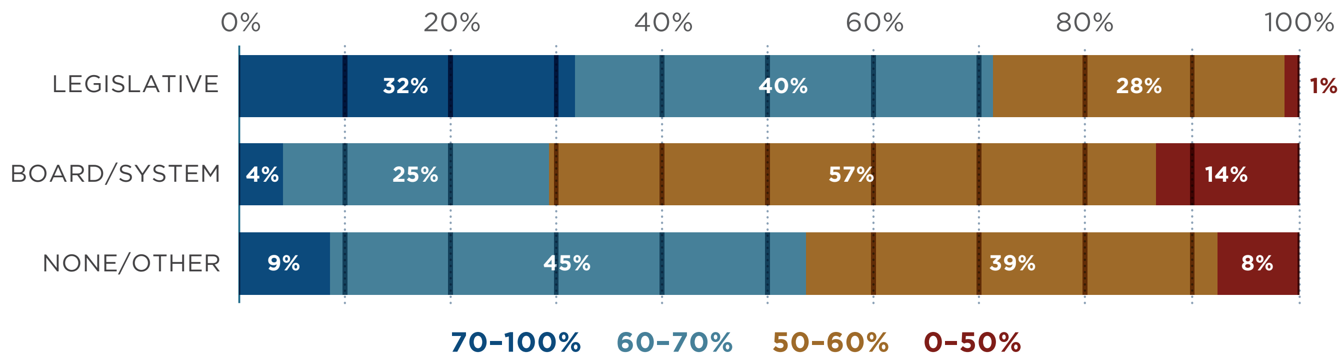


* Retention rates refer to first-year, full-time students in two-year institutions.

Note: Legislative, Board/System, and None/Other define at what level a multiple measure policy is enacted.

Figure 3

LEGISLATIVE-DRIVEN POLICIES ON COREQUISITE MODELS ARE CORRELATED WITH HIGHER RETENTION RATES*



* Retention rates refer to first-year, full-time students in two-year institutions.

Note: Legislative, Board/System, and None/Other define at what level a corequisite policy is enacted.

Developmental education reforms have come a long way in the past decade. However, with close to 2 million students still taking at least one developmental education course, and the majority of two-year schools still reporting less than 70% retention rates, the question of how best to identify, remediate, and support these students to degree completion remains a significant challenge.

The title of this paper – *Hitting Their Stride: The Next Chapter of Developmental Education Reform* – recognizes this important moment in time. The phrase "hitting their stride" typically means building proficiency and speed with the task at hand: things start to come together, and there are smaller obstacles to slow progress. This is exactly where the developmental education reform movement needs to find itself if it is to get to the next phase of impact at scale.

This report is the first installment of what will be an annual state-of-the-field study authored by Tyton Partners and Babson Survey Research Group in partnership with the Strong Start to Finish network. The goal of this annual initiative is to illuminate the progress of the developmental education reform movement and to examine its evolution from the policy, practice, and market perspectives. The analysis that follows evaluates how that transition from early stage to growth stage is faring and how policymakers, institutional leaders, and faculty can efficiently and effectively further that progress.

PART I: FACULTY AND ADMINISTRATOR PERCEPTIONS

Part I evaluates administrator and faculty attitudes toward recent policy implementation in developmental education, while also highlighting key areas that have either driven success on campus or require greater attention. 309 administrators and 1,765 faculty members participated in the *2019 Hitting Their Stride* survey, with titles ranging from professors of math, English, and college success to deans and department chairs nationwide. Survey results paint a picture of similarities and differences between faculty and administrators and provide a snapshot of the current landscape of developmental education policy implementation on campus.

Specifically, Part I addresses three key themes:

1. **High focus on policy implementation drives change and impact.** Survey data points to a strong positive correlation between a legislative approach to policy implementation and student retention rates. With most institutions adopting, or in the process of adopting, multiple measures policies, developmental education reform is well underway.

2. **A perception gap exists, despite policy implementation.** While strides have been made in policy adoption, a perception gap exists with 56% of faculty and 38% of administrators reporting that they feel their campus is achieving an "ideal state" for developmental education student outcomes. Attitudes toward implementation, faculty perception of the effectiveness of changes, and faculty skepticism may be contributing to the gap.

3. **Faculty and administrator alignment, meaningful professional development, and course materials are important to addressing the perception gap.** Faculty and administrators alike point to the value of alignment between faculty and administrators when implementing reforms. Faculty attitude toward their institution's developmental education changes can also be improved with meaningful professional development as well as course materials that align with the chosen classroom curriculum model.

PART II: SUPPLIER LANDSCAPE

Part II distills insights from the same survey as well as from more than 10 interviews with suppliers, vendors, and thought leaders within the developmental education field. In Part II, we analyze the health of each market within developmental education and provide insight into the reach, adoption, and awareness of the tools and services that shape the product landscape.

We identify three key themes on the state of the supplier markets:

1. **Need gaps in the market may impact the ability to scale the reform movement.** Corequisite and other curriculum innovations are changing the frontline needs of teachers and students. Many developmental education markets are highly consolidated, making adaptation to changes slow and creating gaps between market needs and supplier offerings. Survey research shows that faculty are less likely to feel that changes to developmental education on their campus are valuable, and less likely to feel that their institution is closer to an "ideal state" for student outcomes, if they report low satisfaction with their curriculum or course materials providers. These findings have implications for how administrators and policymakers think about and engage the supplier markets in the reform movement.

2. **The assessment market is potentially being disrupted by multiple measures policies.** Survey research indicates that close to 60% of faculty are dissatisfied with their school's assessment instrument, and 30% of administrators are considering switching providers. Faculty in states that have widespread implementation of multiple measures policies are also less likely to report using any assessment instruments. These high rates of dissatisfaction, coupled with reports of lower use of assessments, may indicate that schools in a multiple measures environment are simply forgoing assessments altogether.

3. **Developmental education support organizations are challenged to deliver support at scale.** The market for service providers that deliver technical assistance and professional development is small, highly fragmented, and largely financed by philanthropic dollars. In a market that is not consumer or client funded, the challenge is how to bring support and best practices to scale quickly and efficiently.

OVERVIEW OF SUPPLIER MARKET

Over the past decade, many colleges and universities have enacted new policies and practices designed to limit the amount of time students spend in developmental education. These policies and practices have redefined what it means to be placed in developmental education courses, how these courses are taught, and the products and services developed to support faculty in successfully teaching these courses and navigating new course dynamics.

In conducting a review of the suppliers that serve the developmental education space, Tyton Partners has identified six core supplier markets.

Table 1

SIX CORE SUPPLIER MARKETS

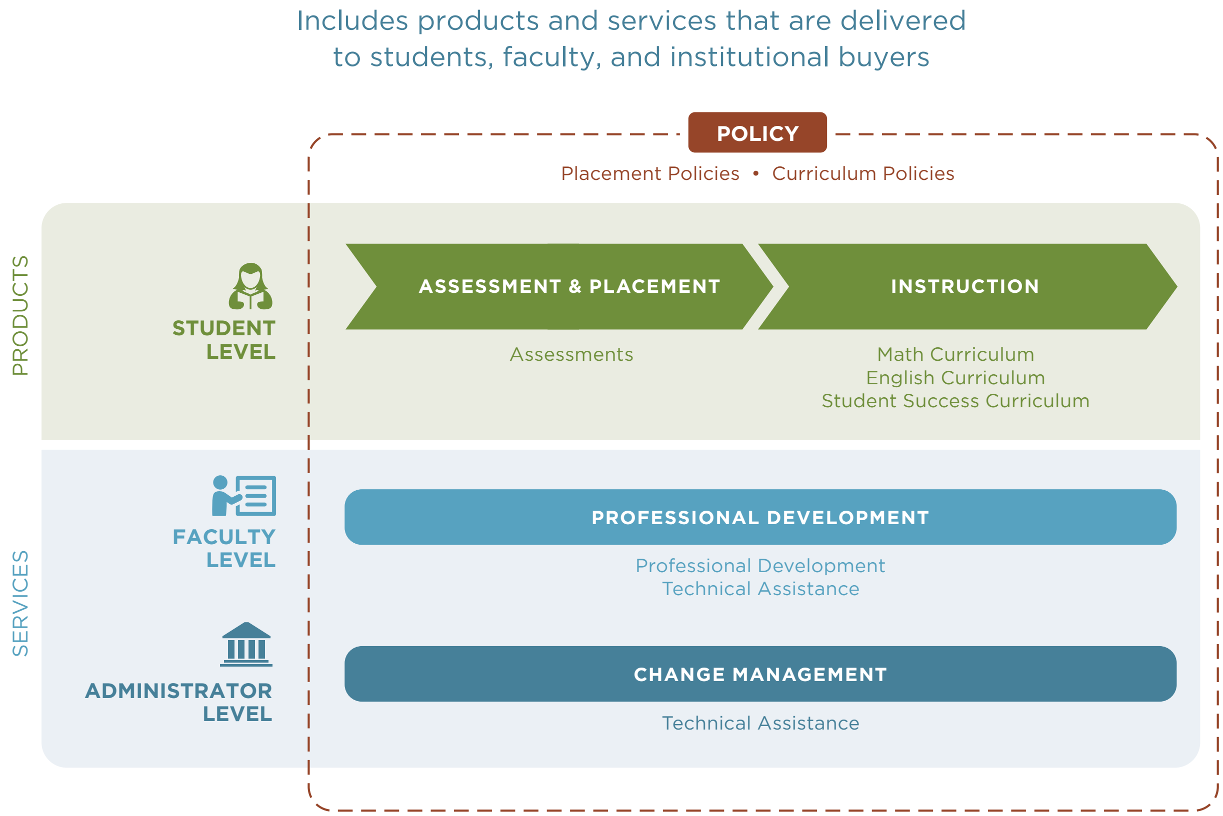
MARKET	DEFINITION
Assessments	Tests created, programed, and implemented to correctly place students in remedial courses.
Math Curriculum	A sequence of courses including basic arithmetic, pre-algebra, algebra, and intermediate algebra that a student must pass prior to enrolling in a credit-bearing college mathematics course.
English Curriculum	A sequence of courses including basic English composition, integrated reading and writing, and reading and communication skills that a student must pass prior to enrolling in a credit-bearing college English composition course.
College Success Curriculum	Curriculum focusing on non-academic skills that help students increase academic success.
Professional Development	Organizations that provide professional development to faculty members. Many are focused broadly on teaching and learning practices and not exclusively on developmental education, but some directly address the topic. Decisions to participate in any one professional development program are typically made at the faculty level.
Technical Assistance	Organizations that assist institutions in implementing new policies and practices. These providers can work across an institution – from faculty to departmental chairs to deans and provosts – but typically are brought in at the institutional level.

Further, we found that while there is still sizable student spend in developmental education, the changes in policies and practices have caused market needs to shift and demand for some products to decline. In some cases, this decline is positive for the market, as it may indicate that buyers are electing alternative solutions that better address their needs. In other cases, declining demand creates challenges for suppliers to invest in addressing changing market needs.

Four of these supplier markets – assessments, math curriculum, English curriculum, and student success curriculum – are directly aligned to the student life cycle as students are assessed, placed in developmental education, and complete remedial coursework. Providers in these markets derive their revenues primarily from individual student spend as students move from paying for assessments to purchasing courseware and curriculum materials for their core subjects. The other two markets – technical assistance and professional development – include revenues primarily from either institutional spend or philanthropic support. Because these two markets have providers that deliver interrelated services across both areas, we have combined them into one category called developmental education supports.

Figure 4

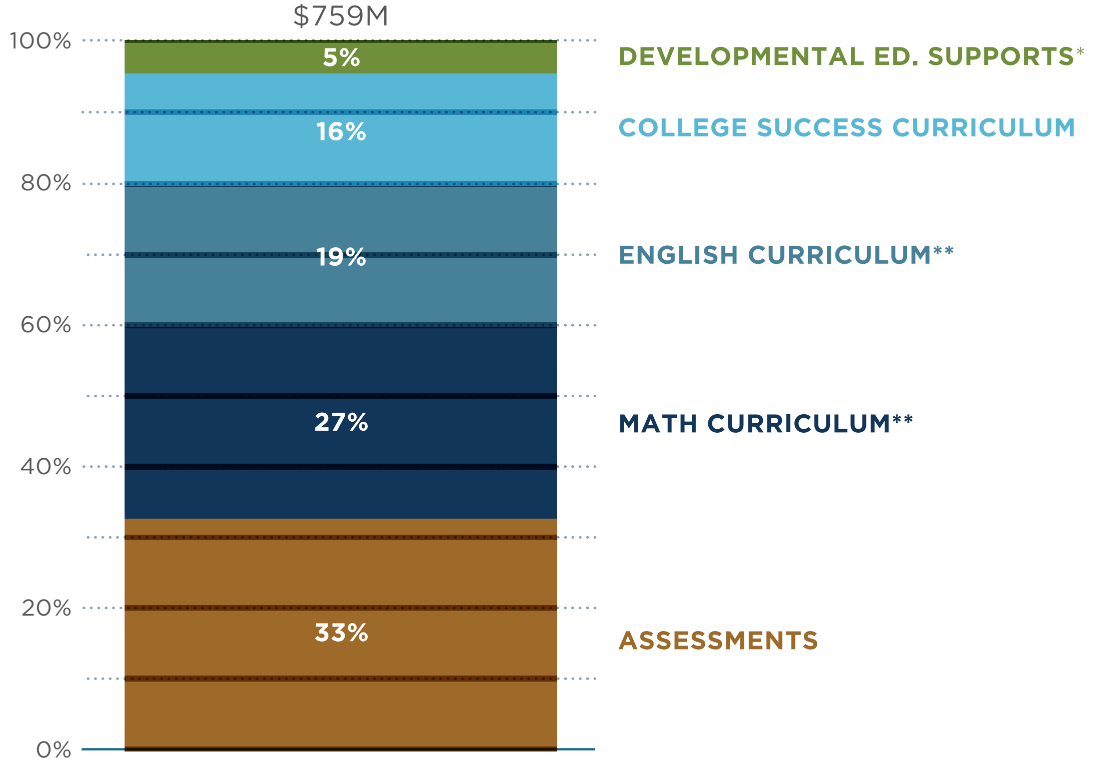
DEVELOPMENTAL EDUCATION MARKET



In total, approximately $760 million is spent each year on products and services in the developmental education market. At about $380 per student per year, the market is dwarfed by the average annual instructional delivery costs of $10,800 per FTE (full time equivalent student) at two-year institutions. Instructional delivery spend ("Education and Related" in a school's budget) includes core instructional costs as well as critical student supports such as major and career planning and academic services. We excluded these supplier markets from our valuation because they serve a broader area of student success that impacts all students, not exclusively those in developmental education.

Figure 5

DEVELOPMENTAL EDUCATION MARKET, BY CATEGORY



* Consists of professional development and technical assistance

** Includes new, used, and rental textbooks

Because of the size of the math curriculum and assessments markets, and the number of students they serve, we evaluate these specific markets in more detail in this publication. Further, because of the diversity of players in the developmental education supports market, which encompasses technical assistance and professional development, we also provide further segmentation and analysis on the providers in this category.

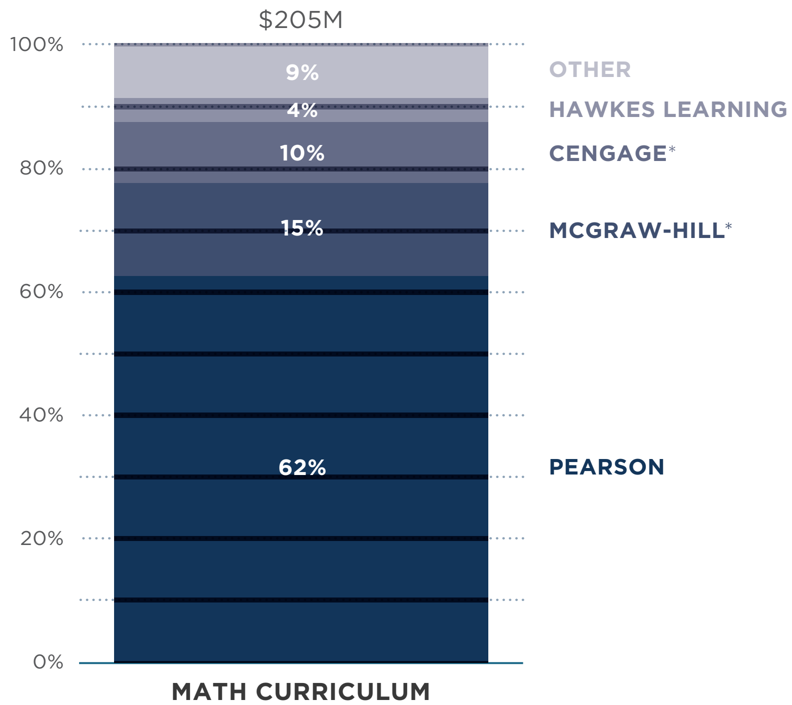
MATH CURRICULUM

A DECLINING AND HIGHLY CONSOLIDATED MARKET

The developmental math curriculum market is approximately $200 million, and it is served by a few dominant players. Pearson accounts for upwards of 60% of the market. Additional large publishers such as McGraw-Hill and Cengage take an additional 25% between them, and with their recently announced merger, the market will become even more consolidated.

Figure 6

MATH DEVELOPMENTAL EDUCATION MARKET SIZE, BY PROVIDER SHARE BY REVENUE



* In May 2019, McGraw Hill and Cengage entered into a definitive agreement to merge both companies.

The products in this market have historically served a traditional developmental course sequence that placed students into multi-semester non-credit-bearing courses. However, with the implementation of new policies and practices such as multiple measures and accelerated instructional models, the overall number of students served by this market has shrunk by 3.8% annually over the past nine years. While this positive outcome for students and for schools should be celebrated, the impact of the declining population is felt acutely in a market already under pressure from open educational resource providers. Although we estimate that open educational resources have been adopted by only 7% of faculty who teach developmental education, the impact felt by publishers is magnified due to the already challenging environment.

NEW APPROACHES ARE SHIFTING MARKET NEEDS

In addition to reducing the overall market size, the adoption of new policies and practices has changed the classroom and curricular needs of faculty and students.

For example, the corequisite model means that students who would normally be in a developmental course are instead combined with their college-ready peers in a credit-bearing gateway course. Students who require remediation in a corequisite model are provided with a variety of additional supports that could include a simultaneous "paired" developmental course, required tutoring, or additional meetings with the course instructor. These combined class models create challenges for publishers, which have historically served a more siloed experience with separation between developmental education and gateway courses. The gateway course materials lack the support and remediation capabilities needed for serving developmental education students, and the developmental curriculums are not sequenced to support a faster-moving, integrated model.

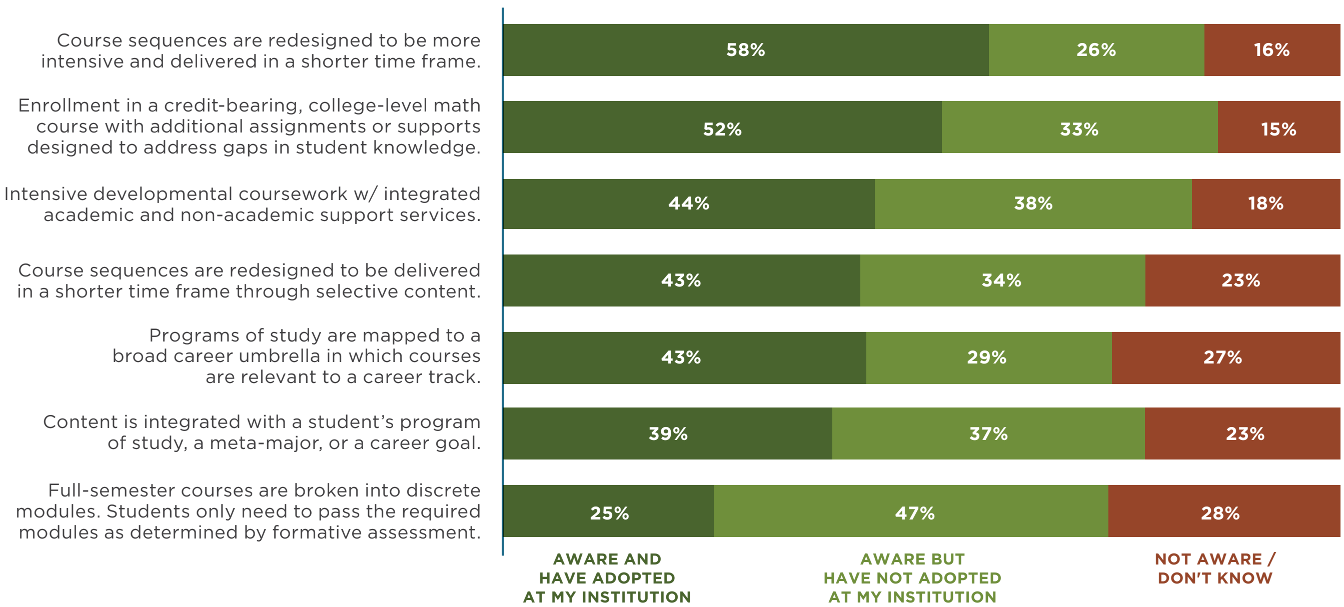
These integrated classroom models also expose a number of technology challenges. In some approaches, students in a gateway course may be engaged in additional outside coursework that is taught by a different instructor but that needs to keep pace with the core course. However, most learning technologies cannot support the fluidity and multi-instructor approach of a corequisite model because of their course-specific siloed design. Furthermore, some gateway and developmental course materials were developed on different platforms, so students are required to log into and out of different sites for a single course experience.

DIVERSITY OF APPROACHES CREATES CHALLENGES FOR SCALE

Corequisite is only one of the many new curriculum approaches. In fact, adoption rates are high across a variety of new curriculum models. We identified seven different new curriculum models being used in math instruction. Some of these are acceleration models, designed to limit the amount of time students spend in developmental education. Other models are part of the broader Guided Pathways initiatives happening on many two-year campuses.

Figure 7

HIGH AWARENESS AND MODERATE ADOPTION ACROSS SEVEN MATH CURRICULUM MODELS



For math curriculum providers, what is important about these new models is that all the models are used on campuses, in varying combinations. Such diversity of implementation makes it difficult to serve a market with one or two product offerings.

In order to support successful implementation of new policies and practices such as corequisite placement, the curriculum market needs to pivot to better serve classroom needs. However, the highly consolidated market structure is a challenging one for fostering innovation and change because consolidated markets are typically slower to respond to shifting market needs. Coupled with a decline in market dynamics, deep investments in established product lines, and numerous possible customer needs, providers are even more hesitant to invest in changes. As shown in Table 2, some providers are starting to adapt products to a corequisite approach or are working with faculty in real time to adapt product offerings to better suit the new classroom dynamics. However, this work is happening largely in one-off consultations and is not supporting change at scale.

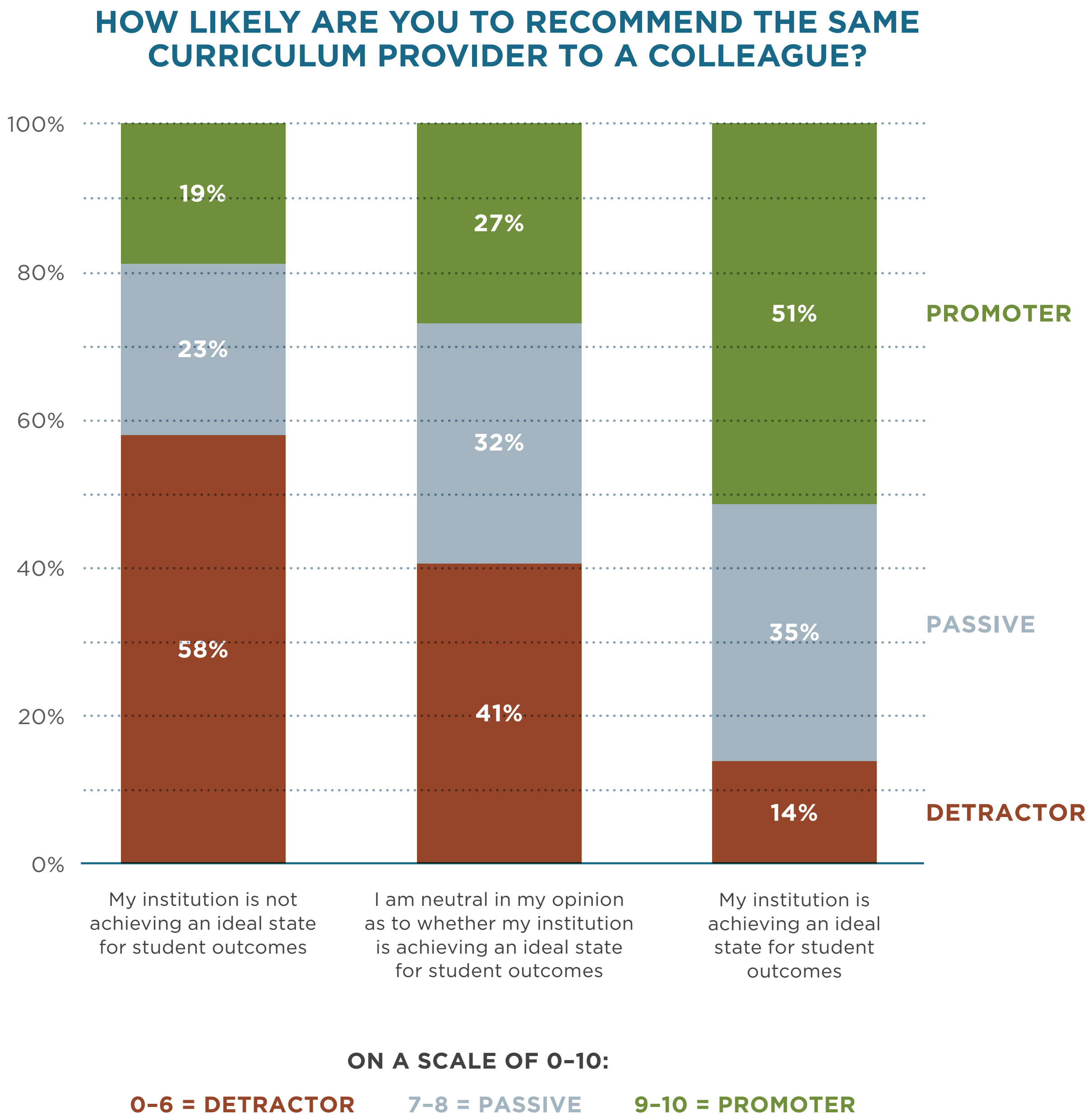
Table 2

PROVIDER	PROVIDER OVERVIEW	ADAPTATIONS TO NEW POLICIES AND PRACTICES
Carnegie Learning	MATHiaU is an adaptive learning platform for developmental math that utilizes OpenStax textbooks and "coaches" students through a personalized learning journey.	Professional development consultative services help integrate the product with a variety of accelerated learning modules.
Cengage Learning	Provides over 50 textbooks and courseware products focused on developmental math topics, such as basic math and elementary algebra. Curriculum can be delivered via adaptive WebAssign platform to adjust the content, pace, and structure.	Professional development consultative services help integrate products with a variety of accelerated learning modules.
Hawkes Learning	Offers over 10 titles in developmental math, including basic mathematics, pathways-aligned, and state-specific curriculum. Content is delivered via a mastery-based courseware platform.	Professional development consultative services help integrate products with a variety of accelerated learning modules.
McGraw-Hill ALEKS	ALEKS is an adaptive learning platform that provides an ongoing cycle of assessment and instruction on more than 10 developmental and corequisite course titles.	Offers 5 titles that provide curriculum and support for corequisite gateway courses such as College Algebra and Quantitative Reasoning.
Pearson	Provides over 50 textbooks focused on developmental math topics, such as basic math, math study skills, and pre-algebra. Curriculum can be delivered via the adaptive MyLab platform to personalize the student learning journey. MyLab Foundational Skills provides integrated math, reading, and student success curricula designed for the adult learner.	Offers integrated MyLab review of prerequisite topics on select gateway courses and offers pathways-aligned curriculum from the Charles A. Dana Center delivered via MyLab.
Carnegie Math Pathways	Offers 2 curriculum products – Statway and Quantway – that support an accelerated developmental curriculum focused on students' academic and career goals.	Courses are designed to be delivered in a single semester to match the accelerated model.

UNFILLED MARKET NEEDS IMPACT FACULTY PERCEPTION OF REFORMS

It's possible that the market will eventually adjust as providers continue to adapt. However, until that time comes, the lack of alignment between curriculum providers and faculty need may hamper reform efforts. Survey research shows that faculty are more likely to feel that changes to developmental education on their campus are valuable, and that their institution is closer to an "ideal state" for student outcomes, if they report high satisfaction with their curriculum or course materials providers.

Figure 8



These findings indicate that the lack of alignment between publisher offerings and market needs is not a concern just for publishers but also for administrators seeking to engender faculty ownership and acceptance on change initiatives.

ASSESSMENT PROVIDERS

HIGHLY CONSOLIDATED MARKET SHOWING SIGNS OF CHANGE

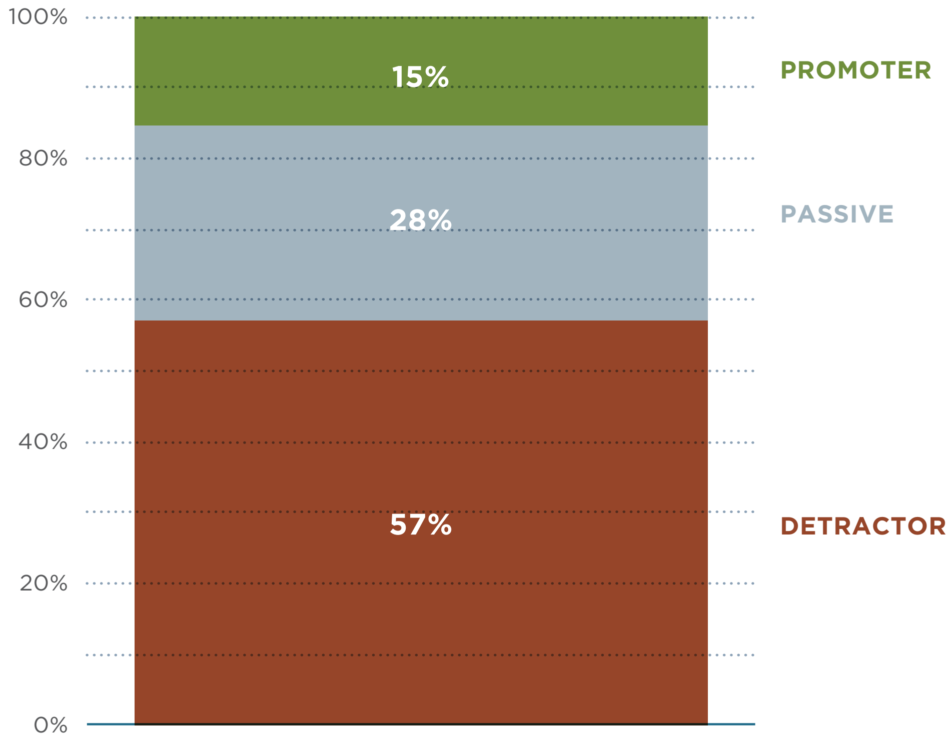
The assessment market has a similar size and competitive dynamic as the math curriculum market. It is estimated to be around $250 million and is highly consolidated, with over 70% of the market being served by the ACCUPLACER assessment, which is produced by the College Board. ACT makes up about 10% to 15% of the market with two offerings – WorkKeys and CollegeReady – and the remainder of the market is taken up by a few much smaller players. In a market-maker position, ACCUPLACER has experienced annual growth of 6% between 2013 and 2018. However, there are signs that shifting market needs and general institutional dissatisfaction may be reaching critical mass, causing the overall demand for assessment instruments to contract and buyers to seek alternative paths for student placement that are better aligned with state and institutional reforms.

CONSISTENTLY LOW SATISFACTION FROM FACULTY

Assessment instruments have the lowest satisfaction scores across all suppliers in the developmental education space. When asked to rate their satisfaction with their institution's assessment instrument on a scale of 0 (not satisfied) to 10 (very satisfied), faculty were quite negative, with close to 60% of respondents classified as detractors, with scores between 0 and 6.

Figure 9

OVER HALF OF MATH FACULTY ARE DETRACTORS OF THEIR INSTITUTION'S ASSESSMENT INSTRUMENT

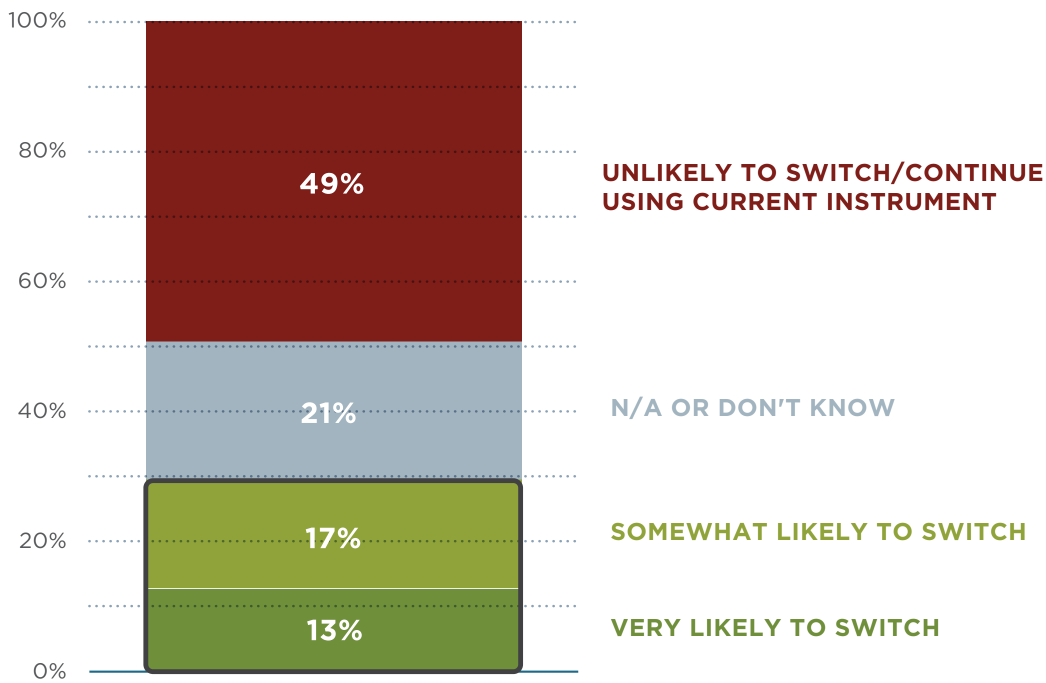


When asked to explain the reason for their rating, faculty cited a skepticism around assessment accuracy, even while recognizing the role that assessments play in a student's life cycle. One faculty member commented, "Being familiar with the variety of test biases that exist among standardized testing, I am skeptical of the reliability of such assessments for placement in developmental programs. However, I do acknowledge that we have to choose some form of standard by which to measure students' aptitudes."

Although not asked about specific satisfaction measures, administrators were asked how likely they were to switch providers in the next three years. While nearly half said that they were likely to stick with their current provider, 30% of administrators reported that they are considering a switch, indicating that their current situation is not appropriately meeting the needs of their school.

Figure 10

ONE THIRD OF ADMINISTRATORS ARE CONSIDERING SWITCHING ASSESSMENT PROVIDERS

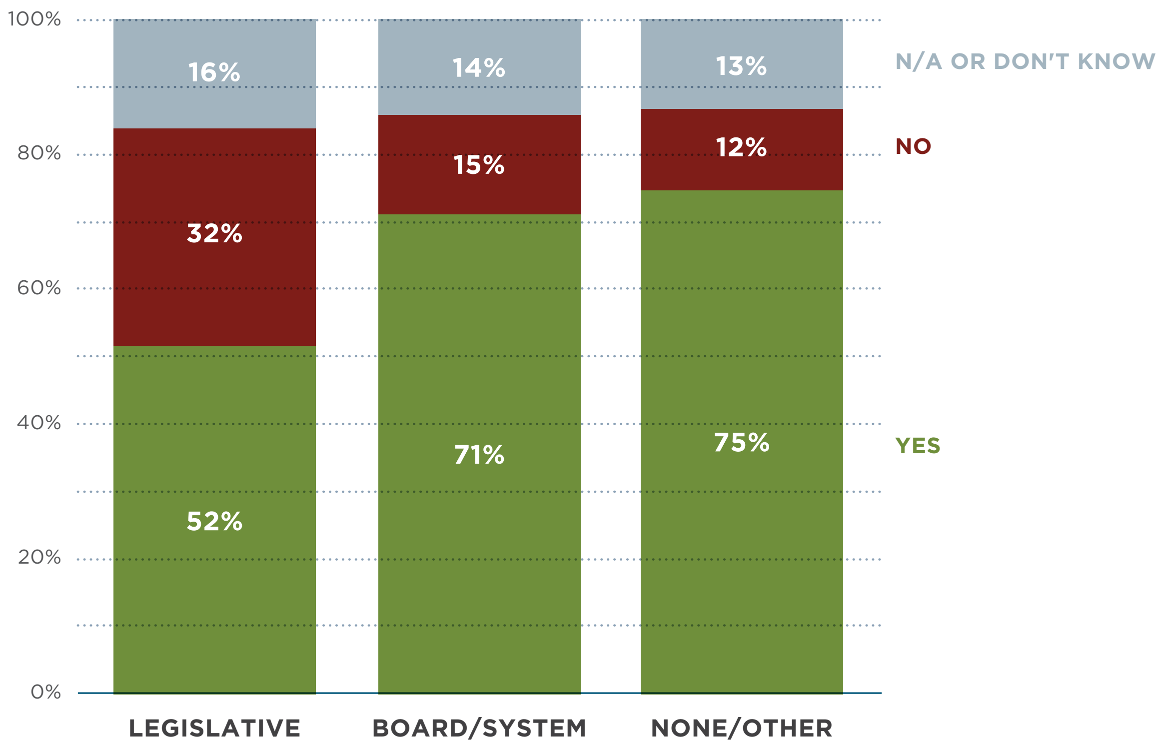


MULTIPLE MEASURES POLICIES POTENTIALLY REDUCING USE OF ASSESSMENT INSTRUMENTS

Multiple measures policies make placement decisions by taking into account academic and non-academic factors beyond a placement score on a high-stakes assessment. In this scenario, one would expect that usage of assessment instruments would remain steady, as assessment scores are one of the many tools used to determine readiness. However, survey research shows that in states that have enacted multiple measures policies at the legislative level – which typically drives high levels of implementation and change – faculty are 20% to 25% less likely to report that their institution is using assessment instruments.

Figure 11

DO YOU CURRENTLY USE ASSESSMENT INSTRUMENTS?*

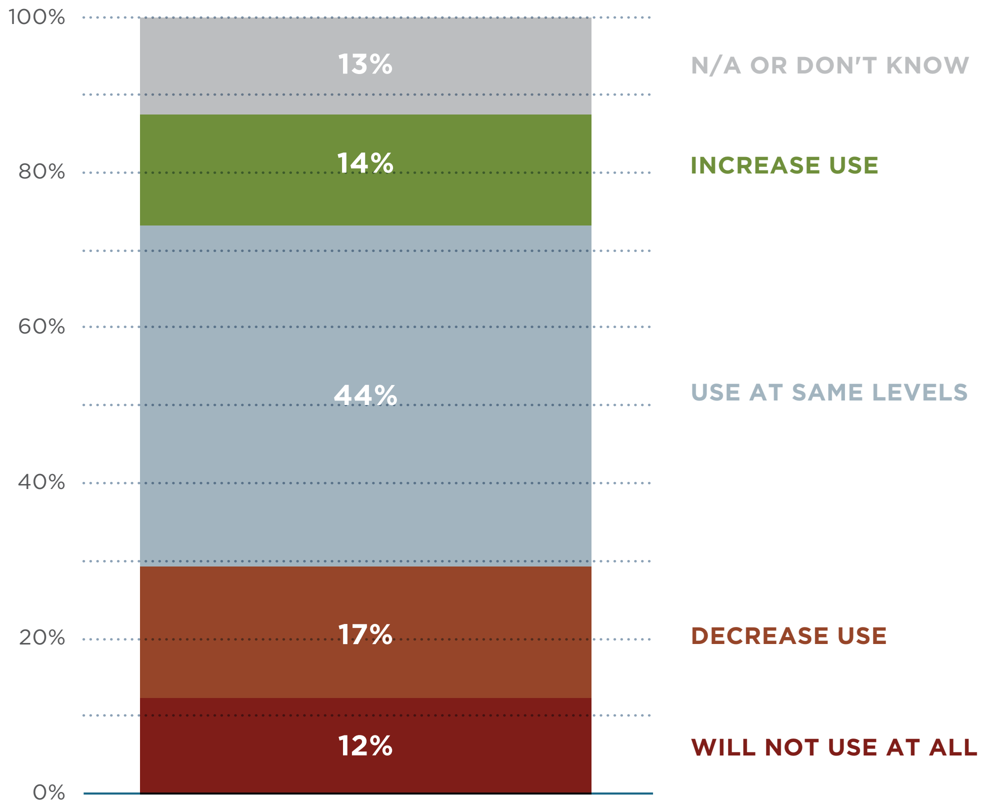


* Legislative, Board/System, and None/Other define at what level a multiple measures policy is enacted.

In some cases, states have implemented state-developed assessments, and it is possible that faculty were interpreting those assessments as not being included in the assessment instruments referenced in this question. However, it is also possible that some institutions in these states are forgoing assessments altogether and relying exclusively on other academic and non-academic factors to determine readiness. Survey data from administrators supports the latter possibility, as nearly 30% of administrators reported that they are likely to decrease use of assessment instruments or not use them at all over the next three years. While 14% said they expect to increase use, that would represent a net decrease of about 15% in institutions using assessment instruments.

Figure 12

HOW WOULD YOU DESCRIBE YOUR USE OF ASSESSMENT INSTRUMENTS OVER THE NEXT 3 YEARS?



A MARKET RIPE FOR DISRUPTION

The higher rates of dissatisfaction in a heavily concentrated market, combined with lower usage in a multiple measures environment and indicators of future changes in buying patterns, point to a market that is on the cusp of disruption. While it's too early to tell yet what that disruption will look like, there are a few possible scenarios.

DISRUPTION BY DOING WITHOUT

Evidence in the survey suggests that disruption could come in the form of simply forgoing assessments altogether. As more schools move into a multiple measures model and begin to use more academic and non-academic factors, they may find that the cost of administering assessments is greater than the additional accuracy gained by including them in the dataset. In short, the impact that multiple measures may have on the assessment market can drive faculty and administrators to critically evaluate their measures of readiness, and in that evaluation they may find that non-test-based factors are no worse in predicting accurate placement than the assessments themselves.

DISRUPTION FROM INCREASED COMPETITION

While the College Board's ACCUPLACER owns the majority of the market, competition has grown with new offerings from smaller players, including state-developed assessments. ACT launched CollegeReady in 2018 and has partnered with the NROC Project to help with dissemination and delivery. With CollegeReady, these two organizations are delivering an alternative offering that provides assessment and remediation in one package. Additionally, large states like Texas that have taken significant legislative action are creating their own state-based assessments. If more states move to legislate change, they could create a more competitive environment if schools are allowed to choose which one they implement.

We also see established professional organizations like the Mathematical Association of America investing in improvements to longstanding assessments, illustrated by MAA's announcement of its recent partnership with DigitalEd. Although all these players are still small in size, increased options in a market that shows high dissatisfaction and increased desire to look for alternatives could have a significant impact over the next three to five years.

Perhaps an indication of increased competition, the College Board is also investing in its ACCUPLACER platform to better serve faculty, administrators, and students. In summer 2019, ACCUPLACER plans to launch an update to its platform that will allow better integration of academic and non-academic data into a more holistic dashboard that better supports a multiple measures approach.

DEVELOPMENTAL EDUCATION SUPPORTS

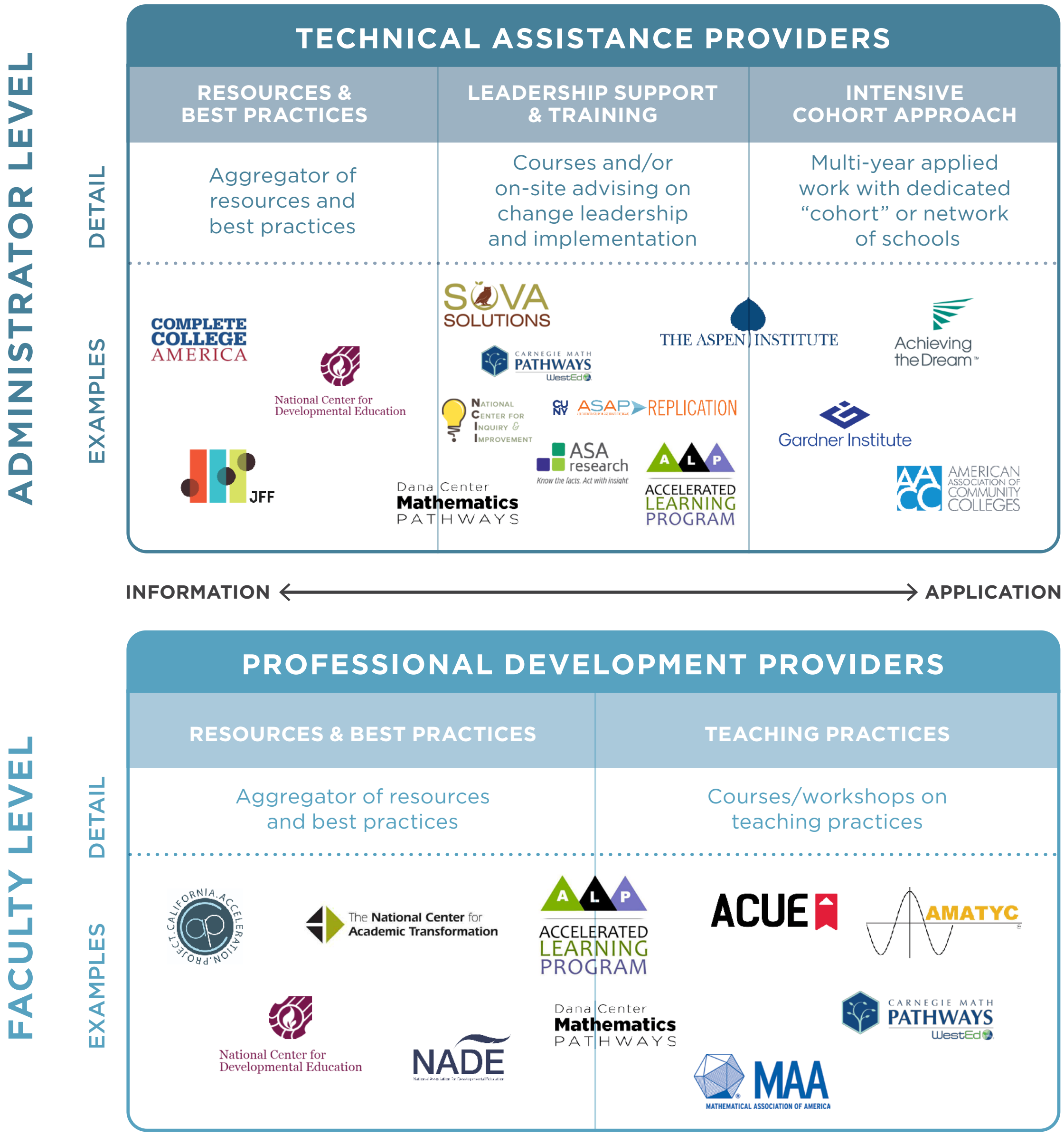
SUPPORT PROVIDER MARKET IS SMALL AND FRAGMENTED

The market for service providers that deliver technical assistance and professional development is very small and highly fragmented. This market is distinct from the rest of the developmental education supplier landscape in that it is a largely service-driven market where providers are generally assisting administrators with change management initiatives and providing professional development opportunities for faculty. The overall spend in the market is estimated at only about $35 million, with the majority of that spend coming from grant funding or membership dues, as all players in this space are non-profits.

Tyton Partners has divided this service-driven market into two broad segments – those who serve largely administrators, and those who serve largely faculty. We have noted some examples where the same organization serves both audiences, with technical assistance services for administrators and professional development for faculty. Within each main core audience, providers utilize a variety of service models to help support the administrators and faculty they work with.

Figure 13

SUPPORT ORGANIZATIONS SERVE A DIVERSITY OF NEEDS WITH A VARIETY OF GO-TO-MARKET MODELS



THE CHALLENGE OF SCALE

The market dynamics in this service-driven space present different challenges for furthering developmental education reforms than in the product-driven spaces. The providers in this space are small, but many are recognized for driving effective and lasting change and having real impact on student and school outcomes. However, in a market that is not consumer or client driven, but rather funded by philanthropic dollars, there is always a question of how to deliver services at scale.

CALL TO ACTION

Successfully supporting students through developmental education relies on a healthy interplay between policy, practice, and products. In order to realize the next phase of growth that brings impact to scale, policymakers, suppliers, faculty, and administrators must each play a role in getting there.

INSTITUTIONS

At the institutional level, faculty and administrators need to continue to shine a light on the gaps that shifts in policy have created in the supplier markets and be vocal advocates for products that are student centric and better aligned with evolving curriculum best practices.

ADMINISTRATORS

- For administrators, this may be best accomplished by giving faculty a large voice in the vetting and selection of curriculum. In some cases, faculty may select their own curriculum, but in many cases the decision is made at the departmental level with faculty involvement. Providing opportunities to review and discuss how the curriculum will and will not work within that department's curriculum approach is critical to making a decision that will provide support where it is needed the most. More discussion around how the curriculum will play out also provides an opportunity to give critical feedback to the market.

FACULTY

- Faculty can continue to be vocal advocates to highlight critical pain points that create skill gaps in students in remedial learning settings. As those closest to students and most knowledgeable about how to support them, faculty are in the best position to be productive advocates for student-centered approaches.

POLICYMAKERS

- Policymakers can open up channels of communication with suppliers and begin to include them early on in partnerships and in discussion around the downstream implications of policy reforms.
- To increase competition in highly consolidated markets, policymakers can also consider incentives or other policies that will spur competition and innovation.

SUPPLIERS

- Suppliers have a unique perspective to lend to the broader ecosystem of policymakers and institutional players. Working with faculty on the front lines of implementation, suppliers have a valuable cross-market view on which implementation models are working and which ones are easier or more challenging to support. If brought to the table and engaged in discussion with those involved in policy and practice, suppliers must be willing to share these views to help support student efficacy and a healthy marketplace.

ABOUT TYTON PARTNERS

Tyton Partners is the leading provider of investment banking and strategy consulting services to the education sector and leverages its deep transactional and advisory experience to support a range of clients, including companies, foundations, institutions, and investors.

In higher education, Tyton Partners' consulting practice offers a unique spectrum of services to support institutions, foundations, non-profit organizations, and companies in developing and implementing strategies for revenue diversification and growth, student persistence and success, and innovations in teaching and learning.

For more information about Tyton Partners, visit ***tytonpartners.com*** or follow us at ***@tytonpartners***.

ACKNOWLEDGMENTS

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STRONG START TO FINISH

We also would like to thank the more than 10 suppliers that we interviewed for this two-part publication. We greatly appreciate the input of all our interviewees and the 1,765 survey respondents across both four-year and two-year institutions, as well as their overall contribution to advancing the field's knowledge of developmental learning in higher education.

The team at ***Can of Creative*** was notably patient and understanding as we moved from ideas to drafts to professional execution of this publication, and we thank them for their efforts.

Tyton Partners supports the work of both institutions and suppliers in the developmental education market. Any mentions of particular institutions or suppliers in this publication serve to illustrate our observations on the evolution of this market. They do not represent an endorsement in any way. Finally, any errors, omissions, or inconsistencies in this publication are the responsibility of Tyton Partners alone.

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Gates is a general manager and strategy consultant with a successful 15-year track record of bridging the gap between innovative strategy and practical execution, while serving in various strategy, product management, and operational roles in the education market. He joined Tyton Partners as a partner in 2011.

Dr. Jeff Seaman, *Director, Babson Survey Research Group*

Jeff has been conducting research on the impact of technology on higher education and K–12 for over a decade. His most recent work includes annual survey reports on the state of online learning across US higher education, reports on open educational resource awareness and adoption in both US K–12 and higher education, and international surveys on online and distance education.

Lindsay Whitman, *Consultant, Tyton Partners*

Lindsay is a senior consultant with over 15 years of experience leading teams in strategy, marketing, and operations in the K–12, higher education, and corporate learning markets. She has a BA in English from Colgate University and earned an MBA from Cornell University.

Salil Kelkar, *Associate, Tyton Partners*

Salil is an associate in the strategy consulting practice at Tyton Partners. He joined the firm in May 2018. Prior to joining Tyton Partners, Salil worked on capital planning and process reengineering for investment banks and hedge funds. Salil earned his BS in finance with honors from Boston College.

Belinda Lei, *Associate, Tyton Partners*

Belinda is an associate in the strategy consulting practice at Tyton Partners. She joined the firm in June 2018. Prior to joining Tyton Partners, Belinda completed her first year of business school at Yale School of Management. She is currently enrolled in the Silver Scholars Program, a program at Yale for college graduates who pursue their MBA directly after graduation. Belinda earned her BS from Georgetown University.

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APPENDIX

APPENDIX A: DEFINITION OF DEVELOPMENTAL EDUCATION SUPPORT ORGANIZATION CATEGORIES

MARKET	DEFINITION
Administrator Level	**Resources and Best Practices:** Aggregator of resources on best practices for schools undergoing changes to developmental education. Resources may include case studies, reports and data from third parties, frameworks, and other original research from the organization. Organizations may help connect schools and administrators with peers for sharing and collaboration via conferences, webinars, and membership directories, but they stop short of providing actual consulting to colleges and universities via site visits or other localized assistance. Limited or no membership fees to participate or access resources.
	Leadership Support and Training: Provider of courses or on-site training/workshops for individuals or groups of personnel (typically administrators but sometimes faculty too) whose schools are implementing changes to developmental education or other mission-critical issues related to improving student outcomes. Fees paid by university for administrator courses or workshops.
	Intensive Cohort Approach: Colleges and universities join a cohort of schools to participate in an intensive multi-year process that includes best practice sharing, on-site consulting visits, cross-campus workshops, and other activities geared toward addressing mission-critical issues related to improving student outcomes.
Faculty Level	**Resources and Best Practices:** Aggregator of best practices that relate to teaching and learning and course redesign. Typically, the end audience/users of the research and best practices are faculty.
	Courses/Workshops on Teaching Practices: Professional development organizations and/or professional membership organizations that provide professional development for their members around teaching and learning.

EXHIBIT B: LIST OF RELEVANT PROVIDERS

DEVELOPMENTAL EDUCATION SUPPORTS	
ALP the accelerated learning program	The Accelerated Learning Program combines the strongest features of earlier mainstreaming approaches in order to raise the success rates and lower the attrition rates for students placed in developmental writing.
ASAP REPLICATION	Accelerated Study in Associate Programs Replication helps other schools implement the ASAP model utilized at all CUNY (City University of New York) schools. The program is designed to help associate-degree-seeking students earn their degrees faster.
Achieving the Dream	Achieving the Dream offers its network of participating institutions a variety of services, from pathways coaching and technology assessment services to change management.
AACC American Association of Community Colleges	The American Association of Community Colleges is the primary advocacy organization for the nation's community colleges. The association represents nearly 1,200 associate-degree-granting, 2-year institutions.
AMATYC	The American Mathematical Association of Two-Year Colleges is devoted entirely to providing a national forum for the improvement of mathematics instruction.
ACUE	The Association of College and University Educators prepares, credentials, and provides ongoing support to faculty in the use of evidence-based teaching practices that promote student engagement, persistence to graduation, career readiness, and deeper levels of learning.
ASA research Know the facts. Act with insight.	ASA Research focuses on needs assessment, program and policy evaluation and data management and analysis for higher education institutions, research firms and foundations.
The Aspen Institute	The ASPEN Institute is a non-partisan think tank focused on policy and practices across a variety of issues, including education.
California Acceleration Project	The California Acceleration Project supports California's 114 community colleges adopting developmental education reforms through a peer-led professional development network.
Carnegie Math Pathways WestEd	Carnegie Math Pathways assists its network of community colleges in implementing two shortened developmental math sequences (Statway and Quantway) designed to improve completion rates.
Dana Center Mathematics Pathways	The Charles A. Dana Center works with higher education institutions to create high-quality math pathways programs using evidence-based curriculum and pedagogy.
Complete College America	Complete College America is a non-profit that assists partner institutions in implementing and enacting change to increase graduation and retention rates.

DEVELOPMENTAL EDUCATION SUPPORTS	
Gardner Institute	The Gardner Institute partners with universities and educators and assists them in activities such as change management, survey deployment, and examinations around gateways to completion and retention.
JFF	Jobs for the Future is a non-profit that drives transformation through designing innovative and scalable solutions that create access to economic advancement for all.
MAA Mathematical Association of America	The Mathematical Association of America is a professional community of mathematicians, educators, and students who cultivate participation in mathematics through outreach and partnership.
NADE National Association for Developmental Education	The National Association for Developmental Education (now known as the National Organization for Student Success) focuses on the academic success of students by providing professional development for faculty and support professionals, supporting student learning, providing public leadership, and disseminating exemplary models of practice.
The National Center for Academic Transformation	The National Center for Academic Transformation provides guidance on using technology to redesign learning environments to produce better learning outcomes for students at a reduced cost to the institution.
National Center for Developmental Education	The National Center for Developmental Education provides instruction, training programs, research, and other services consistent with the purpose of developmental education and the missions of Appalachian State University and the Reich College of Education.
SOVA Solutions	SOVA Solutions provides change leadership and process improvement services by assisting higher education institution as they create efficiencies and fill operational gaps through a focus on process mapping, redesign and continuous learning.

ASSESSMENTS	
ACT CollegeReady	ACT CollegeReady is a student success tool that identifies knowledge and skill gaps in math and English and creates personalized learning paths for remediation.
ACT WorkKeys	ACT WorkKeys is a placement exam that measures a range of soft skills to determine readiness for the workforce, in addition to traditional English and math skills.
CollegeBoard ACCUPLACER	College Board's ACCUPLACER is an adaptive assessment that tests a student's ability to comprehend elementary mathematics and English subjects in an effort to accurately place the student in a remedial education course.
möbius MAA Placement	Mobius MAA Placement is a college math readiness assessment designed by the Mathematical Association of America and DigitalEd.

MATH CURRICULUM	
Mc Graw Hill Education ALEKS PPL	McGraw-Hill's ALEKS PPL is an advanced adaptive math curriculum that features a built-in assessment to assist in remedial placement.
Carnegie Learning	Carnegie Learning's MATHiaU is an adaptive developmental math solution that analyzes individual students' keystrokes and solving strategies to guide students toward closing identified skill gaps.
Cengage Learning	Cengage Learning offers a host of curriculum options through its Cengage Unlimited subscription model. Curriculum is often paired with WebAssign to allow instructors to personalize and customize curriculum to their needs.
Hawkes Learning	Hawkes Learning emphasizes contextualization, with a focus on teaching students by providing examples and videos connecting foundational concepts to future credit-bearing material in both developmental math and English subjects.
macmillan learning	Macmillan Learning offers curriculum in developmental math and English as well as college success subjects.
Mc Graw Hill Education	McGraw-Hill offers developmental English and college success curriculum that utilizes the adaptive technology in its Connect platform.
The NROC Project	The NROC Project offers member institutions media-rich, web-based math and English readiness systems that can be personalized and customized to the individual learner.
Pearson	The MyLab platforms allow students to personalize their learning journey while building proficiency in specific skills through scaffolding in math, English, and college success subjects.

EXHIBIT C: OVERVIEW OF FACULTY SURVEY RESPONDENTS

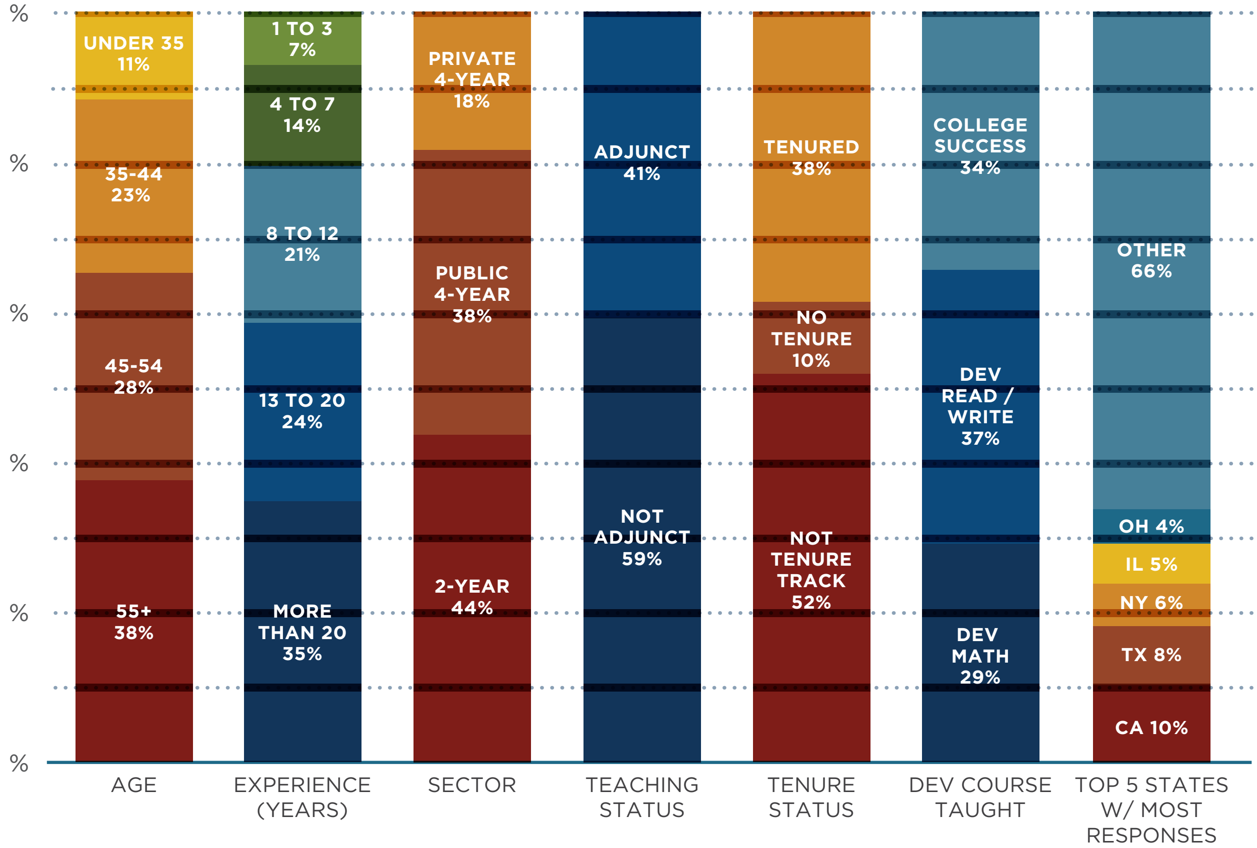
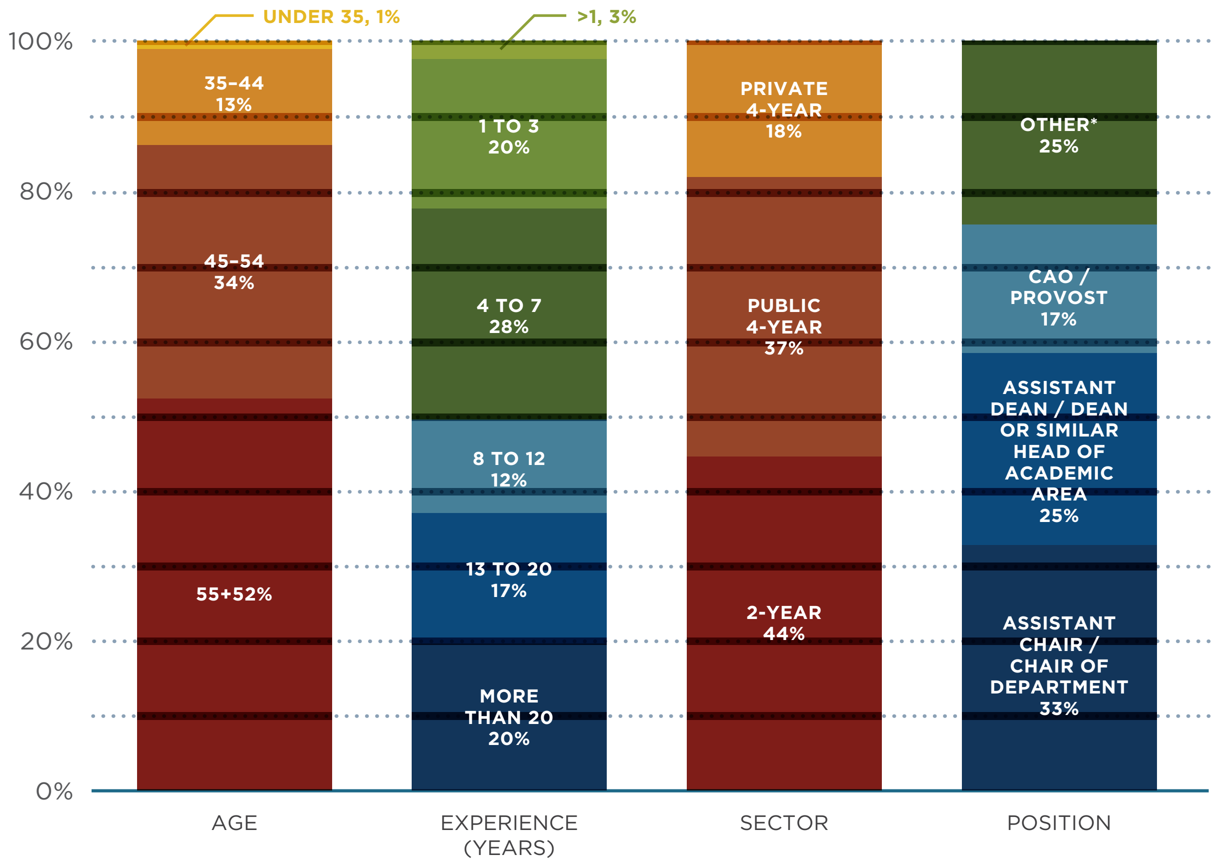


EXHIBIT D: OVERVIEW OF ADMINISTRATOR SURVEY RESPONDENTS



* "Other" includes program directors, VPs, admin holding multiple positions, directors of academic areas