

Ohio STRONG START
TO FINISH



Co-Requisite English Implementation Forum Report



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Introduction

The objective of the Ohio Strong Start to Finish (SSTF) initiative is to increase the number of students who complete gateway mathematics and English courses and enter a program of study by the completion of their first year in college. Eighteen community colleges and 12 universities have joined with the Ohio Department of Higher Education, the Inter-University Council, and the Ohio Association of Community Colleges to participate in the Ohio SSTF project.

Currently, 33% of the students in the participating institutions complete the gateway mathematics and English courses by the end of their first year. The goal of Ohio SSTF is to increase the number of students passing these gateway courses as part of a guided pathway by the completion of their first academic year. Additionally, the Ohio SSTF project focuses on reducing the equity gap for students of color, students from economically disadvantaged backgrounds, students from rural areas, Pell-eligible students, and students over the age of 25. The State of Ohio has established the goal that by 2025, 65% of Ohioans, aged 25-64, will have a postsecondary credential of value, emphasizing the need for innovative curricula, proactive student counseling, and academic support in order for Ohio to meet its attainment goals and to reduce gaps in achievement for underserved populations.

Five implementation forums have been created to provide recommendations to the Ohio SSTF leadership: Data Implementation Forum, Equity and Inclusion Implementation Forum, Placement Implementation Forum, Co-requisite Implementation Forum, and Advising Implementation Forum. The membership in these forums represent the spectrum of public institutions of higher education in Ohio.

The Co-Requisite Implementation Forum consisted of subgroups reviewing research and best practices in mathematics and English strategies to assist students requiring additional academic support. The purpose of this report is to review research findings to date on co-requisite developmental English programming and to report findings from a recent survey of co-requisite developmental English programs of institutions signed on to the Ohio Strong Start to Finish initiative.

Acknowledgements

This report was compiled and written by Gerald Nelms of NN Nutrition Consulting, with input from the English Cohort members of the Co-Requisite Implementation Forum for Ohio Strong Start to Finish and the Ohio Department of Higher Education.

This work was supported in part by Strong Start to Finish, Education Commission of the States. The views expressed in this publication are those of the author(s) and do not necessarily represent those of Strong Start to Finish, Education Commission of the States, its officers, or employees. Strong Start to Finish is an emerging network of committed postsecondary leaders and philanthropists, working together to change institutional practice and policy across the nation and bring equity to education. Our goal is to significantly increase the number and proportion of low-income students, students of color, and returning adults who succeed in college math and English and enter a program of study in their first year of college. For more information, visit www.strongstart.org.

Implementation Forum Charge

The Co-Requisite Implementation Forum is charged with accomplishing the following:

- Reviewing national and statewide research and trends on developmental education research and models of co-requisite remediation;
- Identifying successful models and practices of developmental education that increase completion of gateway classes in a student's first year of study;
- Reviewing the capabilities and challenges of Learning Management Systems, Student Success Management Systems, and/or Advising Systems for scheduling and supporting co-requisite remediation models;
- Providing guidance on adopting and implementing co-requisite remediation; and
- Recommending state, ODHE, or institutional policy changes that support the implementation of co-requisite remediation.

The Co-Requisite Implementation Forum serves as an advisory group to the Ohio SSTF leadership teams and Ohio public institutions of higher education on the adoption of curricula that increase completion of gateway mathematics and English courses while closing the achievement gap between diverse groups of students. The Co-Requisite Implementation Forum may also provide recommendations for other areas emerging from its work that are germane to the goals of the initiative.

Context: The Challenge of Developmental English

Over the last two decades, we have witnessed a growing urgency on the part of state governments and institutions of higher education to reform what has traditionally been called “remediation,” but what has increasingly come to be known as “developmental education.” This change in nomenclature has occurred due to a recognition that students who place in developmental education are understood as students in need of additional academic support, with which they—like students not deemed less-prepared—are capable of achieving academic success. “Remediation” today, then, should be viewed as further educating, providing these students with the knowledge they need to succeed.

This growth mindset attitude toward “developmental” students has long been held and promoted by scholars and teachers in the field of “Basic Writing,” the scholarly study of helping developmental students, these students in need of additional support, to prepare to write more formally (academically, professionally) and to use writing as a mode of learning. Most historians of basic writing find its origins as a scholarly field in the rise of “remedial” programs in first-year composition during the 1960s as colleges and universities opened their doors to a greater diversity of students, including more students of color.¹

A 2018 introduction to developmental education for policymakers from the Center for the Analysis of Postsecondary Readiness (CAPR) notes, “Developmental education reform plays a key role in efforts to close racial/ethnic gaps in graduation rates.” (p. 3)² The authors of that document, Ganga, Mazzariello, and Edgecombe, point out that while the U.S. Department of Education found that 64% of every 100 white students enrolled in community college take developmental courses and 25% of those students graduate, and that 68% of Asian students take developmental courses and 29% of them graduate, a total of 78% of African-American students take developmental courses, but just

19% of them graduate, and 75% of Hispanic students take developmental courses and only 19% of them graduate. The figures for four-year public colleges are no less striking: About two-thirds of African American students and one-half of Hispanic students are placed in remedial coursework.^{3 4} Ganga, et al., conclude, “Black and Hispanic students are disproportionately assigned to developmental education, and black and Hispanic students who take developmental courses graduate at lower rates than white and Asian students who take developmental

courses — compounding attainment gaps.” (p. 3)

However, race and ethnicity alone are not defining features of developmental students. In a chapter of *Economic Inequality and Higher Education: Access, Persistence, and Success* (2007), Bettinger and Long showed how annual Ohio family income correlated significantly with Ohio students’ placement and non-placement in developmental courses.⁵ The following table is adapted from Table 5 of the Bettinger and Long chapter:

ANNUAL OHIO FAMILY INCOME	PERCENTAGE OF OHIO STUDENTS PLACED INTO DEVELOPMENTAL COURSES OR OTHER “REMEDIATION”	PERCENTAGE OF OHIO STUDENTS NOT PLACED INTO DEVELOPMENTAL COURSES OR OTHER “REMEDIATION”
Less than \$18,000	49.77%	50.23%
\$18,000 to \$24,000	44.42%	55.58%
\$24,000 to \$30,000	37.76%	62.24%
\$30,000 to \$36,000	35.81%	64.19%
\$36,000 to \$42,000	34.76%	65.24%
\$42,000 to \$50,000	32.95%	67.05%
\$50,000 to \$60,000	30.32%	69.68%
\$60,000 to \$80,000	27.69%	72.31%
\$80,000 to \$100,000	21.10%	78.90%
More than \$100,000	17.94%	82.06%
Average of All Students	31.91%	68.09%

This correlation between placement in developmental education and race/ethnicity and family income has been recognized by developmental education and basic writing researchers, scholars, and teachers since the 1970s.

In fact, historians of basic writing single out Mina Shaughnessy's foundational book *Errors and Expectations: A Guide for the Teacher of Basic Writing* (1977), based on her work administering a program for "basic writers" at CUNY (the City University of New York), begun in the late sixties.⁶ Yet, despite the ongoing scholarship intended to improve basic writing teaching, the pathway for students deemed in need of additional academic support did not fundamentally change until the implementation of the ALP (Accelerated Learning Program), a co-requisite option in first-year composition for these students at the Community College of Baltimore County (CCBC), begun in 2007.

The traditional pathway for students placed in developmental English or basic writing was one of a sequence of pre-requisite writing and reading courses, often non-credit-bearing.⁷ Sometimes, the sequence of courses could spread over multiple semesters or quarters that might take a year or more to complete, leaving these students disheartened by the stigma of "remediation" and the lack of progress through actual college-level coursework.

Research findings tell us that, in the U.S., around 68% of all new first-year community college students and around 40% of new first-year students in public four-year institutions of higher education are placed in at least one developmental education course.⁸ Yet, research findings

also tell us that only about 60% of community college students assigned to developmental education actually enroll in the developmental courses⁹, and less than 40% of those students who do enroll in developmental education sequences actually complete those course sequences, often using natural "exit points" of semester or quarter breaks to drop away from the pre-requisite sequence and leave college, a significant failure to stem our inability to retain the students most in need of college success.¹⁰

The Community College Research Center's (CCRC) Research Overview, "What We Know about Developmental Education Outcomes," summarizes the challenge we have in developmental education generally this way: "Research evidence suggests that, for the most part, the traditional system of developmental education is not achieving its intended purpose – to improve outcomes for underprepared students. These findings do not mean that developmental education should be discarded; large numbers of community college students need support to succeed academically. The findings do suggest, however, that the system could benefit from thoughtful reform."¹¹

The development and implementation of the co-requisite model has been a direct response to the failure of the traditional developmental English pathway. The foundation for the co-requisite model for Composition was laid out in an article by Peter Adams almost three decades before the Community College of Baltimore County's groundbreaking program was implemented.¹² As a faculty member at CCBC, Adams studied students who placed in basic writing but who instead enrolled in the credit-bearing, first-year Composition, gateway course. Adams found that these basic writing students, in fact, performed better than

those who took the basic writing courses. Adams, then, argued for the mainstreaming of basic writing students with additional support. Furthermore, Hunter Boylan, in his 2002 extensive review of research on developmental education, determined that “developmental students participating in paired courses tend to show higher levels of performance and demonstrate greater satisfaction with their instruction than students participating in traditional courses.” (p. 70)¹³

The following report will review research in these areas:

- The importance of developmental English programs and how these programs are situated to address fundamentally impactful factors on college student success;
- How placement affects developmental English;
- The reasons supporting a co-requisite approach to providing developmental English;
- How the co-requisite approach to developmental English diverges from that of developmental math, the variety of co-requisite developmental English program configurations, and the status of research on these configurations; and
- Ways of improving the research on and the impact of co-requisite reforms, suggested by this review and other reviews.

The participants in the Ohio SSTF program range from large, multi-campus institutions to small, rural community colleges and universities. It is recognized that implemented co-requisite programs may differ from campus to campus. While there is no established consensus about what co-requisite English may be optimal, the research does suggest certain parameters and fundamental principles that appear at present to be preferable and, if adopted, will increase the likelihood of better student performance, progress, and retention. These parameters and fundamental principles will be identified in the following report.

Importance of Developmental English

Required first-year college instruction in English, focusing on written communication, began in the late nineteenth century as remediation for students who had been determined by a writing test to be inadequately prepared to successfully write in college. This remediation quickly evolved into instruction in “Composition,” required of virtually every student entering higher education. Over the decades, research has tied student success to “becoming proficient in writing, speaking, critical thinking, scientific literacy, and quantitative skills as well as more highly developed levels of personal functioning by self-awareness, confidence, self-worth, social competence, and sense of purpose.”¹⁴ We can see, then, that the following are important student success factors that developmental English needs to address:

- The ability to read and critically understand formal writing;¹⁵
- The development of an adequate formal vocabulary;¹⁶
- The development of acceptable writing mechanics (grammar, punctuation, and spelling);¹⁷
- The development of certain college success strategies, such as time management;¹⁸ and
- Addressing “affective” (what has come to be called “non-cognitive”) factors that have been shown to be crucial to successful academic performance and success: whether a student approaches a subject matter with a growth or a fixed mindset, the level of a student’s self-efficacy or confidence in successfully accomplishing a task, whether a student believes she or he is “college material” (whether a student suffers from “impostor syndrome” and/or “the college fear factor”); and other various affective and attitudinal issues.¹⁹

Except for a typically optional and often limited credit-hour student success strategies course, college courses rarely address the above factors impacting student success. Unfortunately, a three-credit-hour, first-year writing course does not provide enough time to ensure that students in

need of additional academic support improve enough in these areas to pass that gateway English course. However, a co-requisite developmental English course, linked to that gateway course, can provide that extra time.

Placement in Developmental English and Developmental English Programming

Before pointing out the reasons supporting the implementation of the co-requisite model for developmental English instruction, we need to note the consensus of researchers and scholars that the need for instruction in developmental writing and reading is closely tied to the quality of the placement of students. A 2012 Community College Research Center (CCRC) Working Paper focuses attention on the need for an institution's placement processes to align with the goals and objectives of that institution's developmental education programs (p. 8). The authors of this working paper conclude that "these two systems are inextricably linked—reforms to one may require reforms to the other." (p. 24)²⁰ In sum, then, more accurate placement of students in writing and reading courses could require further changes in whatever reforms an institution might implement.

Reforms in developmental education placement are currently being implemented at the same time as developmental education curricula — sometimes simultaneously at individual institutions. Reformers of one, then, need to take into consideration the reforms of the other, and research clearly indicates that both need reforming. The Ohio Strong Start to Finish Placement Implementation Forum's Final Report notes, "Proper placement is critical to student progress," pointing out the risks of "over-placing" (placing students beyond their level of preparation) and "under-placing" (placing students below their level of preparation). Over-placing can lead to poor student performance in gateway courses. Under-placing delays student progress, which can affect student persistence and lead students to dropout of or simply not enroll in developmental education. And finding that perfect sweet spot between over-placement and under-placement has proven not to be easy.

Eliminating under-placement of students in developmental education might well invalidate some heretofore oft-cited studies of the co-requisite model of

developmental education, since that research often limits its student participant sample to those scoring just above and just below the placement cutoff. Suppose many of the students scoring just below the cutoff turned out to be under-placed and thus moved out of developmental education with a lower cutoff score adopted (and we do

not know this to be true or how many students that might be). The findings of some recent studies of co-requisite remediation programs could very well be viewed as misleading. Yet, even that outcome should not cloud the reality that traditional sequencing of developmental education courses simply has not worked.

Reasons Supporting Co-Requisite Developmental English

The co-requisite model reconfigures developmental education by enrolling students in need of additional academic support into the gateway course while also providing that additional support, originally in the form of a developmental education course linked to the gateway course, although other support configurations have emerged. The co-requisite model is just one model of “acceleration,” defined by Edgecombe as “the reorganization of instruction and curriculum in ways that expedite the completion of coursework and credentials.” (p. 256)²¹

Expediting student completion of developmental education eliminates “exit points” in pre-requisite course sequences, thus eliminating temptation on the part of students to drop out (sometimes referred to as “stop out”) of developmental education or college generally and increasing student motivation to enroll in developmental education. Acceleration also eliminates the additional cost of developmental course sequences and potential added student debt. In fact, traditional remedial course sequences cost students and their families across the entire U. S. around \$1.3 billion — and, as noted above, students taking these classes are likely not to ever graduate. As researchers Jimenez, Sargrad, Morales, and Thompson conclude, traditional developmental education “is a systemic black hole from which students are unlikely to emerge.” (p. 1)²²

Other acceleration models, not necessarily considered “co-requisite,” have been developed and implemented, and research has suggested they have had some positive outcomes. These other acceleration models include *compressed courses*, compressing a semester’s worth of course content into, say, half a semester; *curricular redesign*, where content of two courses is merged into one course (for example, merging reading and writing); and *paired courses* that are linked together in co-requisite fashion but not as closely

aligned as co-requisite remediation and gateway English or math courses are. Paired courses link courses “with complementary subject matter.”²³ However, in the co-requisite model, the developmental education course becomes something different from a stand-alone course. It is not “complementary” but *supportive* of the gateway course. Yet it is unlike other academic support services in that it provides a regularly scheduled class meeting with classroom assignments and possibly homework assignments. The co-requisite English course exists somewhere in-between a stand-alone developmental course and an academic support service.

In co-requisite remediation, coursework typically aligns with the gateway coursework. Nelms has identified three kinds of course alignment in the co-requisite model:²⁴

- **Direct alignment**, where students work on gateway course assignments in the developmental English course; preview content for the next gateway course class meeting; and/or review gateway course assignment prompts and discuss strategies for accomplishing those assignments;
- **Supplementary alignment**, where students work to develop competences in the co-requisite English course that reinforce and/or enhance what they are learning in the gateway course (for example, practicing critical reading or doing exercises to help increase a student’s vocabulary or working on improving a student’s writing mechanics (grammar, punctuation, and spelling); and

- **Indirect alignment**, where students work on issues that do not appear related to gateway course content but which can impact their success in the gateway course. These are issues such as time management, goal-setting, taking responsibility for one’s own learning, and other non-cognitive issues, including changing a fixed mindset into a growth mindset, raising a student’s self-efficacy, and addressing student fears of not being “college material.”

The potential *just-in-time* learning provided by the co-requisite model, as indicated in these different course alignments, can have significant impact on student college success, as research studies have shown, and we do not have to wait several years for the evidence of this learning to appear, as with other reforms.²⁵ A recent (November 2019) study by Ran and Lin, conducted under the auspices of the CCRC (Community College Research Center) clearly lay out what their study and the research of others have found and thereby, make a convincing case for co-requisite remediation:²⁶

1. Implementation of co-requisite remediation results in “strong and robust positive effects of placement into co-requisite remediation on student outcomes in gateway courses, compared with placement into prerequisite remediation.” (p. 33) Specifically, Ran and Lin found that co-requisite English students were 13 percentage points more likely to pass gateway English courses by the end of their first year than students in pre-requisite developmental English courses.

2. Mainstreaming students into college-level courses can significantly lessen the stigma long attached to developmental education courses and thus, can motivate students to succeed and progress.
3. Co-requisite DEV education “eliminates the many exit points created by remedial course sequences” and thus, can improve term-to-term retention.
4. Students placed in pre-requisite developmental English courses often do not understand why they are there. A different study of student perceptions of being placed in developmental education found that students’ initial reactions were “disappointment” and feelings of being stigmatized. The authors quoted a female participant whose reaction was, “Oh my God, I can’t believe I am in Developmental. Oh, I’m a dummy.”²⁷ Ran and Lin found that the co-requisite model can moderate those perceptions significantly. They found that “aligning the content in co-requisite learning support with college-level coursework makes the additional instruction more relevant to students and helps familiarize them with the content they encounter in the college-level course.”
5. “[A]ccumulating college credits early on could help students build academic momentum, setting them on a trajectory toward transfer to a four-year college [and/or] degree completion.”²⁸ Jenkins & Bailey (2017) also mention the importance of “momentum.” They cite research which “found that for students who had previously enrolled in a remedial English course, taking and passing a college-level composition course more than doubled their probability of earning a community college credential in any given term.”²⁹

Co-Requisite Developmental English Configurations

Discussion of the co-requisite remediation model up to this point has given the impression that it consists simply of two courses linked together. The fact is, a number of other co-requisite configurations— where the gateway course is linked to support other than a full, three-hour/week course— have been developed and implemented.

Unlike co-requisite math, co-requisite English does not diverge into separate course “pathways” of algebra, statistics, applied mathematics, business math, or others. Rather, co-requisite English retains the “pathway” that it has always had: the first-year writing course. The content of that course has changed over the decades from writing personal essays to writing literary interpretations to writing persuasive arguments, following a writing process that has evolved over time to include reading and research as an increasingly major part of that writing process. In fact, writing studies scholars have increasingly recognized that all writing — or at least, all academic writing — should be viewed as ongoing responses to previous “texts,” the definition of which itself has expanded over the last four decades as our human communications have become more digital and more visual. As Gerald Graff and Cathy Birkenstein have written, “[Writing] means entering into a conversation with others. Academic writing in particular calls upon writers not simply to express their own ideas, but to do so as a response to what others have said.”³⁰

What differs then among the various co-requisite configurations is the way in which developmental English students receive the co-requisite remediation support. In developing Ohio Strong Start to Finish’s Co-Requisite Implementation Forum English Survey, Gerald Nelms identified at least four different co-requisite configurations used by English Departments in Ohio and nationally:

- **Co-requisite Paired Course Model:** Developmental English Course aligned with Gateway English Course, both taken during the same term.
- **Co-requisite Workshop or Studio Model:** Developmental English Workshop or Studio aligned with Gateway English Course, both offered during the same term.
- **Co-requisite Lab Model:** Students deemed needing additional academic support attend a lab, following a prescribed curriculum that is intended to support their performances in a Gateway English Course.
- **Co-requisite Tutoring or Coaching Model:** Students deemed needing additional academic support regularly meet individually or in small groups with a tutor or coach to support their performances in their Gateway English Course.

Even within each configuration, there are variations in who provides the support (gateway course instructors? Instructors not teaching the gateway course? Trained or untrained tutors? Workshop facilitators? Lab coaches? Writing Center tutors? And so on); variations in the amount of time devoted to the provision of the support (three full hours/week? two hours/week? one hour/week? Less than that?); and variations in whether the support is required or optional.

With these many variations in co-requisite support, we must note that research has not kept up. The limitations of research on co-requisite English have been well-documented, and these limitations in the studies of co-requisite remediation should be noted. One major

issue is the paucity of peer-reviewed studies, although this limitation is increasingly being addressed.

Peer review is the academic equivalent of “quality control,” a review of each research study’s methodology, results, and conclusions. Most academic disciplines, including education, have a long history of methodological review, focusing on the reliability of research methods and then the validity of conclusions based on evidence presented from the application of those methods. Peer review involves having experts in the particular subject matter addressed by the study being reviewed, experts other than the study author(s), objectively evaluating the reliability and validity of the research.

In their November 2019 review of “The Changing Landscape of Developmental Education Practices,” Rutschow, Cormier, Dukes, & Zamora note the relative lack of peer-reviewed research on developmental education reforms, specifically that there is next to no research that has been done on the many variations of co-requisite remediation configurations. They point out that the urgency to improve the success of students enrolled in developmental education has not been matched by peer-reviewed research evaluating the reforms being implemented.³¹

An example of the potential problems can be seen in Alexandros Goudas’ reviews of research on co-requisite remediation reforms, including studies of the Accelerated Learning Program (ALP), begun by the English Department at the Community College of Baltimore County (CCBC) in 2007, considered the very first co-requisite program.³²

Goudas notes that this original ALP provided mostly well-trained instructors “in a well-organized program of support” and that the Community College Research Center’s (CCRC’s) working paper studies evaluating this model became “the foundation for almost every subsequent data-based argument in favor of the implementation of co-requisites in the nation.” (p. 4)³³ However, Goudas notes that soon after that working papers issued by Complete College America (CCA) began introducing and endorsing “co-requisite variations,” for which there remains little research supporting them.

Goudas also points out that students entering the CCBC’s ALP during the early years when it was being studied were self-selected. Entering first-year students were given the option of choosing between the traditional developmental English program and the ALP, and it’s entirely possible that the ALP students were those with more growth mindsets, higher self-efficacy for writing and reading, and generally more self-confidence, and who were more motivated to succeed and closer to the placement cutoff score than most of the other CCBC first-year developmental education students — and were, therefore, not a random sampling for those studies. Goudas rightly suggests the possibility that the results of the program found by these studies could well be due to “selection bias.”³⁴ Selection bias occurs when research study participants are not *randomly* chosen, such that some members of the entire population under study are less likely to be included in the research sampling than others.

The March 2020 Strong Start to Finish paper, *Core Principles for Transforming Remediation within a Comprehensive Student Success Strategy: A Statement*

from the Field, by Kadlec and Dadgar, addresses the need for more research on the different co-requisite remediation models and the diverse variations within the models, including variations in the number of credit hours attached to the developmental support; the number of actual tutoring, workshop, lab, or other support hours; and how many different instructors, tutors, or coaches are involved in the co-requisite remediation.³⁵ Kadlec and Dadgar conclude, “Much more research must be conducted to better understand the effectiveness of different models for particular student populations or circumstances . . .” (p. 9). That said, they point out that “there is a growing body of evidence that points to the common characteristics of high-quality models. For example, the most promising models avoid having too many or too few credits attached to them: too many units replicates the very problem co-requisite remediation is designed to address by inhibiting students’ ability to enroll in other courses, while too few hours (e.g., one hour per week) may provide inadequate time with an instructor.” (p. 9)

Research on Tennessee’s Co-Requisite Remediation.

While these possible caveats to the positive findings of research on co-requisite remediation should raise caution, we should not forget the clear failure of traditional remediation models. Plus, recent research suggests the co-requisite model can produce positive outcomes. A good example is Ran and Lin’s study of Tennessee community colleges, mentioned above.³⁶ These researchers took great care in their research design and methodology and reported their methodology in detail, seemingly having Goudas’ and others’ cautions in mind. Their findings reflect that attention to detail.

While Ran and Lin, to repeat, found that co-requisite English students were 13 percentage points more likely to pass gateway English courses by the end of their first year than students in pre-requisite developmental English courses, they are careful to note the limitations of their study and what they did not find, tempering some claims regarding the long-range effects of co-requisite remediation.

In order to achieve reliability in their research through the use of a regression discontinuity analysis, Ran and Lin compared only students who scored just above and just below the Tennessee community college system's assigned college readiness threshold cutoff (the ACT score of 18). This clearly limits how much we can generalize from their findings. Also, as noted above in our section on placement, reforms in developmental education placement could well make Ran and Lin's findings irrelevant.

Regarding their findings, these researchers did not find significant long-term positive effects of the co-requisite model that some co-requisite advocates have been touting. Ran and Lin reported that "the positive effects of corequisite placement relative to prerequisite placement diminish somewhat over time, but the magnitudes remain substantial." They noted a decrease by the end of Year 3 of about nine percentage points (or a 27% drop) from Year 1 in the completion rate in gateway English of developmental students compared to students placed in traditional pre-requisite courses (p. 20). In other words, the likelihood of completing the first-year gateway composition course decreased for students who waited to

enroll in the co-requisite writing courses until after their first year.

Overall, Ran and Lin "did not find any significant effects of corequisite remediation on enrollment persistence, transfer to four-year colleges, or degree completion up to three years after initial enrollment." (p. 34) They conclude, "This suggests that improvements in gateway course outcomes are important but insufficient barometers of academic momentum and college success." (p. 34) This conclusion is reasonable when we consider that there is simply too much time, too many courses, and too many personal experiences beyond academics that occur between entry into college and graduation. We simply cannot expect one first-year course alone to ensure college success.

Nevertheless, Ran and Lin also conclude, "Even though the [co-requisite] effects diminished somewhat over time, they remained significantly positive and sizable until the end of the third year after students' initial enrollment," and Ran and Lin note that these results are consistent with the findings of earlier research. (p. 33) They conclude that their study "suggests that corequisite remediation is a scalable approach to improving student success in gateway courses." (p. 33)

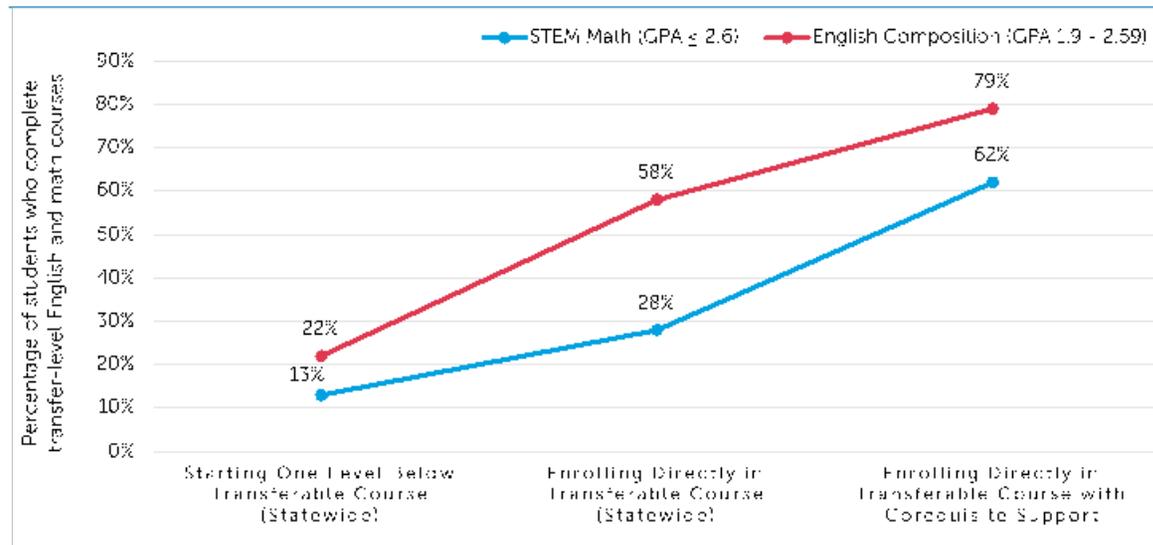
Research on the outcomes of several other state-mandated developmental education reforms have come to similar conclusions, showing real promise in the co-requisite English model.

California's Co-Requisite Remediation.

The state of California mandated the acceleration of course progress by students placed in developmental education to begin in fall 2019. Early outcomes from nine community colleges' implementation of co-requisite reforms in 2016-2017, studied by Rodriguez, Mejia, and Johnson in 2018, indicated increases in transfer-level courses, although the size of these increases varied across the colleges.³⁷ More recent reports point to outcomes similar to those of Tennessee. Notably, California community colleges that implemented the mandated co-requisite acceleration have seen an increase in English gateway course completion. While only 22% of students taking a pre-requisite developmental English course one level below the gateway course completed that gateway course, 79% of students enrolling in the gateway course with co-requisite support completed the gateway course.³⁸ For a more complete picture, see the line graph below. We should note that prior to the acceleration mandate, some California community college students deemed in need of academic support, nevertheless, were enrolling directly into gateway English

Increasing Gateway Completion

When students begin directly in a gateway college course, they are more likely to complete the course than if they are placed initially in a remedial course.



Source: The Campaign for College Opportunity & California Acceleration Project. (2019). [Getting There 1: A Statewide Progress Report on Implementation of AB 705. Are California Community Colleges maximizing student completion of transfer-level math and English?](https://collegecampaign.org/portfolio/ab-705-statewide-progress-report/) Retrieved from <https://collegecampaign.org/portfolio/ab-705-statewide-progress-report/>. Notes: The data used to create this chart are provided in Figures 1 and 3 of the report. For STEM Math, the completion percentage for direct enrollment with co-requisite support came from one college while for English Composition the data came from 13 colleges.

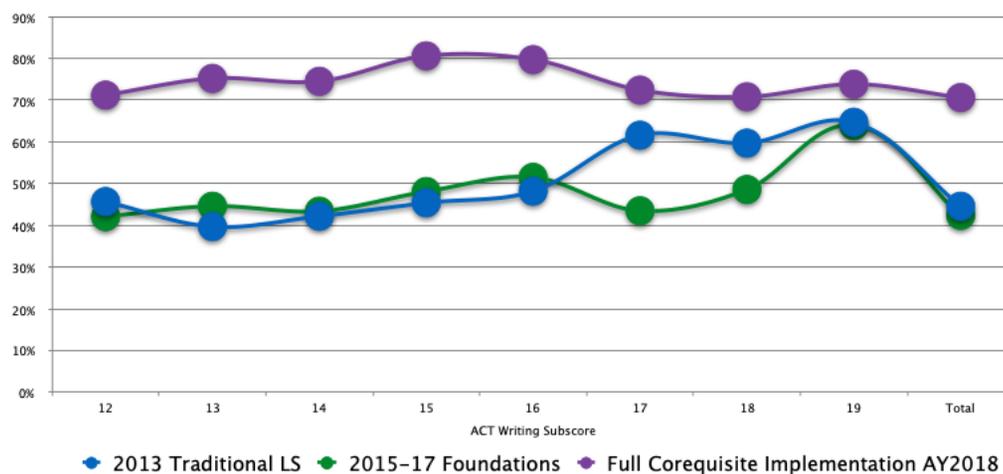
and still completed that course at significantly better numbers.³⁹

Georgia's Co-Requisite Remediation. Tristan Denley, who had led the co-requisite reforms in Tennessee, joined the University System of Georgia (USG) as its Executive Vice Chancellor for Academic Affairs and Chief Academic Officer in 2017, began developing and implementing

co-requisite reforms to USG through its “Momentum Approach.”⁴⁰ USG is already seeing impressive results of its co-requisite implementation. Most importantly, Denley and the USG are gathering data deeper than simply rates of progress and retention. First, they have been looking to see if students’ levels of college preparation or readiness, based on ACT scores, significantly advantage or disadvantage students deemed in need of academic support and thus, placed in developmental education. Denley states, “Even students that had ACT scores of 13 or 14 were now passing that credit-bearing class at a 30-40% rate. Of course, we wanted that to be better, but 30% or 40% compared to 2% or 3% – that’s an easy decision.” (p. 1)⁴¹ The following line graph, from Denley’s presentation at SSTF’s Learning Network Convening in March 2020, indicates that even students with very low ACT Writing Subscores benefited from the implementation of co-requisite English reforms.

Denley and USG also disaggregated gateway English success rates by race across ACT Writing Subscores, finding that while African-American students still tended to have a lower likelihood of success in gateway English, the differences in their scores with that of white and Latinx students was, in general, only around 10% at most.

USG System-wide Comparison of Success in Gateway English Classes



Finally, Denley and USG are looking closely for correlations between academic mindset and co-requisite student success. They have divided “academic mindset” into the following components: (1) perceived purpose of coursework; (2) feelings of being connected to their institution, of belonging (having or not having what’s been called “impostor syndrome”); (3) belief in being capable of learning the material (self-efficacy); (4) confidence interacting with faculty and staff; (5) grit and perseverance (involving conscientiousness, determination to succeed, resilience in the face of challenges); and (6) scarcity, defined as “an economic term that describes the mindset people develop when they have many needs and not enough resources to meet those needs.”⁴² Not much data concerning academic mindset has yet been released, but it could prove to be enlightening.

Possible Improvements of Co-requisite English Reforms

Co-requisite remediation currently appears to provide the best developmental education option, given what we know about the failure of traditional remediation involving pre-requisite course sequencing. That said, there are elements of co-requisite remediation, and especially co-requisite English, with its many configurations and variations within configurations, that remain open to question, no matter how reasonable or necessary they may seem. Clearly, more research in the following areas of co-requisite remediation for English education is needed:

- **Research on which co-requisite English remediation configurations are effective and at what levels.** Research on the “original” co-requisite model of pairing the gateway English course with a three-hour/week developmental English course has found that configuration to be well worth implementing. Unfortunately, according to Edgecombe, institutional administrations often will “adopt minimally disruptive, small-scale approaches, which lack the breadth and depth to substantially improve college-wide student outcomes.” (p. 6)⁴³ Rodriguez, Mejia, and Johnson found that there was a reluctance on the part of the California community colleges they studied to eliminate traditional pre-requisite remediation, leaving the co-requisite reforms “on the periphery as ‘pilots’ and ‘experiments.’”⁴⁴

Other configurations can vary by the amount of time devoted to developmental support and by the way that developmental support is provided (e.g., through a less-than-three-hour developmental English course; through developmental workshops; through a computerized program; through individual or small group tutoring sessions). Research has shown that workshops, self-paced computerized curricula,

and tutoring, as well as learning communities and supplemental instruction (SI), such as that developed at the University of Missouri-Kansas City, can be effective⁴⁵, but little research has been done on the use of these instructional types as co-requisite supports. Nor has adequate research been done on how much time needs to be devoted to each approach to be minimally and maximally effective in the co-requisite English context.

Initial outcomes of Georgia’s co-requisite reforms suggest that most thoughtful developmental English configurations can improve student performance. While some researchers and scholars agree with Goudas that less than three hours per week of support provided by well-trained instructors/tutors/coaches is not optimal⁴⁶, emerging research data, such as that from Georgia, suggests that two hours of support per week may be as effective as or even more effective than three hours of support per week. That said, it is worth repeating Kadlec and Dadgar’s warning that “too few hours (e.g., one hour per week) may provide inadequate time with an instructor.” (p. 9)⁴⁷ This caveat may be especially true, given the various factors impacting college student learning and academic success.

- **Research on the impact of co-requisite English remediation on students of color, students of various ethnicities, and students from different levels of family income—AND on their access to educational technologies and education generally.** And we might add to this research on the impact of co-requisite remediation and access to education on students with disabilities.
- **Research on the role that various so-called “non-cognitive factors” play in developmental education and how the implementation of co-requisite English remediation might impact those factors.** The authors of the 2013 VUE article on the role of these factors conclude, “Research has shown that in addition to academic knowledge, a variety of noncognitive skills are essential to student’ postsecondary success.” (p. 45)⁴⁸ In fact, developmental education researchers and scholars have known this for decades now. In his 2002 book, reviewing 20 years of research on developmental education, Boylan writes, “For developmental students, life goes on along with — and frequently in competition with — their academic experiences Their attitudes toward learning, their motivation, their self-concepts, and their confidence have as much or more to do with their success in college as do their academic skills.” (p. 35)⁴⁹

The significant impacts of various affective and/or non-cognitive factors/skills have been well-documented: from having a fixed mindset, low self-efficacy, low self-confidence generally, low academic perseverance, tenacity, or grit, and feelings of “impostorship” to

not taking responsibility for one's own learning and not understanding the behavioral expectations of college to not having adequate learning strategies (such as time management and self-regulatory metacognition).⁵⁰ And there is plenty of scholarship on ways of addressing most of these factors academically, but these need to be adopted and possibly adapted to the context of co-requisite remediation.⁵¹

- **More in-depth research on how levels of college readiness correlate with co-requisite remediation success — and how best to actually determine college readiness, leading to English and math placement.** Does a student's ACT/SAT/ACCUPLACER score actually matter? If so, does it matter differently if the student's score is on the lower end of the scale? Where is the cutoff score to determine if a student is in need of additional academic support? What, in fact, do we actually mean by college readiness? Do non-cognitive factors matter as much as — or even more than — standardized test scores?

As noted earlier in this report, there exists an inextricable link between developmental education instruction, support, and administration and student placement — and thus, an undeniable need for developmental programs and placement programs to align their goals, objectives, and understandings regarding developmental students and developmental education best practices. This includes the need to be on the same page with regard to who the students in need of additional academic support are. And so, more research is needed to help determine what is meant

by college readiness and what the goals, objectives, and understandings of developmental placement and programs should be.

In addition to the need for more research in the above areas, other programmatic and administrative factors continue to be important components in successful developmental education programs and have been identified in Boylan's book. At the time, Hunter Boylan was the Director of the National Center for Developmental Education (NCDE), which partnered with the Continuous Quality Improvement Network (CQIN) to commission the nonprofit American Productivity and Quality Center (APQC) to conduct "the largest and most extensive benchmarking study ever undertaken in the field of developmental education." (3-4) The CQIN/APQC study conducted an extensive review of scholarly research on effective developmental education programming and identified an impressive array of factors contributing to the success of developmental education programs.⁵²

- First and perhaps foremost is the **identification of developmental education as an institutional priority and having an effective working relationship between the developmental English program, other units providing academic and individualized student services, and the institutional administration.** The success of developmental English — or any developmental education program — depends on its being valued (Boylan, p. 7). Boylan emphasizes the importance of any developmental education program collaborating with other academic units providing academic and other kinds of student support: "All the

best-practice programs in [the CQIN/APQC] study engaged in collaborative activities with other campus academic units Research over the past 20 years has validated intra-institutional collaboration as an important component of successful developmental programs.” (pp. 16-17) In fact, research has found correlations between providing comprehensive student support services and higher rates of student retention. “The message of these [research] findings,” Boylan concludes, “is that institutions that provide only remedial courses in response to the presence of underprepared students are unlikely to have great success in serving these students [C]olleges cannot expect to attain high rates of student success and retention unless they provide a diversified range of academic and personal support services.” (p. 26)

- An important part of a successful developmental education program, the CQIN-APQC study finds, is **the alignment of the program goals with institutional goals** (p. 23). And Boylan emphasizes the necessity that program goals and objectives be explicit and clear (p. 14). Boylan notes that a study that he and Saxon conducted in 1998 “found that developmental programs with written statements of mission, goals, and objectives had higher post-developmental education pass rates on a state mandated test” and also “higher year-to-year retention rates for developmental students than programs without written statements of goals and objectives.” (p. 19)

- Another factor that, surprisingly, sometimes gets lost in the rush to reform is **the effectiveness of the instruction and the competence of the instructor**. The research, Boylan states unequivocally, is clear; “the quality of classroom instruction is the single most important contributor to the success of developmental students.” (p. 68) Therefore, hiring and training of instructors need to be crucial considerations. Boylan states that program instructors, even if they are adjunct faculty, must be hired specifically for the job of teaching developmental education (p. 14) — and that includes being knowledgeable about not only the subject matter of their instruction but also the needs of their developmental students (knowledgeable about non-cognitive issues, for example).

It is worth noting here that research shows no evidence that individual adjunct faculty are any less successful in teaching developmental education courses than individual full-time faculty. However, researchers have found “that in which 70% or more of the developmental courses were taught by adjunct faculty commonly exhibited unacceptably low pass rates in developmental courses.” (p. 55) While this may be the case, most developmental education courses continue to be taught primarily by temporary instructors, suggesting a strong need for professional development for these instructors.

In fact, the importance of professional development of everyone involved in a developmental education program cannot be minimized. Research findings show correlations between strong professional development and better student performance and greater retention. Boylan

notes, “The developmental programs that emphasize professional development for faculty and staff are generally more successful than programs without such an emphasis It is this professional development that ensures those who work with developmental students are aware of the best of the current research, theory, and practice” —thus, increasing the likelihood that faculty and staff will use best practices (p. 46).

- Developmental education programs also need to **have systematic ongoing formative evaluation procedures in place**. Research findings, Boylan notes, show “that developmental programs undertaking regular and systematic evaluation are more successful than those that either fail to evaluate their activities or evaluate them erratically.” (p. 39) And by systematic, it is meant done at regular intervals; being part of a systematic plan; using a variety of measures; and being both formative as well as summative — that is, being “used for the purpose of developing or improving courses or services” as well as being simply “used to measure outcomes of courses and services at the end of some specified period.” (p. 43) Simply determining the success or lack of success of a program is not enough. “Formative evaluation is not used to determine how well courses or services have accomplished their objectives or to make some final judgment on the effectiveness of courses and services. It is used, exclusively, to promote program improvement.” (p. 43)

- As time goes on, **access to digital technologies** will become more and more important for students in need of additional academic support. Back in the 1990s and early 2000s, when the CQIN/APQP study was being done, technology could be separated out from education, and Boylan could conclude that there was “an inverse relationship between the amount of computer technology used in a developmental course and pass rates in that course. Instructors who reported using computers to provide the majority of classroom instruction had significantly greater failure rates than those who reported using computers only as a supplement to classroom instruction.” (p. 81) Today, technology is much more widely integrated into education. Still, recent research evidence of instructional technology effectiveness is mixed.⁵³ That said, we would be foolish to think that new technologies and more and better technology integration into education is not just on the horizon. However, better tech/education integration does not solve the problem of an increasing educational access divide between the “haves” and the “have nots.” Online access, with sufficient bandwidth, is becoming an increasing necessity in public and higher education. As the Internet Society’s Public Policy document, “Internet Access and Education,” states, “This is not just a matter of connectivity. For access to be meaningful, it must also be affordable for schools and individuals, and teachers and students must acquire digital literacy and other skills required to make best use of it.” (p. 2)⁵⁴

A study of the educational access of rural students in the U.S., released in February 2019, painted an increasingly bleak future for these students:⁵⁵

Rural students are often overlooked when it comes to education policy reform. However, the majority of rural students in nearly half the states are from low-income families, generally earn lower scores on standardized high school assessments, lack access to rigorous coursework, and attend college at lower rates than do students from non-rural areas. (Summary)

The report also notes that efforts to address the effects of this inequality typically involve access to technology such as broadband and hand-held or iPad devices, but “rural areas are less likely to have access to broadband internet.” (p. 1) In fact, it’s estimated that 27% of rural U.S. residents do not have access to broadband at a minimum speed that would allow them to consistently receive higher quality streams in their households. Also, while the FCC provides upgrade broadband funding for schools and libraries, “6% of schools still do not meet federal connectivity benchmarks — and the vast majority of those schools are in rural areas.” (p. 1)

Further reports of a “homework gap,” exposed by the recent closing of schools due to the coronavirus pandemic, have also revealed educational technology inequities even in urban areas. The Pew Research Center recently reported that, according to its analysis of 2015 U.S. Census Bureau data, around 15% of U.S. households with school-age children in lower-income households with children ages 6 to 17 and an annual income of less than \$30,000, do not have high-speed internet connections. And many of these households are African-American or Hispanic. To make matters even worse, 25% of lower-income teens do not have access to a home computer, compared with just 4% of those in households earning more than \$75,000. Eighteen percent of Hispanic teens and 11% of African-American teens report not having access to a computer at home.⁵⁶ These are the students who, if they come to college, are typically found to be in need of additional academic support and are placed in developmental education.

Recommendations

The benefits of co-requisite English remediation clearly outweigh the challenges of implementing and sustaining successful co-requisite English remediation. Continued learning nationally and within Ohio can help identify solutions to mitigate existing challenges and maximize the benefit of co-requisite English and math remediation. In addition, co-requisite remediation should be implemented as a part of a larger, statewide guided pathways and configurations strategy with the aim of improving the likelihood of degree completion. The recommendations to pursue co-requisite English and math remediation are as follows:

General (Math and English)

1. **Strategic Alignment:** Institutions should publicly identify co-requisite remediation as an institutional priority. Institutions should review and strengthen, if necessary, the alignment of their co-requisite developmental education programmatic goals and their general institutional goals. If either set of goals is unclear or ineffective in guiding curricular decisions, then the institution should take steps to revise or rewrite and realign those goals.
2. **Class Size, Instructor Assignment, Scheduling, and Credit Hour Guidance:** As knowledge of what works best in co-requisite supports becomes available, institutions and the Ohio Department of Higher Education (ODHE) should collaborate to provide guidance on co-requisite design and structures. Standards and recommendations from national bodies, such as the Conference on College Composition and Communication (CCCC) and the Council of Writing Program Administrators (WPA), should be referenced. All stakeholders in determining policy recommendations and

policies themselves should consider the impact on student success, student workload, teacher workload, common planning among teachers, and funding streams. Guidance should be provided in the following key areas:

- a. Class size for co-requisite supports;
- b. Same instructor assignment for co-requisite and gateway delivery;
- c. Scheduling of co-requisite offerings, particularly guaranteeing enough available sections of co-requisite supports in the first semester; and
- d. Credit hour allocation in order to help diminish any stigma attaching to “remediation” and “developmental education.”

3. **Academic Mindset and Faculty Support of Learning Behaviors:** Institutions should advance efforts to enhance student learning behaviors and academic attitudes and mindsets, especially but not limited to the first year of college. Strategies must outline the role of faculty and support services for staff members in supporting learning behaviors. These academic mindsets and other non-cognitive factors may include:
 - a. Attitudes and perceptions toward learning and ability, including a growth mindset, high self-efficacy, and grit (determination and persistence); and
 - b. Academic behaviors and study skills, including but not limited to goal setting, taking responsibility for one’s own learning, self-advocacy, self-motivation, time management, and other self-management skills, such as self-monitoring.

4. **Professional Preparation and Development:** Institutions should promote professional preparation and development of their permanent and temporary faculty for best teaching and learning practices in co-requisite education, including understanding the various factors that impact college student success and co-requisite remediation, including but not necessarily limited to “non-cognitive factors.” Professional development priorities should include but not be limited to:
 - a. Effective pedagogy for particular subjects and courses;
 - b. Advancing learning outcomes for special populations, including students with learning disabilities and English as Second Language learners; and
 - c. How to incorporate instruction on learning behaviors and non-cognitive factors into coursework.
5. **Strengthen the Pool of Qualified Instructors:** The State of Ohio and its institutions of higher education should explore an initiative to prepare and qualify anyone with a master’s degree or higher who wishes to apply to teach co-requisite math or co-requisite English. Informal “accreditation” of this sort could be accomplished through graduate-level coursework and/or through state-sponsored summer programs — and could be provided fully online or through a hybrid curriculum.

6. **Equity-minded Approaches:** Co-requisite remediation strategies and the student support systems around them must be equity-minded to eliminate student success disparities by race, ethnicity, gender, socio-economic status, disability status, and English language learner status. Resources should be effectively allocated to support underprepared students, students with physical and online access barriers to college (transportation, technology, etc.), students with work and parenting responsibilities, and more.
7. **Initiating the Work:** Information gained from early adopters and national initiatives about starting co-requisite remediation should be promoted to institutions that have not yet fully implemented co-requisite strategies. These institutions need to understand the advantages of co-requisite models over pre-requisite remediation and the importance of additional resources for academic processes and student support processes such as registration, scheduling, and advising.
8. **Continuum of Academic Support:** Recognizing the evidence supporting both co-requisite remediation and comprehensive student academic and personal support services, institutions should develop and implement those support services for all their students. Institutions should develop and implement support services for students throughout their entire college careers. Institutions should ensure effective working collaborations among their co-requisite developmental education programs and the units providing those support services. Such services should include English and math tutoring and coaching services, general academic tutoring and counseling services, and programs aimed at teaching students' effective academic behaviors and study strategies.
9. **Online Delivery:** Institutions should continue to explore and share best practices for delivering co-requisite support with online or hybrid instruction. Instructors should consider synchronous and asynchronous delivery options based on their content and objectives. Virtual delivery of support services, such as advising and counseling, should also be strategically integrated into online and hybrid delivery approaches.
10. **Technology Access:** Campuses should also enhance student access to technology hardware and the internet, especially for economically disadvantaged and rural populations. ODHE and institutions of higher education should identify and leverage resources to close the digital divide.
11. **Assessment:** Ohio institutions should collaborate to identify best practices in assessment with a special focus on the following questions:
 - a. How do instructors assess learning outcomes with integrity in online and remote settings?
 - b. How do we refine what knowledge students are asked to demonstrate based on the relationship of the co-requisite support to the gateway course and the program of study?
 - c. Is there an opportunity to assess student meta-cognition and academic mindset to improve delivery of supports for student learning?

12. Program Evaluation and Continuous Improvement:

Institutions should develop and implement systematic, ongoing formative evaluation of their co-requisite remediation programs and service providers, if they do not already have such an evaluation in place. Evaluation analysis may address student retention, persistence to subsequent courses in the sequence, results for students in co-requisite course work versus those who are not in co-requisite supports, and eventual degree completion. Institutions should provide support for programmatic or curricular reforms called for by that systematic formative evaluation. Ohio institutions are encouraged to share their data on student outcomes related to co-requisite remediation for collective learning.

13. Sustaining Statewide Efforts: The Ohio Department of Higher Education should sustain the study and development of co-requisite supports for students. These recommendations may be considered and carried forth by groups and structures such as the Ohio Mathematics Initiative, the Ohio Articulation and Transfer Network, the Ohio English Initiative, the Ohio Writing Program Administrators, and/or others. The State of Ohio should devote website resources to Teaching Co-Requisite Remediation in Higher Education, providing extensive information and resources, and ongoing listservs for math and English instructors and would-be instructors, in order to share experiences and knowledge.

14. Align to Increase College Preparedness: Advance preparation strategies for students before they enter college. The instructional connections and pathways from high school to college – including College Credit Plus, summer bridge programming, and high school math redesign – should be fortified. This may also include high school-to-college articulation forums or task forces to develop and implement practices to address non-cognitive issues that can undermine student success and practices to identify and encourage implementation of effective means of achieving college readiness.

15. Following the Research: The State of Ohio and its institutions of higher education should promote peer-reviewed research into the following:

- a. The comparative effectiveness of the various co-requisite mathematics models and the various configurations of co-requisite English programs as well as into other factors impacting student success, such as “non-cognitive” factors; and
- b. The effectiveness of the above co-requisite mathematics models and co-requisite English configurations on the academic success of students at different levels of developmental placement, including the most challenged students.

16. Needs and Listening to the Voice of Students:

Institutions should identify creative, dynamic ways to garner resources to meet student needs based on the requests and concerns voiced by students, especially students who receive remedial supports. Institutions should take the initiative to invite and capture student voices and their input in various forms.

17. **Serving the Most Underprepared Students:** In addition to following the research on the most challenged students, a special report on the approaches and strategies that work best for the most underprepared students would be a helpful tool for the field.

English Specific Recommendations

18. **Research on Co-requisite English Remediation Configurations:** Given the various co-requisite English remediation models and then, the numerous variations with these models, clearly more research on the effectiveness of these models and variations is needed. ODHE and in the SSTF institutions should encourage this research within the state of Ohio – and encourage program administrators and co-requisite English remediation instructors to keep abreast of research on these models and to make changes to their models as warranted by research evidence.
19. **Developing and Implementing Online Site(s) for Resource Management and Collaborations:** Recommendation #12 above called for devoting website resources to the teaching of co-requisite remediation and separate ongoing listservs devoted to co-requisite math and English remediation. An online resource site and co-requisite English remediation list-serv would be of special significance for those involved in teaching developmental English education, given the numerous varieties of co-requisite English remediation.

20. **Articulation between Co-requisite English Remediation Faculty and High School English Teachers:** ODHE, Ohio SSTF institutions, and faculty and staff involved in co-requisite English remediation should make efforts to articulate with Ohio high schools such that high school English teachers and administrators will better understand co-requisite English remediation, including, among other issues, the impact of non-cognitive factors on student learning and success.

21. **English Remediation Content and Pedagogy:** Ohio SSTF institutions and their co-requisite English remediation programs should include considerations of how to address the following as part of their decisions regarding co-requisite English remediation and the English remedial curriculum:
- a. Issues and factors that decades of scholarship in basic writing, composition studies, and teaching and learning have determined to have significant impacts on college student success in English gateway courses, as well as in college coursework generally. These issues and factors include:
 - i. Student learning behaviors and academic attitudes and mindsets, identified in General Recommendation #3 above: attitudes and perceptions toward learning and ability and academic behaviors and study skills;
 - ii. Improvement in students' ability to read actively and critically;

- iii. Improvement of students' writing mechanics (sentence grammar, punctuation, and spelling); and
 - iv. Expansion of students' academic vocabularies.
- b. A thoroughly student-centered pedagogy, intended to help students take responsibility for their own learning and feel comfortable as members of the higher education community, as well as support students' success in the gateway English course. Active learning coursework and individualized support, both inside and outside the classroom, are common writing instruction pedagogies. In fact, there exists a long history in teaching writing of one-on-one, individualized attention and instruction through the student-teacher conference as well as personalized feedback in the writing classroom and through written comments on student papers.

The labels "individualized," "personalized," "differentiated," and even "student-centered" are often confused by scholars and teachers when talking about education. These terms not uncommonly include a "self-pacing" curriculum as well as one-on-one student-teacher interactions – thus, the use of the label "individualized support" to distinguish it from a "self-pacing," even sometimes "self-determining" curriculum.

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