

2022

HITTING THEIR STRIDE:

BUILDING MOMENTUM THROUGH
HIGH-QUALITY IMPLEMENTATION
AND A COMMITMENT TO CHANGE



Bay View Analytics

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EXECUTIVE SUMMARY

The developmental education reform movement is at a crossroads. While significant shifts in institutional and state policy have worked to dismantle the prior problematic approaches to developmental education, aggregate survey data from the past three years shows little change in self-reported awareness and adoption of key elements of the reform movement. However, when disaggregating responses by institution type, we see more meaningful and consequential differences happening over time.

Two-year institutions and Minority Serving Institutions (MSIs) report higher adoption and greater scale in critical reform areas such as placement and acceleration. Placement reform was defined in our survey as “eliminating high-stakes tests and replacing them with other measures of student readiness,” and acceleration reform was defined as “processes and policies that maximize the likelihood that students pass their gateway math courses in the first year of enrollment.” These response patterns indicate that the student populations who have historically been impacted most negatively by developmental education are more likely to be at an institution implementing reforms.

The fallout from the COVID-19 pandemic remains a concern for numerous stakeholders in the higher education ecosystem. Enrollment rates, particularly among minority populations and at two-year institutions, continue to decline, and budgetary concerns linger for many institutions, which could negatively impact the developmental education reform movement in the long term. However, for some areas of the reform movement, the COVID-19 pandemic accelerated the pace of change positively; the 2022 survey revealed a significant decline in the usage of high-stakes assessment, with many institutions reporting an elimination in the use of placement tests.

The pandemic, and subsequent declines in student enrollment, also led to an increased focus on equity and outcomes across learner populations. Our examination of outcomes gaps, in the form of graduation rates, revealed that institutions that were committed to reforming and refining their developmental education policies based on data from their institution were more likely to be successful in closing graduation gaps for Black, LatinX, and Indigenous students.

While these findings of positive progress should be celebrated, there is still much work to be done as significant barriers around implementation and buy-in persist. To navigate the crossroads and to increase the scale of impact, the next phase of the reform movement should focus on several key elements:

Measure the impact of reforms regularly and refine policies accordingly: Institutions that reported regular measurement of their developmental education reform movements and associated policies were more likely to demonstrate improved graduation rates for Black and LatinX students compared with the overall student population at their institution. This data suggests that regular reflection and revision have the potential to directly impact student outcomes positively, particularly for historically underrepresented populations.

Provide faculty with transparent reporting that highlights localized outcomes: Survey data shows that when faculty believe the reform positively impacts student outcomes, they are more likely to express satisfaction with their institution’s reform policies and practices. By highlighting the tangible impact of new modes of pedagogy at the individual institution level, along with plans for refinement when initial implementations do not deliver, institutions may increase faculty buy-in for broader reform movements while improving student outcomes.

Target professional development on the areas and roles that will provide the greatest impact: Research has shown that a faculty growth-mindset significantly impacts student performance, and our survey responses reveal that faculty with a fixed-mindset are much less likely to use best practices for teaching and learning on a regular basis. Good teaching is important in any classroom, but it is imperative when teaching in a corequisite classroom that contains students with a diversity of core knowledge and skills. For reform initiatives to be successful, institutions must invest in PD that addresses mindset and provides the necessary training on classroom best practices to meet students where they are and to support their learning.

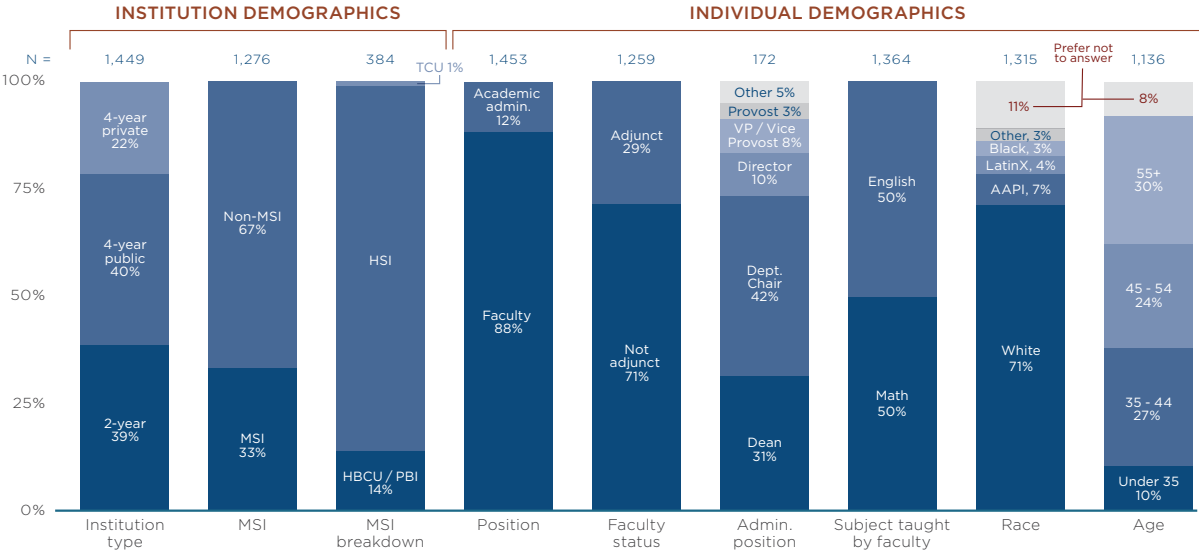
Recognize the critical role of faculty in supporting reforms, but ensure the continued implementation of high-quality, evidence-based policies: The role that faculty play in supporting and carrying out reform policies is crucial; therefore, the effort to win the hearts and minds of faculty is integral to long-term success. However, too many institutions and systems report remaining stuck in the early stages of reform adoption.

As stated in an interview with Katie Hern, Professor of English at Skyline College and Co-Founder of the California Acceleration Project, “The case-making has to continue, but institutions no longer can hold up the effort hoping they will convince people.” Transparent communication on the localized impact of reforms and targeted PD builds buy-in; however, these achievements are impossible without an initial implementation as a starting point. For anyone still waiting on the sidelines, now is the time for action.

SURVEY APPROACH

The 2022 Hitting Their Stride survey elicited responses from administrators and faculty at public and private two-year and four-year institutions. All respondents received a single survey instrument, and the questions displayed were determined by the respondent’s role and reported experiences. The survey was fielded between February 10 and February 24, 2022, and received 1,453 responses. The total number of responses collected lagged from prior years (down 15% from 2020 and 43% from 2019), primarily driven by a decline in faculty and administrator contacts available from our survey list provider. This decline may be related to the shrinking population of faculty and administrators with direct experience teaching developmental education students. The average margin of error for the combined administrator and faculty responses in last year’s (2021) iteration was +/- 3% for a 99% confidence interval. This year (2022), the margin of error increased slightly to +/- 3.4% for the same 99% confidence interval.

FIGURE 1
Overview of survey respondents



All chart notes are listed in Appendix A

Responses from two-year institutions comprised a smaller share of this year’s survey populations, with 39% responses recorded from this group. Four-year public institutions accounted for 40% of respondents, with the remaining 22% of respondents coming from four-year private institutions. As with past years, the majority of survey respondents were faculty (88%), with 71% reporting as not adjuncts. The majority of the 12% of respondents who reported being academic administrators were either Department Chairs (42%) or Deans (31%), with the remaining administrators divided across several titles (e.g., Director, Vice President/Vice Provost). Distribution by subject was evenly split between English and math, and all respondents, regardless of title, reported being directly involved in developmental education at their institutions.

PROGRESS ON REFORMS

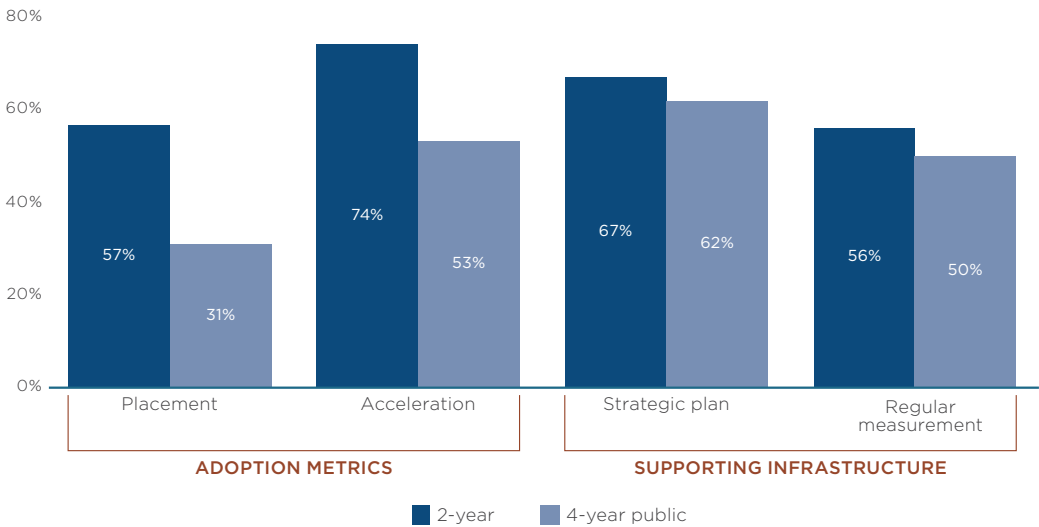
Over the past three years, Hitting Their Stride has monitored a variety of self-reported developmental education indicators and institutional factors. On the surface, it appears that there has been little change and reported progress in the reform movement. Since 2020, roughly 27% of respondents have reported that their institution’s approach is “at scale,” and the share of respondents “not pursuing” reforms have remained extremely low (3% in 2020 compared with 4% in 2022) – the rest remain stuck in the implementation process.¹ While these high-level indicators have not seen significant change over the past few years, disaggregating the data by institutions reveals modest but consequential differences and changes over time. While there is still much work to be done, the sparks of progress are particularly meaningful in light of the COVID-driven challenges faced by institutions over the last two years.

REFORM ADOPTION IS HIGHER IN TWO-YEAR AND MINORITY-SERVING INSTITUTIONS

Hit particularly hard by enrollment declines since the pandemic began, two-year institutions reporting being “at scale” rose 4% from 2021, with 37% of two-year institutions reporting being “at scale” in 2022. Respondents at two-year institutions were also significantly more likely to report adoption of placement and acceleration reforms. MSIs and non-MSIs also showed significant differences in reported progress, with 34% of respondents at MSIs reporting being “at scale,” compared with 24% of non-MSIs. MSIs also reported considerably higher adoption of placement and acceleration reforms.

FIGURE 2

Self-assessment on key indicators related to developmental education

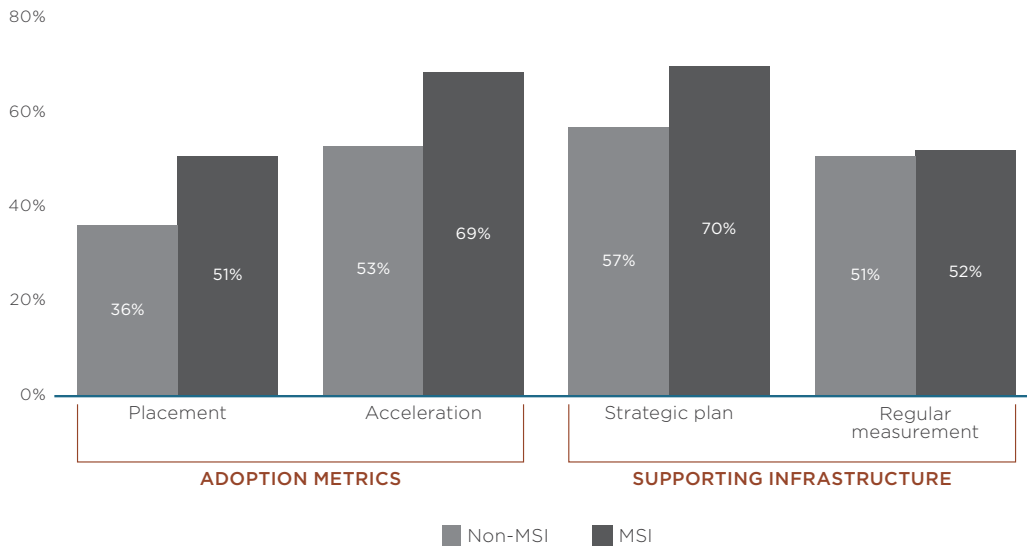


All chart notes are listed in Appendix A

1. See appendices for definitions of key terms and concepts presented in the survey.

FIGURE 3

Self-assessment on key indicators related to developmental education



All chart notes are listed in Appendix A

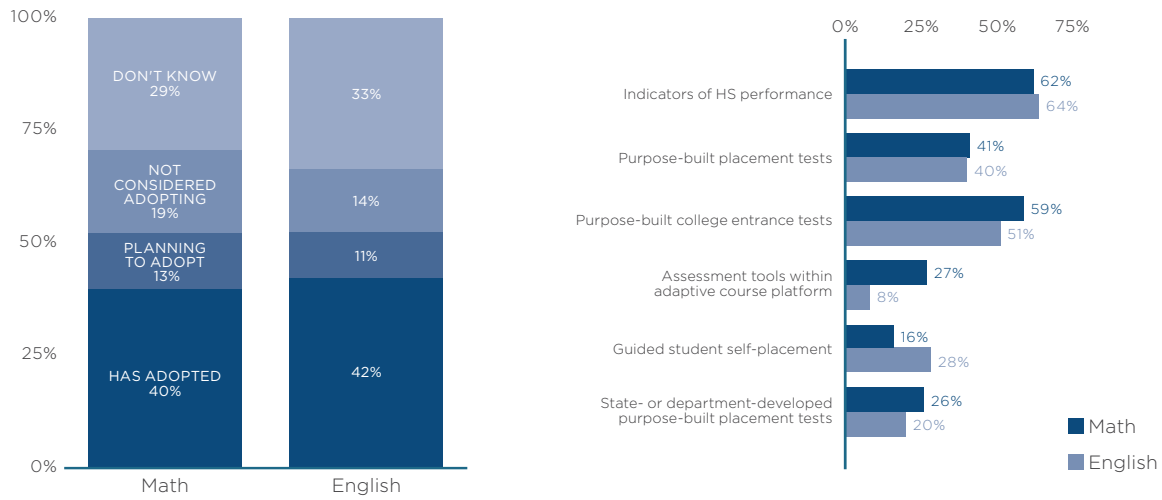
These figures are consistent with what we have seen in past years and are encouraging, indicating that the students who have been more likely to be negatively impacted by developmental education are more likely to experience high-quality, reformed developmental education. While this progress in critical populations should be celebrated, the lower adoption of reformed policies and practices at four-year publics and non-MSIs points to a continued equity gap for Black, LatinX, and economically disadvantaged students at these institutions. As reform adoption shifts into the post-pandemic phase, policymakers and administrators should ensure that all institutions, not just those serving higher numbers of specific populations, adopt the necessary reforms to provide equitable access to higher education.

THE PANDEMIC PUSHED MANY INSTITUTIONS AWAY FROM HIGH-STAKES ASSESSMENTS

One significant change from prior survey data is a marked shift away from high-stakes assessment tools like ACCUPLACER. Over half of respondents at two-year institutions and 51% of MSIs indicated they have adopted “placement reforms.” There was also a 17% decline from the prior year in the reported use of commercially developed standardized tests, such as ACCUPLACER, built for placement.

FIGURE 4

Self-assessment on key indicators related to developmental education



All chart notes are listed in Appendix A

While many institutions already had multiple measures policies in motion before the pandemic, such a notable decrease in the use of high-stakes tests is likely an unexpected catalyst caused by the pandemic. However, it is important to note that still less than half of all institutions are reporting having adopted placement reform, so there is still work to be done. It is also worth noting that only 26% report using guided student placement as one of the factors to consider in student readiness. These lower adoption rates in a process that would engage students in the dialogue on their readiness indicate the pervasive reluctance of institutions to facilitate increased student agency and self-determination. While this data point is specifically about one of many possible multiple measures, the overall mindset indicates some of the seismic shifts in perspective that need to occur in administrator mindset and institutional policy if the reform movement is to reach a greater scale.

“A guided self-placement model recognizes that the student knows themselves best and leverages that information for better outcomes. Application of this model requires a mindset shift within the institution that is student-first and doesn’t rely on faculty and staff to make assumptions.”

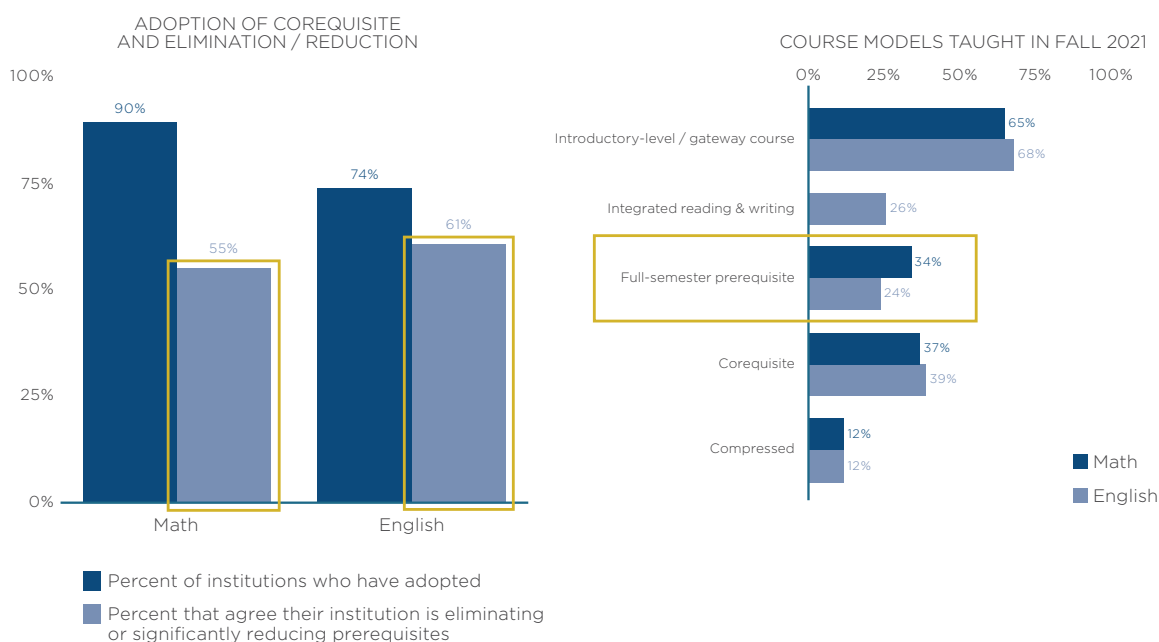
– Vanessa Keadle, Chief Strategy Officer, Student-Ready Strategies

COREQUISITE ADOPTION IS HIGH, BUT TRADITIONAL PREREQUISITE COURSES REMAIN

The picture for acceleration reform is slightly more complicated. The good news is that 2022 respondents indicate widespread adoption of and experience teaching corequisite courses.

Despite this high reported adoption, 34% of math faculty and 24% of English faculty reported teaching a full semester prerequisite course in the Fall of 2021, just behind the number teaching corequisite courses (37% and 39%, respectively). We also saw little change from the prior year in respondents' institutions substantially reducing or eliminating non-credit-bearing, prerequisite sequences. 55% of math respondents agreed that their institutions had eliminated or significantly reduced prerequisite sequences in 2022, compared with 59% in 2021, and 61% of English respondents agreed in 2022, compared with 63% in 2021. Additionally, faculty who reported teaching a corequisite course in 2022 fell compared to 2021, with an 11% decline in English and a 7% decline in math. However, this decline is most likely indicative of overall enrollment declines than a broader shift away from corequisite adoption.

FIGURE 5
Self-assessment on key indicators related to developmental education



All chart notes are listed in Appendix A

One potential explanation for this paradoxical data is that as institutions adopt corequisite offerings in response to state-level reform initiatives they are holding back from a whole-scale shift, instead of regarding prerequisite courses as a better option for some students. It is also possible that this data represents a snapshot of the reform movement, indicating that while many schools have adopted corequisite, they are still operating in pilots, measuring and refining their models before moving to full-scale elimination of the prerequisite courses. In reality, both are likely true. The former group requires more push from policymakers to follow not just the letter of the reform initiatives, but the spirit of them. The latter group requires adequate funding to ensure accurate and transparent measurement and refinement.

BARRIERS TO IMPLEMENTING HIGH-QUALITY REFORMS AND REACHING SCALE PERSIST

While findings show encouraging progress in some areas, it is frustratingly slow, and barriers remain. Recognizing these barriers across both two-year and four-year institutions, policymakers and administrators can work to speed progress by addressing the top concerns.

FIGURE 6

Barriers to Implementing Developmental Education Reforms

	2-YEAR	4-YEAR PUBLIC	
TOP-TIER BARRIERS	Lack of funding	29%	45%
	Level of time / effort to development curriculum	33%	38%
	Concerns over efficacy of new policies / practices	37%	27%
MIDDLE-TIER BARRIERS	Lack of training on how to implement changes	17%	22%
	Lack of participation / willingness to participate from faculty	21%	18%
	Unclear definitions of who takes ownership over changes	16%	18%
BOTTOM-TIER BARRIERS	Lack of project management resources that can work across departments and / or campuses	14%	15%
	Lack of meaningful student data to support the case for change	16%	13%
	Lack of participation / willingness to participate from administrators	9%	10%

All chart notes are listed in Appendix A

For another year, lack of funding has remained the number one reported barrier for four-year institutions and a very close third place with respondents at two-year institutions. While adequate funding is extremely important, funding only enables the execution of important tasks related to reform implementation.

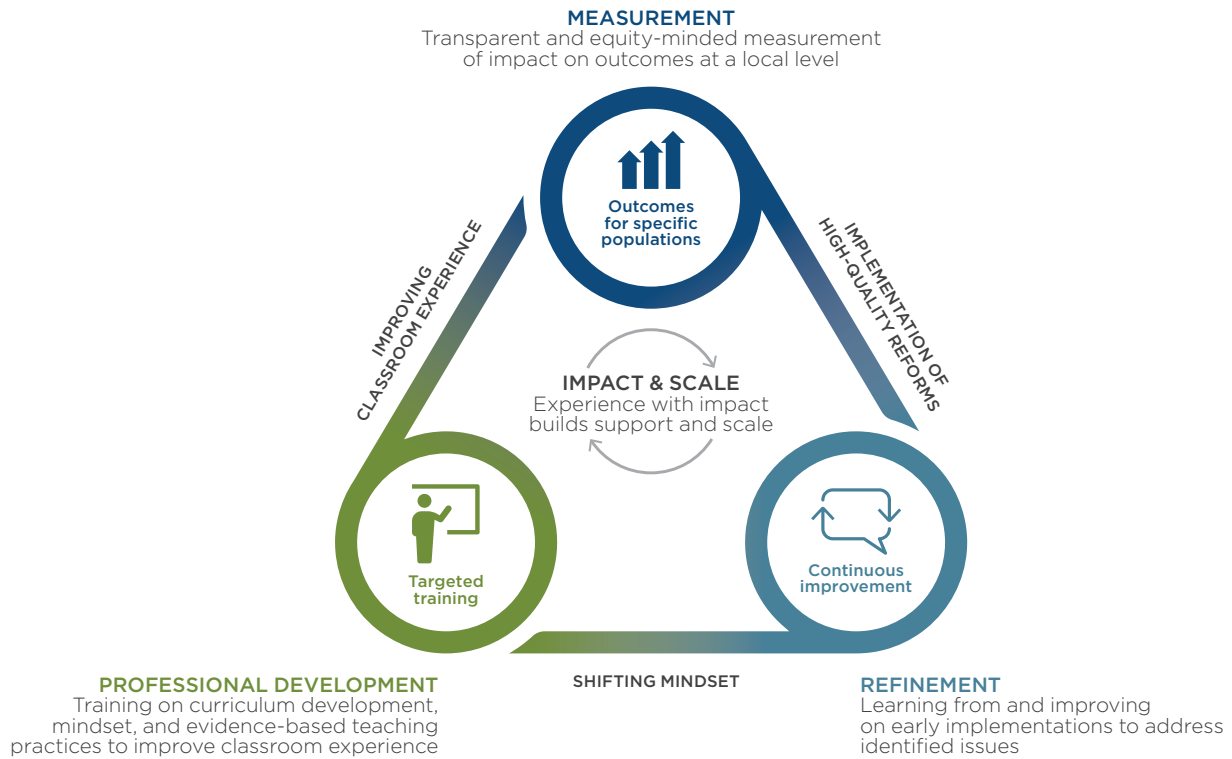
The next two top barriers – the level of time and effort to develop a curriculum and the concerns over efficacy – represent the limited institutional capacity to implement reforms in a high-quality way. More funding and support to address curriculum development and measurement of impact would help alleviate the capacity strain in these areas. While the scope of our survey does not cover curriculum development, in the next section, we will unpack findings that highlight the importance of regular measurement and refinement and provides opportunities for faculty to gain first-hand experience on the impact of reform initiatives at their own institutions.

*“If you’re going to mandate change, you must mandate all of the support that goes with it. Continuous improvement and creating campaigns on **strengthening faculty PD in general and the overall classroom climate** must be an institutional priority.”*

– Dr. Aisha Lowe, Vice Chancellor for Educational Services and Support, California Community Colleges Chancellor’s Office

The middle tier of barriers – lack of training, lack of participation, and unclear ownership – indicate the barriers to building a commitment to change. Approximately half of the institutions report regularly measuring the impact of their reforms, but that’s not enough. While addressing institutional capacity to measure and prove the efficacy of high-quality reforms will help address issues of scale to a certain degree, without adequately engaging the work of shifting faculty perception to fully embrace reforms, institutions will never achieve the desired impact and scale. Funding professional development that addresses faculty perception and supports the widespread implementation of equity-minded and evidenced-based teaching practices is critical to propelling the fundamental mindset shift necessary to deliver impact and reach scale.

FIGURE 7



All chart notes are listed in Appendix A

BUILDING IMPACT AND SCALE: EQUITY-MINDED MEASUREMENT AND CONTINUOUS IMPROVEMENT

To date, a core part of the reform movement is efficacy, with several published studies showing the positive impact of corequisite implementation on students across early-adopter campuses.² However, “concerns of efficacy” being a top barrier to reform progress indicates that even with these reports and studies, doubts persist, particularly among faculty. While there is no single reason for the continued skepticism, 2022 survey data suggests that the importance of measuring, improving, and ultimately proving the efficacy of reform implementation for the student populations on your campus is a critical component of gaining buy-in and support from faculty.

MEASUREMENT AND SCALING OF HIGH-QUALITY REFORMS NARROWED BLACK AND LATINX OUTCOME GAPS

In our 2022 survey, we asked respondents a set of questions focused on the measurement of reform and the perceived impact on specific student populations to try to understand the relationships between these critical elements. To establish a standard measure for actual student performance capable of capturing changes in performance across specific populations, we constructed an outcome gap variable based on the change in graduation rates for Black and LatinX students compared to the sector average between 2010 and 2020.³

Analysis showed that institutions closing the outcome gap for Black and LatinX students were more likely to report developmental education policies and practices were regularly measured and operated at scale. When asked to rate their agreement with statements about regular measurement and scale of reforms, respondents at institutions closing the outcome gap reported stronger agreement with both statements.

	GAP NARROWING	GAP WIDENING
Regular measurement	3.66	3.44
Operating at scale	3.44	3.31

While the differences in average responses may be small, they are statistically significant, indicating the importance of regular measurement and building scale on student actual outcomes, particularly for Black and LatinX students. Though not proven via statistical tests, it is reasonable to consider measurement and scale to be highly interrelated, as regular measurement directly addresses the “concerns about efficacy” barrier mentioned earlier. With an efficacious implementation model proven out on campus, there are likely far fewer headwinds to achieving scale at an institution.

2. strongstart.org/resource/no-room-for-doubt-moving-corequisite-support-from-idea-to-imperative
strongstart.org/resource/improving-equity-through-corequisite-support

3. See appendices for a more detailed explanation of how the outcome gap variable was calculated.

Faculty perceptions of impact for reform areas are also indicators of differences in institutional outcome gaps. When asked to assess the impact their institution’s specific developmental education reform policies have had on student outcomes, respondents at institutions closing their outcome gap for Black and LatinX students reported higher average scores.

	GAP NARROWING	GAP WIDENING
Impact of acceleration reform (scale of 1-5) ⁴	2.86	1.43
Impact of placement reform	2.44	1.91
Impact of multiple math pathways reform	3.18	2.59

These results further illustrate that institutions that practice regular measurement of their reform effort and are transparent about results and ongoing refinement with institutional stakeholders were more likely to be the ones closing outcomes gaps for Black and LatinX students.

What is perhaps most revealing about this analysis of outcome gaps is what it does not show. When looking across reported policy adoption for placement and acceleration reforms in math and English and multiple math pathways reforms in math,⁵ there were no statistically significant differences at a 95% confidence interval and only minor differences between institutions where outcomes gaps had narrowed versus widened. These findings suggest that simply adopting developmental education reform policies is insufficient in improving outcomes for Black and LatinX students and their peers. Reforms operate in a complex system, and it is often difficult to disentangle a single lever as efficacious. Instead, developmental education reform initiatives must be high-quality: they are regularly measured, refined, and scaled to ensure they achieve more equitable outcomes, and the entire process is transparent across all institutional levels.

FACULTY SATISFACTION IS CORRELATED WITH A POSITIVE PERCEPTION OF IMPACT

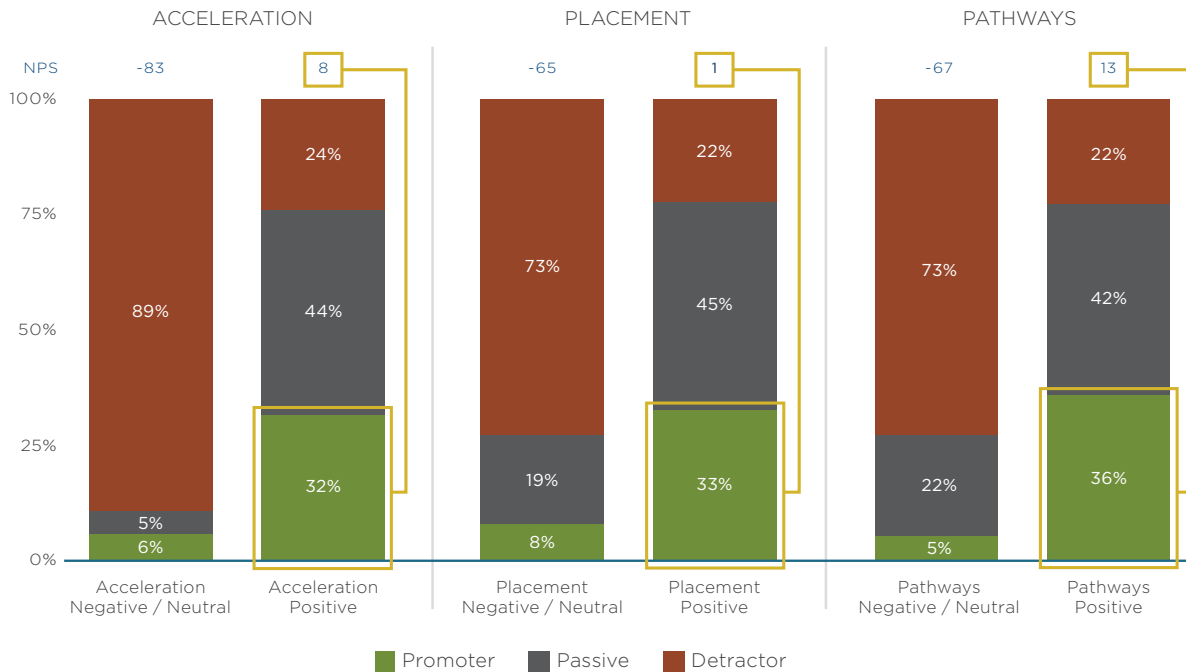
In the 2022 survey, answers to questions about how likely faculty were to recommend their institution’s specific policies (e.g., acceleration, placement, pathways) to a peer at another institution were used to assess the faculty’s Net Promoter Score⁶ (NPS) for reform areas adopted at their institution. NPS was assessed because it can be a helpful indicator of how faculty feel regarding specific policies and serve as a helpful proxy for the “hearts and minds” of faculty regarding developmental education reform. Overall, 2022 data on faculty NPS showed they did not buy into reforms, with math results highlighting a particularly high level of dissatisfaction with reforms. NPS was negative across all math reform areas, with placement scoring a -21 (on a scale of -100 to 100), acceleration scoring a -24, and pathways scoring a -12.

4. Rating scale for perceived impact on each area of reform was from 1 (Significantly negative impact) to 5 (Significantly positive impact)
 5. In this survey, we define “Multiple Math Pathways” as clearly structured programs of study or academic maps for all majors, which include introductory-level math courses aligned to a student’s program of study (i.e. Statistics, Quantitative Reasoning, Business, STEM).
 6. To calculate Net Promoter Score (NPS), respondents were asked to rate their likelihood of recommending their institution’s developmental reform policies to a colleague at another institution on a scale of 0 (very unlikely) to 10 (very likely). Respondents who selected 0-7 are considered “detractors,” and those who selected 8-10 are considered “promoters;” NPS represents the percent of the promoters minus the percent of detractors. NPS can be any number between -100 (meaning all respondents were detractors) and 100 (meaning all respondents were promoters).

However, further analysis shows that perception of impact is a critical lever in changing faculty sentiment on reforms. Math faculty who believed their institution's acceleration policies had a positive impact on students had a notably higher NPS of 8, compared with an NPS of -83 for faculty who reported a negative or neutral perception of the impact of acceleration reforms. Similarly, in placement and pathways, the group reporting positive impacts had a significantly higher NPS than the group that reported negative or neutral impacts.

FIGURE 8

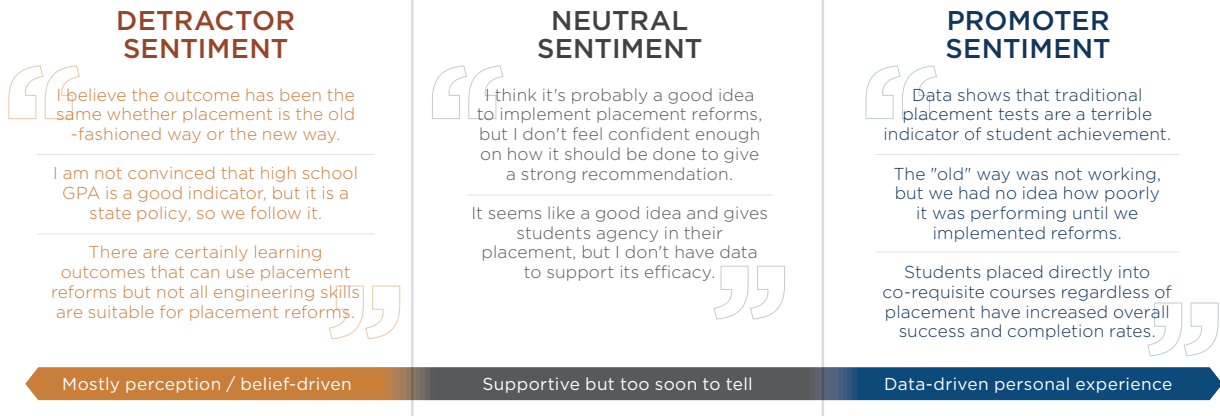
NPS of math developmental reform policies by perceived impact on student performance



All chart notes are listed in Appendix A

Open response comments from NPS questions show that “promoters” were most likely to cite specific, data-driven perspectives on how changes positively impacted the students. “Detractors” generally lacked data and specific examples of student-grounded impact or shared a more generalized opinion not grounded in data at all. Interestingly, the “neutral” scores indicated they were involved in reforms, but the results were too early to make a judgment. These qualitative and quantitative data points suggest that demonstrating and communicating the institution-specific impact of reforms on students is critical to building faculty buy-in to these reforms. However, it is worth emphasizing that regular measurement and refinement of policies is likely an important precursor to demonstrating and communicating impact; administrators should regard all of these activities as necessary elements to effectively implement reforms.

FIGURE 9



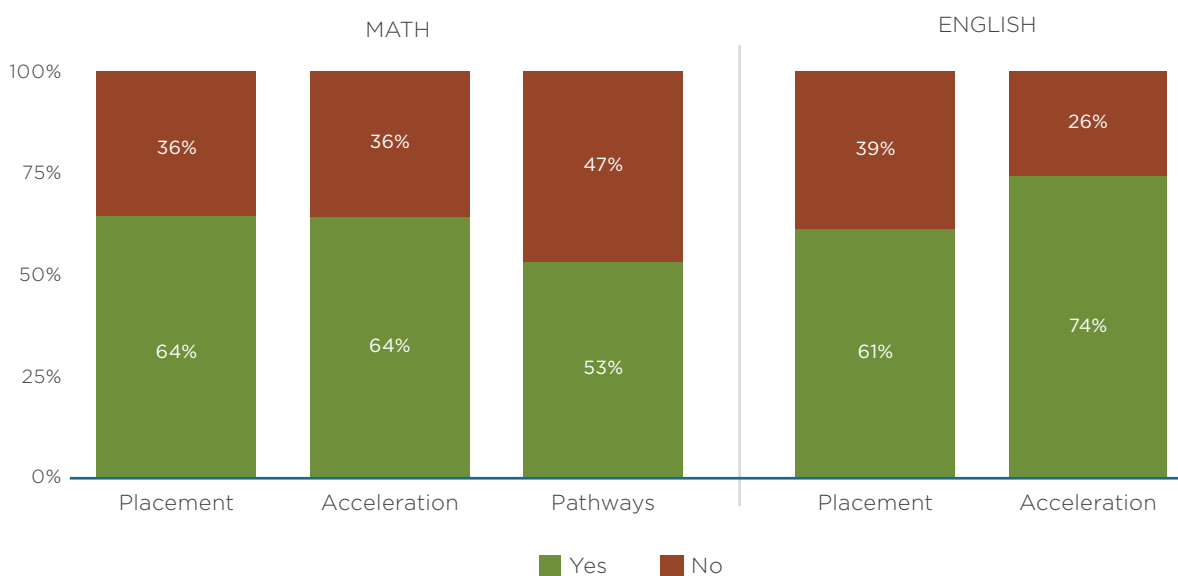
All chart notes are listed in Appendix A

MANY INSTITUTIONS ARE NOT REGULARLY MEASURING THE IMPACT OF REFORMS IN AN EQUITY-CENTRIC WAY

Despite this data suggesting the importance of regularly measuring developmental education reforms, almost one-third of respondents indicated not measuring the impact of their reforms. In math, 36% of administrators indicated not measuring placement or acceleration reforms, and 47% indicated not measuring the impact of pathways reforms. These results present a clear opportunity for institutions to implement straightforward changes to their developmental education policies that have a meaningful impact on student outcomes. Regularly measuring and evaluating the impact of developmental education reforms is associated with decreasing outcome gaps for minority populations.

FIGURE 10

Regular measurement of reform impact



All chart notes are listed in Appendix A

Respondents were also asked whether specific student populations were considered when changing policies around developmental education. A majority of respondents indicated that they targeted specific populations with their reforms, with most noting first generation, Black, LatinX, and students with financial needs as those in mind when creating policies. However, roughly 32% of two-year and 25% of four-year public respondents indicated that they considered all student populations equally when creating reforms, indicating room for growth as institutions continue to work to improve outcomes for historically underrepresented populations.

While most administrators indicated measuring policies and considering specific student populations when creating policies, it is unlikely that the specific impact on these populations is consistently measured at the classroom level. When asked about participation in professional development topics, only 20% of faculty indicated participation in courses focused on using student data disaggregated by race to improve teaching practices. Additionally, when asked about the recent use of technical assistance (TA), administrators ranked “measurement and outcomes” as ninth out of 10 possible options.

However, there are indications that administrators are not only increasing focus on measurement but are actively pursuing support in doing so. When asked about future use of TA services, “measurement and outcomes” topped the list. In anticipation of this growing demand, TA providers should be building capabilities and scalable tools that support accurately measuring reform impact across specific student populations and that are easy for institutions and individual faculty members to implement.

BUILDING IMPACT AND SCALE: FACULTY MINDSET AND CLASSROOM EXPERIENCE

Addressing the barriers to building a commitment to change is perhaps one of the hardest, but most consequential, things to address. As the classroom-level implementors of institutional policy, faculty have an impact on students that is unmatched by others in the developmental education reform movement. Classroom climate, adoption of best practices for teaching, and possession of growth versus fixed-mindset can all impact student outcomes, which – as just discussed – have a significant impact on faculty satisfaction with reforms.

To explore some relationships between outcomes, mindset, and classroom practices, we grouped respondents based on their answers to the statement: “A student’s intelligence is something about themselves that they can’t change very much.”⁷ We created three groups based on responses: Fixed-mindset respondents, who selected either “Strongly agree” or “Agree,” moderate growth-mindset respondents, who selected “Disagree,” and strong growth-mindset respondents, who selected “Strongly disagree.” Demographically, there were minimal differences between groups when looked at by institution type, MSI status, faculty status, and age. However, subject and race displayed differences. Math faculty were more likely to be in the fixed-mindset category (15%) than English faculty (7%), and Black respondents were most likely to fall into the growth-mindset category (67%), while Asian-American and Pacific Islander respondents were least likely to be categorized as growth-mindset (34%). Similar differences appeared in fixed-mindset where 5% of Black respondents were categorized as having a fixed-mindset, compared with 28% of Asian-American and Pacific Islander respondents.⁸

STRONG GROWTH-MINDSET FACULTY ARE MORE LIKELY TO PARTICIPATE IN PD AND USE CLASSROOM BEST-PRACTICES

The Hitting Their Stride survey asked faculty a series of questions exploring six categories of teaching practices we will refer to as evidence-based teaching practices (EBTs),⁹ as well as questions related to their most recent professional development experiences. Responses to these questions – within the three mindset groups – revealed respondents with a growth-mindset were significantly more likely to have participated in professional development in the past three years. In addition, they were more likely to engage in learning about topics such as active learning (+19%), equity-centered teaching practices (+28%), the implementation of culturally responsive pedagogy (+17%), and the use of student data disaggregated by race (+17%).

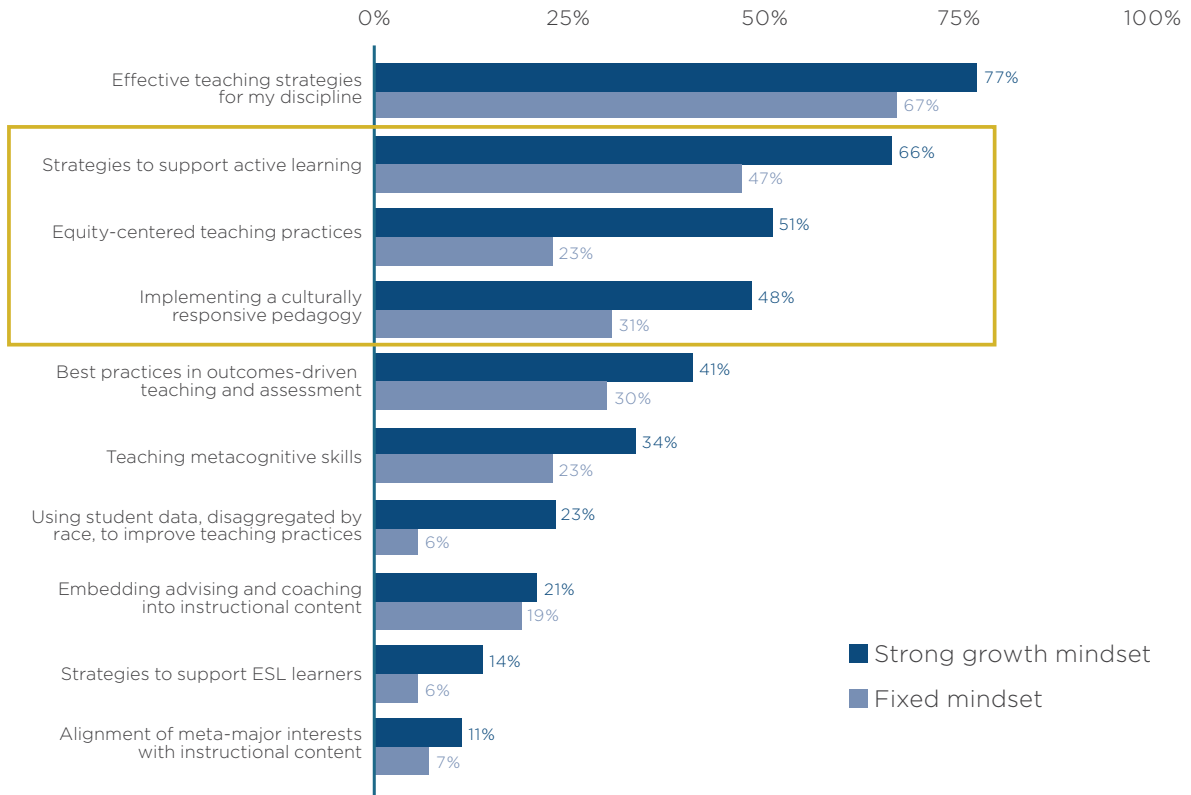
7. Options ranged from “Strongly agree” to “Strongly disagree.” This question, which was the primary driver for a cluster analysis around mindset conducted in the 2021 installment of Hitting Their Stride, is identified in other research as the main identifier of growth vs. fixed-mindset.

8. A full breakdown of demographics for each mindset category can be found in Appendix E.

9. Evidence-based teaching (EBT) practices are techniques or approaches that have been shown to be associated with greater student learning.

FIGURE 11

Math respondent indications of their participation in the following PD topics

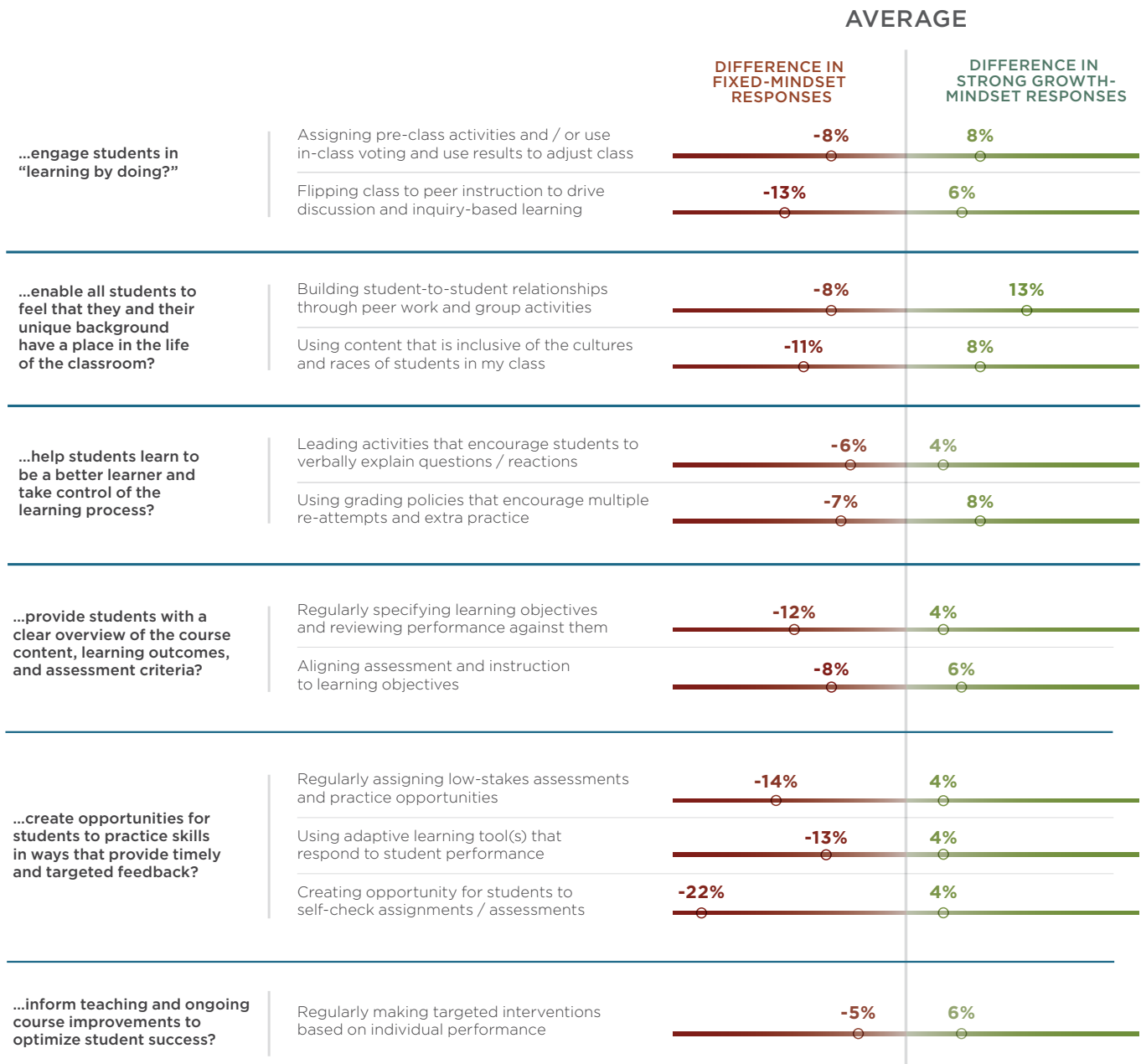


All chart notes are listed in Appendix A

Strong growth-mindset faculty also reported higher adoption rates of best practices in classroom supports and EBTs. Strong growth respondents were more likely to report experience with implementing student supports often used in conjunction with acceleration models such as embedded tutoring (+20%), teaching student success skills (+25%), and teaching metacognitive skills (+29%). When presented with a list of 26 different EBTs, categorized into six different categories, fixed-mindset math faculty were less likely to report using all but two of these 26 EBTs while strong growth-mindset math faculty were most likely to report using all but two of these 26 EBTs. Areas where strong growth-mindset responses far outpaced the overall average were EBTs involving student-centric instruction (flipped classroom, adaptive learning tools), regular expectation setting and performance tracking (regularly specifying learning objectives, assigning low-stakes assessments, creating self-check opportunities), and using relevant course content and materials for learners (using instruction and assessment content inclusive of those in the classroom).

FIGURE 12

Are you using any of the following practices to...

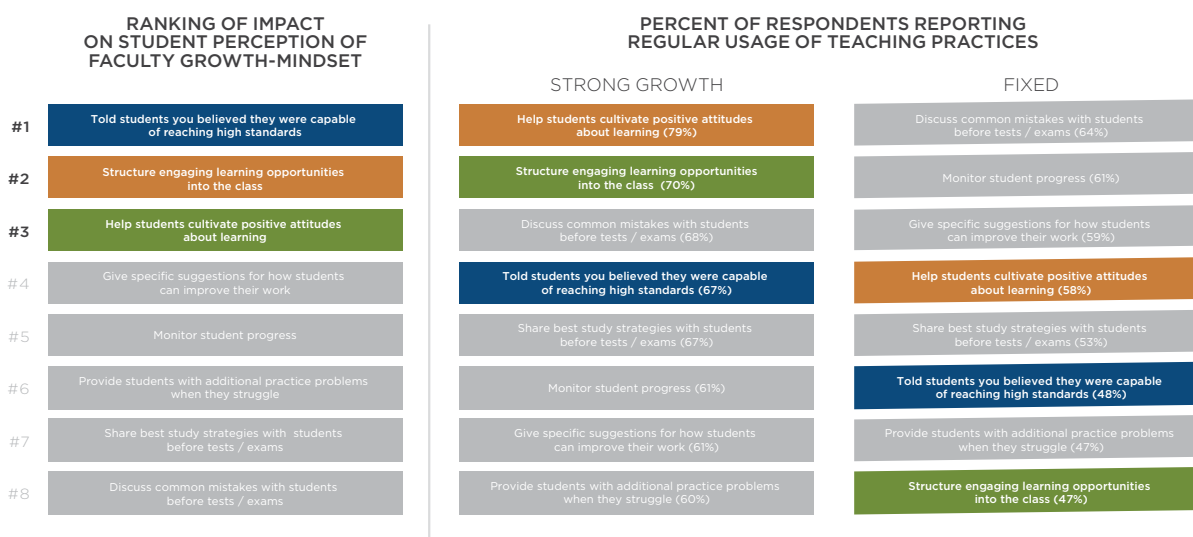


All chart notes are listed in Appendix A

The focus on understanding faculty mindset is critical because mindset has a proven impact on the outcomes for Black and LatinX students.¹⁰ Further research has identified a set of teaching practices ranking the impact that faculty behavior had on student perception of faculty mindset.¹¹ We presented this list of “high-impact” practices in our survey and asked respondents to identify which ones they regularly use when teaching students identified as not yet ready for college-level work. Three out of the four top behaviors selected by growth-mindset respondents were in the top three indicated in the research. However, fixed-mindset faculty were far less likely to report regularly using the highest-ranked and most impactful practices. The top three behaviors ranked fourth, sixth, and eighth out of eight. Given the impact that perception of faculty growth-mindset can have on Black and LatinX student outcomes, professional development that builds consistent adoption of these specific practices can have a meaningful impact on minority student performance in corequisite or other developmental education placements.

FIGURE 13

Teaching practices used in a class that includes math students identified as not ready for college-level work



All chart notes are listed in Appendix A

10. Canning, E., Muenks, K., Green, D., & Murphy, M. (2019). STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes. *Science Advances*, 5(2); Soobin, K., Yun, J., Schnieder B., Broda, M., Klager C., Chen, I. The effects of growth-mindset on college persistence and completion. *Journal of Economic Behavior & Organization*, 2022

11. Kroeper, K. M., Fried, A., & Murphy, M. C. (2022). Toward fostering growth-mindset classrooms: Identifying teaching behaviors that signal instructors’ fixed and growth-mindset beliefs to students. *Social Psychology of Education*. Published online: April 11, 2022. DOI: doi.org/10.1007/s11218-022-09689-4

Kroeper, K.M., Muenks, K., Canning, E.A., & Murphy, M.C. (2022). An exploratory study of the behaviors that communicate perceived instructor mindset beliefs in college STEM classrooms. *Teaching and Teacher Education*, 114, 1-11. DOI: doi.org/10.1016/j.tate.2022.103717

Murphy, M.C., Woodruff, S.E., Ozier, E., & Mathias, K. (2022). Student impacts of faculty mindset in California community colleges. A report of the College Transition Collaborative.

MOVING MORE INSTRUCTORS TOWARDS GROWTH-MINDSETS IS CRITICAL FOR LEARNER SUCCESS

It is difficult to tease out correlation versus causality with these findings on faculty mindset, but the patterns are clear and consistent – growth-mindset faculty are more likely to engage in regular PD and to regularly use equity-centered best practices in the classroom. And fixed-mindset faculty are much less likely to exhibit behaviors that elicit a perception of growth-mindset in students. These behaviors associated with a faculty growth-mindset are critical as research shows faculty mindset has a significant impact on student performance, especially for historically marginalized populations who may enter the classroom wondering if they belong there in the first place.

The pattern of the data, while surprising in its consistency, makes sense. If you believe students can learn and grow, you are more likely to invest the time and energy to ensure that you have the skills to support them. If you believe students are not capable, why would you spend your time accordingly? These findings point to the crux of the issues that must shift in faculty and, in some instances, institutional mindset for developmental education reforms to reach full scale. Good teaching is important in any classroom, but it is imperative when teaching in a corequisite classroom that contains a student population with a diversity of core knowledge and skills. For reform initiatives to be successful, investment in PD for all faculty is imperative. Investments must focus on addressing these core issues around mindset and provide the necessary training on classroom best practices to meet students where they are and support their learning.

ENGAGING FACULTY: OPTIMIZING PROFESSIONAL DEVELOPMENT RESOURCES

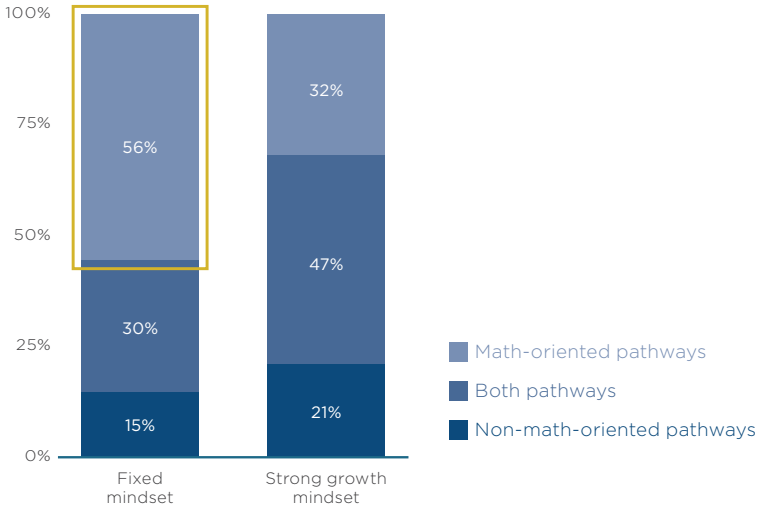
Recognizing the resource constraints institutions face while implementing developmental education reform initiatives, decision-makers and professional development providers would be well-served to target the faculty populations where their work would most likely have the highest impact. Examining NPS and mindset data suggests that math faculty is the group most likely to have higher concentrations of “detractors” or fixed-mindset individuals. Furthermore, those teaching primarily courses associated with math-oriented pathways¹² have the highest concentration of both these segments. Targeting professional development at this segment would therefore be most likely to have the highest impact on faculty perception of impact and institutional implementation.

MATH-ORIENTED PATHWAYS INSTRUCTORS ARE MORE LIKELY TO HAVE A FIXED-MINDSET AND BE HIGHLY DISSATISFIED WITH REFORMS

Increasing adoption of math pathways reforms signals a valuable option for students through developmental and introductory-level courses traditionally used as gateways to higher-level courses across subject areas. However, survey responses indicate that fixed-mindset math faculty were significantly more likely to teach courses for math-oriented pathways. This concentration of fixed-mindset faculty is significant; it could be detrimental to developmental education students pursuing math-oriented degrees (e.g., engineering), who may struggle with these courses early in their college journey. The concentration also provides a potential area of focus for institutions and professional development providers looking to maximize the impact of classroom practice-focused training.

FIGURE 14

Math pathways taught



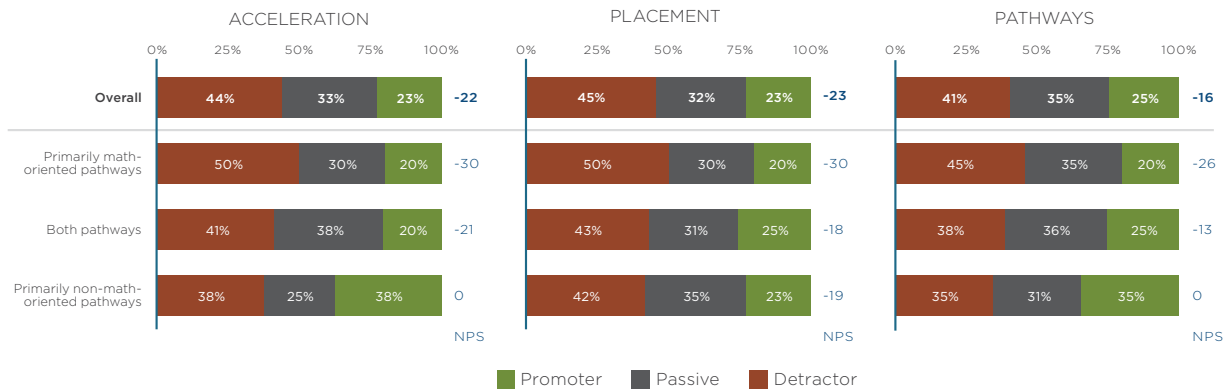
All chart notes are listed in Appendix A

12. Faculty teaching math-oriented pathways primarily teach students who intend to take calculus, business statistics, or similar. Non-math-oriented pathways faculty primarily teach students who intend to take quantitative reasoning, liberal arts math, or similar.

Faculty teaching math-oriented pathways were also much more likely to be detractors than those teaching non-math-oriented. As discussed earlier, being categorized as a “promoter” or “detractor” was strongly correlated with a faculty member’s perception of impact on student outcomes, and “promoters” are much more likely to be evangelists for the reform movement.

FIGURE 15

Math faculty Net Promoter Score on Developmental Education Reforms



All chart notes are listed in Appendix A

Given the high share of fixed-mindset faculty and detractors in the primarily math-oriented pathways categories, additional professional development on best practices for teaching and student support aimed at these instructors and more frequent communication around the value and improved outcomes seen on campus when implementing reforms would most likely have the highest impact on aggregate faculty views.

MOVING FORWARD: FOCUSING ON HIGH-QUALITY REFORMS

While work certainly remains to be done on the adoption and implementation of developmental education reforms, institutions that have already made the key first steps towards improving student outcomes should ensure that they are regularly measuring and refining their developmental education practices and policies. As the reform movement continues to scale, and state-level reforms roll out slowly but steadily, administrators must remember to regularly measure and communicate the impact of institution-level reforms on student outcomes to ensure that this data is readily available aggregated and disaggregated by race. And while ultimate success in this next stage of reforms will rely heavily on faculty buy-in and acceptance, administrators should not wait to win the heart and minds of all faculty before rolling out reforms.

In this next phase of the reform movement, it becomes increasingly important to explicitly consider historically minoritized populations when implementing practices and to ensure reform impacts are evaluated by these specific populations over time. Developmental education reform is not necessarily always equity-centric reform, and recent research highlights the importance of ensuring the expected impact not only for student populations in aggregate, but for specific populations who should be benefitting from reforms. Ensuring high-quality reforms are implemented, scaled, and regularly refined and measured can appreciably impact closing outcomes gaps between student populations.

Moving into this post-pandemic era of the developmental education reform movement:

- **Policymakers** should provide funding to support policy implementation and evaluation at the institutional and classroom levels, particularly for two-year institutions and MSIs that serve larger proportions of developmental education learners, but do not have access to independent resourcing in the same way that four-year private and flagship four-year public institutions do. Policymakers should avoid isomorphic pressures that could push them towards adopting a one-size-fits-all approach to funding and supporting implementation; recognizing the unique challenges faced by different types of institutions is integral to optimizing student outcomes. Ensuring policy development with unique institutions and student populations in mind will also ensure the improvement of outcome gaps between student groups.
- **Institutional leaders** should engage faculty as partners in the reform movement, recognizing their role in effective implementation at the classroom level. Administrators should also push for consistent measurement and refinement of reform policies and practices to ensure that data is collected and disaggregated by student race. In fact, recognizing that demonstrating localized results can be a valuable tool for winning over faculty reluctant about the reform movement and that measurement disaggregated by race can close outcomes gaps between student populations. By sharing results widely and transparently, they should work to ensure that faculty are aware of the impact on student outcomes on their campus. Leaders should also focus professional developmental resources on the populations where they are most likely to have the largest impact – math faculty, particularly those involved with math-oriented pathways.

- **Faculty** who witnessed the impact of developmental education reforms on the students in their classes should serve as vocal supporters on their campuses and beyond. Faculty who are uncertain about the potential for impact, or have concerns about elements of the reform movement, should share these thoughts with administrators and work to ensure that they are addressed through effective implementation. Those unconvinced of the value of developmental education reforms should seek out faculty with experience in these new modalities and try to avoid falling back upon anecdotal evidence of past student performance issues. All faculty should continue to push leaders for regular measurement, transparent data sharing, and consistent support and training regarding implementation and classroom practices and, above all else, focus on the potential for impact on the overall student population and historically minoritized student groups.

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, nonprofit organizations, and companies in developing and implementing strategies for revenue diversification and growth, student persistence and success, and innovations in teaching and learning.

In September 2020, Tyton Partners launched the Center for Higher Education Transformation. Building on 10+ years of experience, scores of engagements in higher education, and hands-on executive experience, the Center offers advisory services for institutions seeking transformational impact. Tyton's advisory offerings enable mergers and affiliations, revenue growth and diversification, transformative partnerships, and creative capital access for all types and sizes of institutions.

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We greatly appreciate the time that the 1,453 faculty and administrator participants invested in responding to our survey and the contributions of the 26 institutional and supplier stakeholders who participated in the interviews. Their contribution to advancing the field's knowledge of developmental learning in higher education is invaluable.

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Tyton Partners supports the work of institutions and suppliers in the developmental education market. Any mentions of particular institutions or suppliers in this publication serve as illustrations in our observations on the evolution of this market and 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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APPENDIX A: NOTES ON FIGURES

FIGURE 1

Overview of survey respondents: Not all respondents answered every question, resulting in slight variations across the total n count in these columns. 9% of MSI respondents are from institutions not categorized as a Historically Black College and University (HBCU), Predominantly Black Institution (PBI), Tribal College and University (TCU), or Hispanic-Serving Institution (HSI).

FIGURES 2 AND 3

Self-assessment on key indicators related to developmental education: Reported percentage based on those who said they “agree” or “strongly agree” that their institution has those key indicators, except for “Placement” and “Acceleration,” which denotes whether or not they report adopting multiple measures practices (MM) or placement reforms and acceleration policies, respectively. Full definitions and related survey questions for key indicators questions can be found in earlier appendices; two-year n = 542, four-year public n = 538; Non-MSI n = 915, MSI n = 453.

FIGURE 4

Percentage of respondents who have adopted placement reforms: Survey Question: “Has your institution adopted any placement reforms?” Two-year n = 529, four-year public n = 517.

Adoption of assessment practices: Survey Question: “Which measures does your school currently use to identify whether a student is ready for college-level math/English? Please select all that apply.” 2021 n = 689, 2022 n = 1,240.

FIGURE 5

Adoption of corequisite and elimination/reduction: Survey Question: “Please select the acceleration practices that your school has adopted or is planning to adopt. Select all that apply.” Math n = 63, English n = 46. Survey Question: “My institution expedites a student’s progression through developmental education and gateway English/math courses by substantially reducing or eliminating non-credit-bearing, prerequisite course sequences.” Math n = 652, English n = 669.

Course models taught in Fall 2021: Survey Question: “Which of the following course models did you teach in Fall 2021? Select all that apply.” Math n = 488, English n = 508. Introductory-level/Gateway courses are defined as “Credit-bearing, college-level gateway course with no additional coursework and/or supports designed to address gaps in student knowledge.” Full-semester prerequisite courses are defined as “Full-semester, non-credit-bearing courses taken only by students identified as not ready for college-level math/English work. Course(s) taken prior to enrollment in credit-bearing coursework.” Integrated Reading and Writing courses are defined as “Redesigning course sequences to combine developmental reading and writing courses into a single course.” Corequisite courses are defined as “Credit-bearing, college-level course that includes students identified as not ready for college-level math/English work who are completing additional coursework and/or supports designed to address gaps in student knowledge.” Compressed courses are defined as “Redesigned prerequisite course sequences to be more intensive and delivered in a shortened timeframe.”

FIGURE 6

Barriers to developmental education reforms: Survey Question: “What have been or will be the largest barriers to successfully implementing new policies and practices for developmental education at your institution? Please choose up to three.” Two-year n = 431, four-year public n = 343.

FIGURE 8

NPS of math developmental reform policies by perceived impact on student performance: Survey Question: “On a scale of 0 to 10, how likely are you to recommend your institution’s [acceleration/placement/pathways] approach to a peer or colleague at another institution?”; Survey Question: “What impact has your institution’s [acceleration/placement/pathways] initiatives had on overall student outcomes?” Math acceleration negative/neutral n = 94, Math acceleration positive n = 216, Math placement negative/neutral n = 96, Math placement positive n = 114, Math pathways negative/neutral n = 78, Math pathways positive n = 253.

FIGURE 10

Regular measurement of reform impact: Survey Question: “Does your institution regularly measure the impact of your [placement/acceleration pathways] reform effort?” Math Placement n = 45, Math Acceleration n = 56, Math Pathways n = 47; English Placement n = 31, English Acceleration n = 39.

FIGURE 11

Math respondents’ indications of their participation in the following PD topics: Survey Question: “When was your last professional development experience on the topic of teaching or supporting students who are identified as underprepared for college-level work?” Strong growth-mindset n = 211, Moderate n = 247, Fixed n = 85; Survey Question: “Please indicate your participation in any of the following professional development topics in the last five years.” Strong n = 186, Moderate n = 204, Fixed n = 70.

FIGURES 12A AND 12B

Strong n = 237, Fixed n = 89.

FIGURE 13

Teaching practices used in a class that includes math students identified as not ready for college-level work: Survey Question: “Which of the following teaching practices do you regularly use when teaching a class that includes students identified as not yet ready for college-level work? Select all that apply.” Strong n = 225, Moderate n = 261, Fixed n = 85.

FIGURE 14

Math pathways taught: Mindset grouping is based on response to the survey question: “Please respond with your level of agreement with the following statement. A student’s intelligence is something about themselves that they can’t change very much.” Fixed-mindset n = 126, Strong growth-mindset n = 520.

FIGURE 15

Math faculty NPS with development education reforms: Survey Question: “On a scale of 0 to 10, how likely are you to recommend your institution’s [acceleration/placement pathways] approach to a peer or colleague at another institution?” Overall n = 402, Primarily math-oriented pathways n = 94, Both pathways n = 121, Primarily non-math-oriented pathways n = 38; Overall n = 267, Primarily math-oriented pathways n = 63, Both pathways n = 77, Primarily non-math-oriented pathways n = 34; Overall n = 418, Primarily math-oriented pathways n = 138, Both pathways n = 166, Primarily non-math-oriented pathways n = 65.

APPENDIX B: DEFINITIONS FROM SURVEY QUESTION ON LEVEL OF SCALE

Response options for the following survey question: “Please choose the phrase which best describes your institution’s approach to changing the policies and practices of developmental education.”

RESPONSE OPTION	DESCRIPTION
Not pursuing	My institution is not pursuing any changes to policies and practices around developmental education
Not systematic	At my institution, changes to the policies and practices of developmental education are not a priority, meaning it is not happening or what is happening is optional or limited to select courses
Planning for implementation	My institution is planning to implement changes to the policies and practices of developmental education with the goal of achieving widespread adoption
Implementation in progress	My institution is in the process of implementing changes to the policies and practice of developmental education with the goal of achieving widespread adoption
At scale	My institution has implemented changes to the policies and practices of developmental education and has achieved widespread adoption

APPENDIX C: SURVEY QUESTIONS RELATED TO KEY INDICATORS

Respondents were asked to rate their level of agreement with the following statements on a scale of 1 (strongly disagree) to 5 (strongly agree).

KEY INDICATOR	RELATED SURVEY QUESTION
Strategic plan	The strategic plan for my institution specifies measurable outcomes for developmental education, with a focus on equity for students of all races, ethnicities, and socioeconomic backgrounds, and progress towards achievement is evaluated and shared with the campus community
Scale	My institution has fully scaled institutional policies and practices that maximize the probability of academic success for students of all races, ethnicities, and socioeconomic backgrounds and no longer operates pilot programs in developmental education
Regular measurement	My institution routinely and fully assesses any developmental education reform activities using quantitative and qualitative measures

APPENDIX D: DEFINITIONS FROM SURVEY QUESTION ON ACCELERATION PRACTICES AND OTHER COURSE MODELS

In the survey, the definition used for acceleration was: Acceleration practices are defined as processes and policies that maximize the likelihood that students pass their gateway English/math courses in the first year of enrollment.

Definitions for selected acceleration practices and other course models are listed below.

PRACTICE	DESCRIPTION
Introductory-level/ Gateway course	Credit-bearing, college-level gateway course with no additional coursework and/or supports designed to address gaps in student knowledge
Integrated Reading and Writing	Redesigning course sequences to combine developmental reading and writing courses into a single course
Full-semester prerequisite courses	Full-semester, non-credit-bearing courses taken only by students identified as not ready for college-level math/English work. Course(s) taken prior to enrollment in credit-bearing coursework
Corequisite courses	Credit-bearing, college-level course that includes students identified as not ready for college-level math/English work who are completing additional coursework and/or supports designed to address gaps in student knowledge

APPENDIX E: DEFINITIONS FROM SURVEY QUESTION ON EMBEDDED STUDENT SUPPORTS

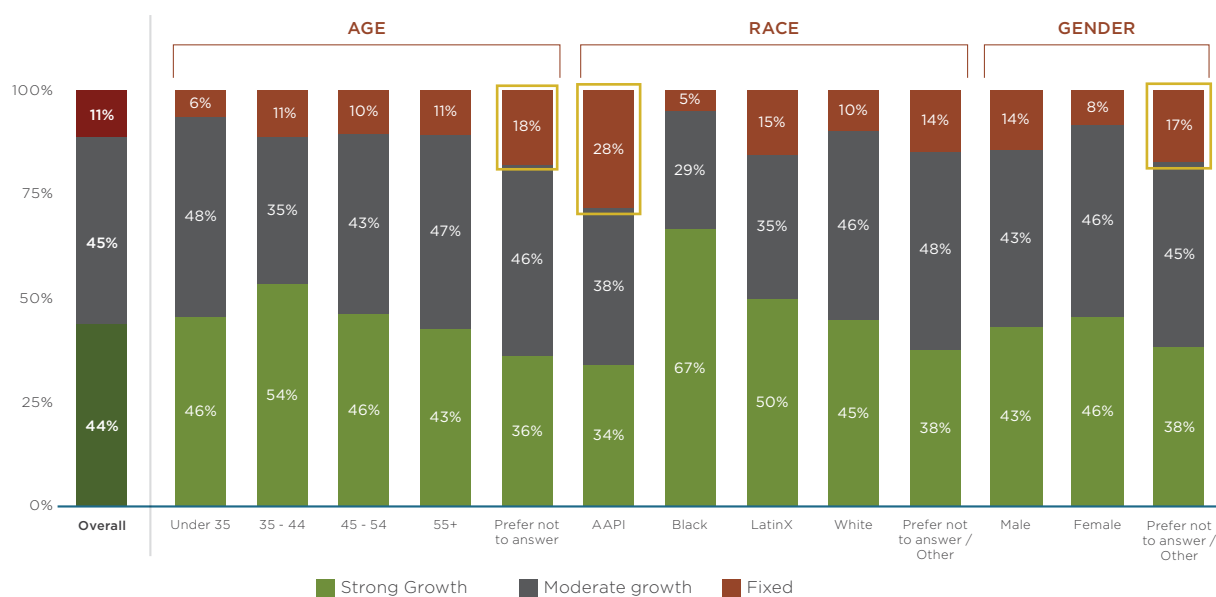
Response options for the following survey question: “Please select the embedded student supports that your school has adopted or is planning to adopt. Please select all that apply.”

Definition: Embedded student supports are defined as the way an institution embeds students’ academic and non-academic supports – i.e., academic tutoring, metacognitive skill development – into instructional delivery and curriculum for students identified as not prepared for college-level English/math.

SUPPORT	DESCRIPTION
Embedded tutoring	The strategic plan for my institution specifies measurable outcomes for developmental education, with a focus on equity for students of all races, ethnicities, and socioeconomic backgrounds, and progress towards achievement is evaluated and shared with the campus community
Supplemental instruction	Tutors are embedded in the classroom to help the instructor and may meet students outside the classroom as well
Teach metacognitive skills	Instruction focused on developing student awareness of their thinking and learning strategies

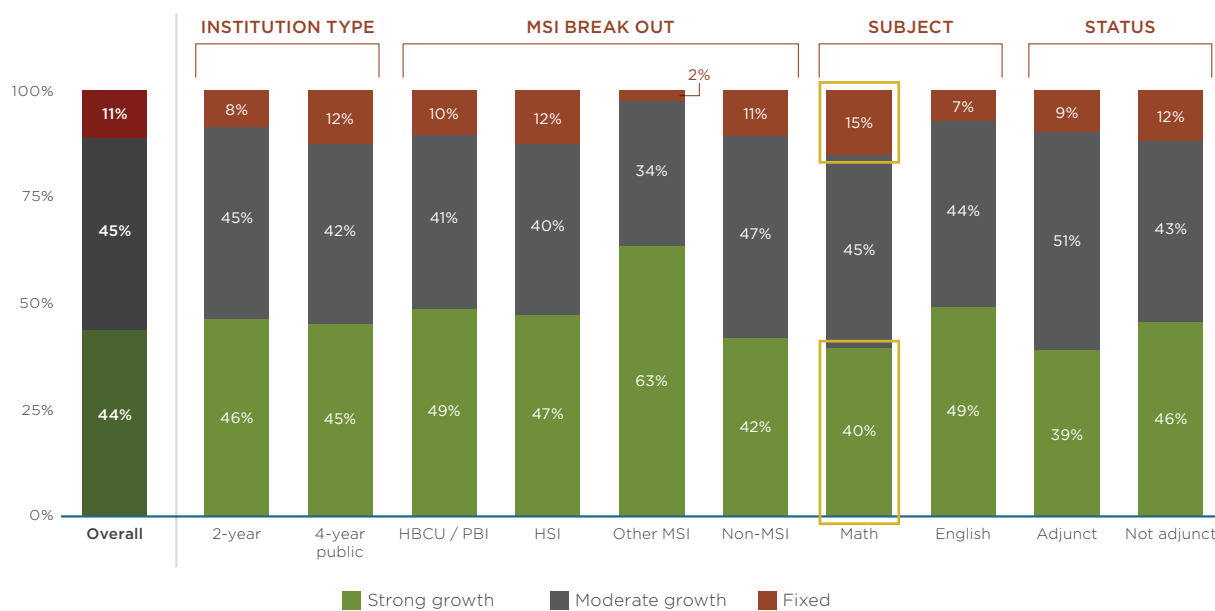
APPENDIX F: DEMOGRAPHICS FOR MINDSET CATEGORIES

FIGURE 16



All chart notes are listed in Appendix A

FIGURE 17



All chart notes are listed in Appendix A

Definitions of acronyms used in figures 16 and 17: AAPI: Asian American and Pacific Islander, HBCU: Historically Black College or University, PBI: Primarily Black Institution, HSI: Hispanic Serving Institution, MSI: Minority Serving Institution.

Sample size of figures 16 and 17: Strong growth-mindset n = 520, Moderate growth-mindset n = 521, Fixed-mindset n = 126.

APPENDIX G: OUTCOMES GAP METHODOLOGY

Investigating the ability of developmental education reforms to improve higher education outcomes for racial minority students led to a new set of analyses. We focused on identifying institution-level factors that contribute to closing graduation rate gaps for Black, Latinx, and Indigenous students between 2010 and 2022. We found significant differences in developmental education mindset, practices, and tools between institutions that had narrowed vs. widened outcome gaps for racial minorities over the last 10 years.

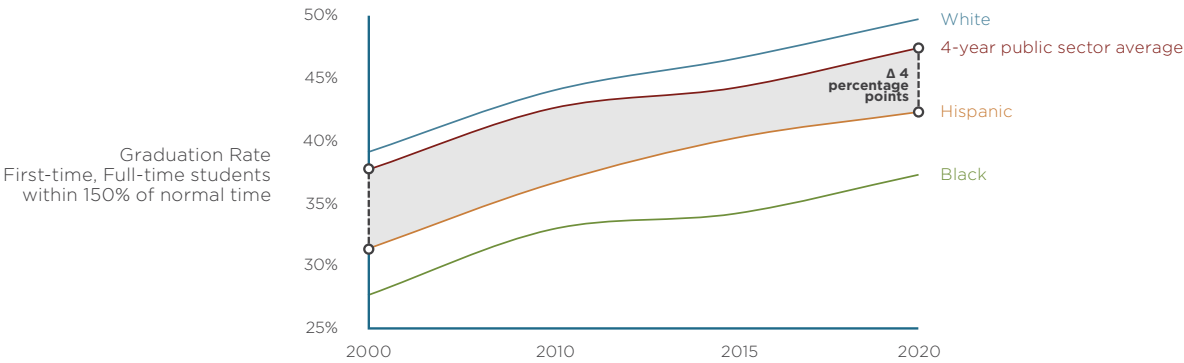
We began by evaluating several potential outcome variables to measure the effects of academic advising. The graduation rate was the most relevant variable with the greatest amount of data available at the institution level that was also parsed by race both currently and historically. Other variables considered but discarded for the availability of detailed data include retention rate, persistence rate, academic outcomes, career outcomes, and debt load.

Next, though it is common in educational research to define racial outcome gaps in relation to the majority group (e.g., White student graduation rates), we decided to use the sector average graduation rate as the comparison point for several reasons. Most importantly, comparing racial minority students to White students' outcomes would remove MSIs (and PWIs) from analysis due to the lack of a large-enough comparison group, and MSIs are crucial to our understanding of equitable outcomes for racial minorities.

Graduation rate data by race over time was available through College Scorecard, a US Department of Education website that compiles data from Integrated Postsecondary Education Data System (IPEDS). Though the data was published in 2022, the data reported by institutions is from 2019-2021 where the COVID-19 pandemic affected reporting and compilation of data. Therefore, analyses are described as being over a period of 10 years, from 2010 to the average year of 2020. In addition, reclassification and changes in IPEDS definitions for Indigenous students over time have led to some minor imprecision in the data. Because the overall results did not change with the exclusion of Indigenous students, they have been included in these analyses but not detailed here.

Figure 13

The gap between graduation rates for Hispanic students at four-year public universities and the four-year public university overall average has narrowed over time



In general, all students, especially those at four-year public universities, graduate at higher rates today than 10 years ago. The college graduation rate gap is closing faster for Hispanic students, especially at four-year public institutions (see Figure 13), compared with the sector average. Black students also have seen gains in graduation rates since 2010. However, it is important to note that graduation rates for White students have also increased during this 10-year period (see Tables 2-4).

Table 2

Two-year college graduation rates over time by race

	GRADUATION RATE 2010	GRADUATION RATE 2020	10-YEAR CHANGE
2-year sector average	30%	37%	+7%
Hispanic	23%	34%	+11%
Black	19%	25%	+6%
White	20%	40%	+10%

Table 3

Four-year public university graduation rates over time by race

	GRADUATION RATE 2010	GRADUATION RATE 2020	10-YEAR CHANGE
4-year public sector average	42%	47%	+5%
Hispanic	36%	42%	+6%
Black	33%	37%	+5%
White	44%	50%	+6%

Table 4

Four-year private university graduation rates over time by race

	GRADUATION RATE 2010	GRADUATION RATE 2020	10-YEAR CHANGE
4-year private sector average	55%	56%	+1%
Hispanic	49%	53%	+4%
Black	45%	45%	No change
White	58%	59%	+1%

Calculating the change in graduation rate gap over time required the following steps for each racial group at each institution (see Table 5). First, we calculated the outcome gap in 2020 data by subtracting the sector average graduation rate for all students from each institution's graduation rate for Black, Latinx, and Indigenous students. We conducted the same calculation for 2010 graduation rates. Finally, we found the change in the outcome gap from 2010 to 2020 by subtracting the 2010 outcome gap from the 2020 outcome gap.

Table 5

Example calculation for each four-year public institution of the change in the outcome gap for Hispanic students

			INSTITUTIONAL DATA ELEMENT		SECTOR DATA ELEMENT
Step 1	Calculate outcome gap in 2020	=	Mean graduation rate for Hispanic students at each 4-year public university in 2020	-	Mean graduation rate for all students at 4-year public universities in 2020
Step 2	Calculate outcome gap in 2010	=	Mean graduation rate for Hispanic students at each 4-year public university in 2010	-	Mean graduation rate for all students at 4-year public universities in 2010
Step 3	Calculate change in the outcome gap between 2020 and 2010	=	Outcome gap in 2020	-	Outcome gap in 2010

This calculated change in the outcome gap over 10 years (a difference of differences) was conducted for each institution based on their sector, and for Black, Latinx, and Indigenous students at those institutions. As shown in aggregate in Table 6, the gap in graduation rate is narrowing for Hispanic students overall at a higher rate (3.2 percentage points) and slightly widening (0.4 percentage points) for Black students since 2010.

Table 6

Calculated mean change in the outcome gap between 2010 and 2020 across institutions by sector and race; positive numbers indicate narrowing of the gap and improved outcomes while negative numbers indicate widening of the gap and worsening outcomes

	10-YEAR CHANGE IN OUTCOME GAP FOR 2-YEAR COLLEGES	10-YEAR CHANGE IN OUTCOME GAP FOR 4-YEAR PUBLIC INSTITUTIONS	10-YEAR CHANGE IN OUTCOME GAP FOR 4-YEAR PRIVATE INSTITUTIONS	10-YEAR CHANGE IN OUTCOME GAP FOR ALL INSTITUTIONS
Hispanic	2-year colleges	10-year change in outcome gap for	+3.2 percentage points	+3.2 percentage points
Black	4-year public institutions	10-year change in outcome gap for	-1.1 percentage points	-0.4 percentage points
White	4-year private institutions	10-year change in outcome gap for all institutions	+0.8 percentage points	+2.2 percentage points

Each institution was then segmented into one of five groups based on the numeric value of the change in the outcome gap between 2010 and 2020:

- High achieving: Institutions that graduated Black, Hispanic, and/or Indigenous students at the 90th percentile of all institutions in 2010 and 2020.
- Outcome gap narrowed:
 - Two-year institutions that demonstrated a decrease of more than 9 percentage points in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
 - Four-year public institutions that demonstrated a decrease of more than 8 percentage points in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
 - Four-year private institutions that demonstrated a decrease of more than 7 percentage points in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
- Constant: Institutions that demonstrated an increase or decrease of 10% or less in the percent change in graduation rate gap between Black, Hispanic, and/or Indigenous students and the sector average between 2010 and 2020.
- Outcome gap widened:
 - Two-year institutions that demonstrated an *increase* of more than 4 percentage points in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
 - Four-year public institutions that demonstrated an *increase* of more than 1 percentage point in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
 - Four-year private institutions that demonstrated an *increase* of more than 5 percentage points in the graduation rate gap between Black, Hispanic, and/or indigenous students and the sector average between 2010 and 2020.
- Unclassified: Institutions that demonstrated neither a substantial increase/decrease (see narrowed and widened cutoffs above) nor a minimal increase/decrease (+/- 10%) in the change in graduation rate gap between Black, Hispanic, and/or Indigenous students and the sector average between 2010 and 2022.

For inclusion in the segmentation, institutions had a minimum of 30 students in one or more racial minority groups in both 2010 and 2020. The resulting institution list also excludes for-profit and less-than-two-year institutions. We excluded for-profits because, while they often serve higher percentages of underrepresented minority students than public, non-profit institutions¹³, they also, on average, produce worse outcomes for students than enrolling in a public college or university¹⁴. Less-than-two-year institutions produce

13. Deming, David J., Claudia Goldin and Lawrence F. Katz. 2012. "The For-Profit Postsecondary School Sector: Nimble Critters or Agile Predators?" *Journal of Economic Perspectives* 26(1): 139-163

14. Student Debt and Default: The Role of For-Profit Colleges. Luis Armona, Rajashri Chakrabarti, and Michael F. Lovenheim Federal Reserve Bank of New York Staff Reports, no. 811 April 2017; revised February 2020

certificates and do not have a degree completion rate associated with them, so are excluded from this analysis. Lastly, the cut-off points for "Outcome gap narrowed" and "Outcome gap widened" segments are based on the 75th and 25th percentile of the change in graduation rate gap between *White* students and the sector average.

Table 7

Institutional characteristics of the comparison segments within the IPEDS universe of institutions

	Sector & Control	In-state tuition	Endowment	Instructional expenditure per FTE	%Pell Recipients	Admissions rate	% First Gen	% FT Faculty
Outcome gap narrowed (n=275)	Two-year	\$3,920	\$9M	\$6,778	35%	NA	48%	51%
Outcome gap widened (279)	Two-year	\$4,333	\$6M	\$6,613	36%	NA	47%	53%
Outcome gap narrowed (146)	Four-year, Public	\$8,347	\$156M	\$9,075	36%	73%*	37%	69%
Outcome gap widened (172)	Four-year, Public	\$8,280	\$123M	\$9,073	38%	76%*	36%	70%
Outcome gap narrowed (421)	Four-year, Private	\$32,640*	\$160M*	\$10,738*	38%*	67%*	31%*	65%
Outcome gap widened (280)	Four-year, Private	\$30,378*	\$103M*	\$9,218*	41%*	69%*	33%*	63%

Note: Asterisk indicates difference between outcome gap narrowed vs. widened institutions is significant at $p < 0.05$

Table 7 (above) reports the institutional characteristics of the comparison segments, "Outcome gap narrowed" and "Outcome gap widened," within the IPEDS universe of institutions. The table demonstrates that, in general, private institutions, but not publics, that have narrowed the graduation rate gap for racial minorities have significantly more resources and serve fewer students receiving Pell.

Figure 14

Comparison segments by key designations and overall graduation rate

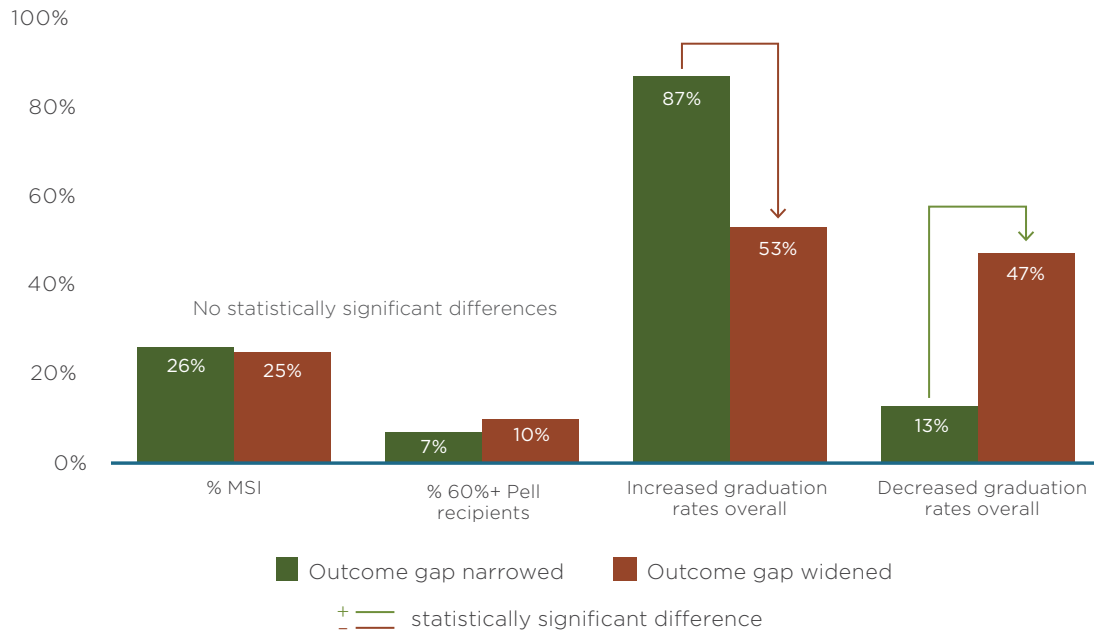


Figure 14 (above) demonstrates that the comparison outcome gap segments are balanced across MSI and non-MSI institutions and high- and low-Pell recipient institutions. In addition, the comparison segments do not present unexpected trends in overall graduation rates. In general, “Outcome gap narrowed” institutions have increased graduation rates overall, and “Outcome gap widened” institutions have decreased graduation rates overall. However, the segments have not uniformly increased or decreased graduation rates for all students over the 10 years, allowing for comparative analysis.