**An Overview of Nine “Key Ingredients” (Promising Practices) for Corequisites**

This table describes the nine promising practices RAND researchers used to assess corequisites and standalone developmental education courses. It provides an overview of how the literature and practitioners theorize that these practices (or “key ingredients”) help to improve outcomes. It also provides some examples of how these promising practices might be adopted within a corequisite.

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| **Promising Practice/Key Ingredient** | **Theory on How the Practice is to Student Success** | **How Corequisites Might Embed Promising Practices** |
| Ensure early access to and momentum with college coursework | The literature indicates that the more time students spend in college, the less likely they are to complete. In addition, completion of college-level “gateway” courses is an important predictor of student success. Early accumulation of college credit and completion of gateway coursework may help students to overcome pre-requisite barriers to entering other college coursework and help to reassure students that they are making progress toward a degree, which in turn might lead to increased motivation, confidence, and sense of belonging. For students with limited financial resources, saving tuition and financial aid resources, saving time and money on non-credit coursework may also be important to success. | * Allow direct entry into a college-level course * Reduce the total amount of developmental education instructional hours required * Minimize prerequisite requirements |
| Align remediation with the college-level course | The literature argues that the purpose of developmental education is to prepare students for college-level coursework, and that developmental education coursework that is more closely aligned is of higher quality because it will better prepare and ensure the success of students in coursework and eventual degree completion. | * Coordinate scheduling * Ensure shared learning objectives * Develop shared coursework * Align instruction and support * Establish learning communities |
| Ensure rigorous coursework and expectations | The literature suggests that less rigorous approaches to instruction like skill-and-drill may be less effective in supporting learning, while instructional methods that require deep inquiry and critical thinking may be more effective. Exposing students to rigorous coursework and expectations can help to improve engagement and build confidence, while exposing students to coursework that feels too easy and repetitive of high school coursework might be de-motivating. | * Limit skill-and-drill activities and encourage deep inquiry * Ensure readings and essay requirements are rigorous * Mix students by ability to * Ask instructors to teach corequisite and non-corequisite sections * Establish common rubrics, grading standards |
| Ensure intensity of academic practice | The literature indicates that for certain skills, more frequent and intensive instruction over a shorter time period can improve learning relative to less intensive instruction over a longer time period, leading to increased learning and improved course performance. | * Provide developmental support alongside college-level course in the same semester * Shorten terms for courses/support * Require additional practice outside of the classroom |
| Utilize student-centered learning approaches | There are several aspects of student-centered learning that may help to support student success. First, increased opportunities for one-on-one or small group interactions have been shown to be associated with improved student outcomes. Student-centered instructional strategies like active learning approaches and contextualization have also been shown to be valuable for student learning. Finally, differentiation of instruction through assessment of individual student needs and tailoring of instruction to meet those needs can help to improve student course performance and improve the efficiency of developmental education. | * Reduce student-to-instructor ratios * Incorporate active learning approaches (e.g., group work, class discussions) * Contextualize material in the curriculum * Assess individual areas of weakness and tailor instruction |
| Provide support for reading and writing, ideally integrating coursework | The literature indicates that for students with weaknesses in reading and writing, it is important to receive remediation in both areas to ensure success in college-level course. In addition, there is evidence that the integration of reading and writing instruction within a class may lead to improved outcomes for students in both areas. | * Incorporate (integrated) reading and writing activities into curriculum * Assess student skills in both reading and writing and provide support where necessary * Ensure instructors are adequately trained and have materials to provide support in both areas |
| Provide support for other success skills (study skills, social and emotional skills) | The literature indicates that developmental education students often need support in other areas beyond academic readiness, such as self-efficacy, self-regulation, and study skills. Students with limited socials and emotional and study skills have been shown to be less likely to succeed in college, and colleges are increasing efforts to build these student success skills in early college coursework. Use of support services like tutoring, supplemental instruction, and office hours can lead to improved course performance and improved persistence and completion outcomes, and some may consider smart use of these support services as a critical student success skill. | * Recommend or require students use academic support (e.g., office hours, tutoring) * Require students to simultaneously enroll in a student success course * Provide instruction (and training to corequisite instructors) directed toward building success skills * Provide environments that foster social and emotional skills |
| Harness opportunities for peer learning | The literature indicates several different ways that peers can help other peers to be successful in educational settings. When lower-performing students are in classes with higher-performing peers, they are likely to perform better in the course (while impacts on the higher-performing peers are more uncertain). In addition, the literature suggests when students attend classes with common cohorts of students, or learning communities, this can potentially enhance learning and improve student success. Finally, the literature indicates that increased opportunities for peer interactions in the classroom through active learning approaches (e.g., peer editing, group work) can increase the likelihood of peer effects. | * Mix accelerated students with college-ready students * Develop learning communities * Incorporate group and peer-to-peer activities into the classroom * Create a class environment that makes students feel safe and collegial |
| Reduce exposure to stigma around developmental education | Developmental education is often argued to have a “stigma,” and students enrolled in these courses can become discouraged and/or embarrassed to have to participate in remedial coursework that is considered different and lesser than college-level coursework. | * Design corequisite to be less distinguishable from other college-level courses * Limit opportunities for corequisite to be identified (e.g., mix students by ability, don’t separate students or mention distinction,) * Provide positive messaging to students about developmental education and their abilities |

**Data and Measures Used to Examine “Key Ingredients” for Our Study of Texas Corequisites**

We drew from a broad range of data to examine the degree to which corequisites (and traditional developmental education courses) were aligned with promising practices. This table provides some examples of measures that might be tracked to assess and improve corequisites at colleges.

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| **Promising Practice/Key Ingredient** | **Data Source** | **Measures** |
| Access to and momentum with college coursework | Administrative data | * Student enrolled in a college-level reading or writing-intensive course in first semester * Average number of college credits students attempted |
| Student survey | * Reported time spent in coursework * Perception of time spent in co-req support * Not enough/too much time to learn material * Believe DE courses slow down progress |
| Interviews | * Total number of writing/reading DE credit hours/contact hours required |
| Degree of alignment between developmental support and college coursework | Course documentation | * Alignment of student learning objectives * Alignment of course content * Alignment of textbook |
| Faculty survey | * Percent of corequisite spent on 1301 coursework * Coursework similar to other college-level reading/writing coursework |
| Student survey | * NCBO reported to be consistent with 1301 * NCBO reported to be repetitive of 1301 * Course helped to prepare student for future reading/writing courses |
| Interviews, focus groups | * Discussed aspects of alignment, including shared instructor, shared coursework, shared SLOs, shared classmates, linked grades, common time |
| Rigor of coursework and expectations | Course documentation, interviews | * Difficulty of reading material * Amount of writing required * Perceptions of rigor of coursework and expectations |
| Faculty survey | * Course reported to be “too difficult” or “too easy” for at least ¼ of students * Percentage of time spent on basic skill practice * Reported use of diagnostic info for differentiation * Reported differentiation of coursework according to student needs |
| Student survey | * Course felt academically overwhelming * Course felt boring * Not enough/too much time to learn material * Would have been appropriate to take lower/higher course * Course repeated things * Course too hard/easy |
| Observations | * Students asked questions that require higher-order thinking |
| Intensity of academic practice | Administrative data | * Total number of reading/writing contact hours per week during course term |
| Student survey | * Reported time spent in NCBOs * Perception of time spent in NCBO (e.g. too much, too little) * Not enough/too much time to learn material * Time spent preparing for course |
| Administrative data | * Total number of reading/writing contact hours per week during course term |
| Degree to which instruction is student-centered | Administrative data | * Student-to-instructor ratios in developmental and college course components |
| Course documentation and interviews, focus groups | * Evidence of assessing individual student remediation needs and tailoring coursework to student needs |
| Teacher survey | * Time spent on one-on-one support * Time spent on active learning approaches * Use of contextualization and/or applied, problem-based learning |
| Student survey | * Instructor gave me individual attention * I got individual attention in the NCBO * Instructor presented materials in engaging way * Instructor encouraged students to participate |
| Observations | * Evidence that students receive individualized attention in core course/NCBO * Use of active learning approaches * Use of contextualization and/or applied, problem-based learning |
| Degree to which students receive support in reading and writing | Course documentation, interviews | * Student learning objectives focus on reading and writing * Student has reading-focused and writing-focused assignments |
| Faculty survey | * Time spent learning reading/writing * Instructor feels comfortable supporting reading and writing |
| Student survey | * Course helped prepare me for the reading/writing I have to do |
| Observations | * Reading activities occurring in class |
| Degree to which student success skills are supported | Faculty survey | * Support for non-cognitive and study skills reported as key goal of course * Instructor requires or gives extra credit for participation in office hours or tutoring |
| Student survey | * Course made student feel confident about succeeding * Instructor believed in potential to succeed * Student is motivated * Student has self-efficacy * Instructor helped me improve my learning strategies (e.g., study skills, time management, notetaking, class participation) * Use of office hours and tutoring during semester * Likelihood of using office hours and tutoring in the future * Successful because I got extra help from the writing center or other tutoring resources * Instructor made herself available |
| Interviews/focus groups | * Corequisite support structured as mandatory participation in office hours or tutoring |
| Harnessing of peer effects | Administrative data | * Test score distribution of students |
| Teacher survey | * Use of activities that involve peer-to-peer interactions |
| Student survey | * Successful because other students in the class helped me * Relative ability of peers * Asked to provide peer feedback often * Asked to work on group activities often * I discussed course material, a group project, activity, or assignment with my classmates *outside of class* |
| Observations | * Peer-to-peer interactions observed |
| Interviews/focus groups | * Discussed classroom activities that involved peer interactions * Perceived learning from peers |
| Exposure to stigma | Student survey | * Course felt embarrassing * Student feels like part of campus community * Student feels like an outsider/belong * Believe DE courses expand access |
| Interviews/focus groups | * Discussed attitudes about DE and college-level courses generally * Discussed attitudes about accelerated option specifically |