

Appendix A: Supplemental Tables

Table A1

Description of Colleges

College Name	Enrollment Size	College Location Type^a	Part of Community College District	Percent White	Implementation Strata
College A	17,500	Large City	Yes	24%	Low
College B	14,000	Large City	Yes	5%	Low
College C	8,900	Midsize City	No	50%	Low
College D	10,000	Midsize City	No	50%	Low
College E	6,700	Town	No	30%	Low
College F	10,800	Large City	Yes	15%	Medium
College G	4,300	Town	No	45%	Medium
College H	6,800	Midsize City	No	25%	Medium
College I	31,000	Midsize City	No	5%	Medium
College J	7,500	Large City	Yes	25%	Medium
College K	4,900	Town	No	50%	Medium
College L	40,000	Large City	No	45%	High
College M	9,000	Midsize City	No	45%	High
College N	4,800	Town	No	20%	High
College O	2,400	Midsize City	Yes	10%	High
College P	10,900	Suburban Large	Yes	15%	High

Notes. We use pseudonyms for college names to protect the identities of participants in our sample. Urbanicity, enrollment size, and percentage White were obtained from IPEDS data, but, to maintain anonymity of participants, we rounded the enrollment counts to the nearest 100 and percentage White to the nearest 5 to further obscure the colleges.

^a College location type is drawn from IPEDS but can be broadly understood as indicator of urbanicity, where “town” and “fringe” align with more rural colleges due to lower population and distance from metropolitan areas, “suburban” and “midsize city” align with suburban colleges (as midsize cities are often smaller in population than the suburban areas in our sample but are geographically closer to the urban core), and “large city” aligns with urban areas.

Appendix B: Interview Protocols

Semi-structured Interview Protocol for Administrators and Math Faculty: Corequisite Math Implementation Study

[Background]

First, I'm going to ask you about the structure of the college and your department/unit and related supports provided to students in determining which math courses they need.

1. I'd like to hear about your role at the college. What is your position and how long have you been in this role?
 - a. What are the main responsibilities of someone in your position?
2. [math faculty only] How do personnel determine which math courses are offered and which math sequences, including dev-ed, are available to students?
 - a. Who tends to be involved in those decisions?
 - i. Perhaps probes about what roles those people play

[Sensemaking]

Now I'm going to shift gears a bit to learn a little more about how you learned about changes in the state's policy for developmental education and hear how your college and department have adjusted to the policy.

[Policy signals:]

3. How would you describe the new dev-ed policy passed in 2017, House Bill 2223 (the corequisite mandate)?
 - a. *Probes:*
 - i. What do you see at the goals of the policy change?
 1. Which challenges did it seek to address?
 - ii. Were any students the primary focus of the policy change?
4. Where did you learn about the policy changes related to HB 2223?
5. Can you describe the information you received about it?
6. How did that information help you interpret the policy?
 - a. What was your impression about what the policy would mean for students and for personnel at your college?

[Micro-context (schemas, deliberation approaches, and preferred practices):]

I'd like you to think back to when you first learned about the policy:

7. When you learned about the policy change and envisioned what it would mean for your college/department, what did you think it would look like?
 - a. *Probe:* What made you think that?
 - b. *Follow-ups:* Any challenges you anticipated for implementing at your college?
 - a. *Probes:* in terms of how to change course offerings, which students should be eligible at different phases, how to advise students, etc.
 - c. Did you think there was an ideal way to implement it?

8. How do you think the changes will impact colleges and students?
9. When you think about developmental math vs college-level math, what do you see as the goals/purpose of each?
 - a. When you think about which students these courses are intended for, what do you see as the delineation between who should be in dev-ed vs. college-level math?

[Implementation]

[Individual practices:]

10. What was/is your role in implementing HB2223 at your college?
 - a. *Probes:* What protocol or process do you follow in implementing your college's plan?
11. What role do you play in determining which math courses students take?
 - a. Can you describe a time when you had to advise students about whether to take corequisite coursework?
 - i. How did you proceed? What informed your advice?
12. What role do you play in determining which corequisite courses to offer?
 - a. *If interviewee says they play a role:* Who else do you work with in making those decisions? What informs your decisions?

[Collective practices:]

13. Can you describe your institution's plan for responding to HB2223, including how it addressed the mandated targets set for in fall 2018, fall 2019, and fall 2020?
14. How did the college/department decide on their plan?
15. How have the plans for implementation changed over time?

I'd like to hear a little more about how the college made decisions about which courses were offered and which students were eligible:

16. How did the college/department decide which courses to offer and how many students to enroll in corequisite math each year?
 - a. *Probes:* What percentage of students, to your knowledge, did you enroll in corequisite math in each implementation wave?
17. How did the college/department decide *which* students would be eligible for corequisite courses?
 - a. Were there any differences in which students were eligible or referred to different types of corequisite math courses—particularly for different math pathways (algebra, statistics, quant reasoning)?
 - i. If so, how would students and staff determine who should enroll in corequisite algebra, statistics, or quantitative reasoning?
 - ii. *Probes:* If a student says they are interested in STEM major but did not test as college-ready in math, what advise might they receive in terms of which courses to take?

- b. Pretend I'm a student who didn't meet college-readiness standards in math. If I'm trying to decide which math course to take, are there specific advising for students or resources to help me decide?
 - i. *Probe*: What are they and what would that look like?
- 18. How did you determine which math course students should take *prior to HB2223* for students that did not meet college readiness standards?
- 19. [for math faculty and admin only] How did/does the department decide which instructors will teach the corequisite courses?
- 20. How did/do students find out about corequisite courses?
- 21. How does your college plan to proceed after reaching the mandated 75% corequisite enrollment?
 - a. [Probe: Will they move to 100%, if not, what will happen to students who remain in more traditional dev-ed?]
 - b. [(If maintaining some form of prerequisite dev-ed math):] In maintaining a prerequisite dev-ed sequence, what will that sequence look like?
 - i. Are any changes being made to it?
 - iii. Who is it intended for?
 - b. How was this plan determined?

[Other information on contexts]

- 22. Can you describe any outside factors that informed the colleges plans or processes for implementing HB2223?
 - a. *Probes (if there's time)*: some potential factors might include changes in observed student performance, information about how other colleges are implementing, feedback from the coordinating board, implementation of other reforms (e.g., guided pathways, math pathways)
- 23. How did the pandemic and challenges that arose due to COVID-19 impact the college's plan for implementing HB2223?

[Concluding Questions]

- 24. Is there anything else you'd like to share about your experience with HB2223 so far?
- 25. Are there any colleagues, at your institution or another Texas community college, that you think might be able to offer some useful insights about implementing corequisite math?

Semi-structured Interview Protocol for Advisors: Corequisite Math Implementation Study

[Background]

First, I'm going to ask you about the structure of the college and your department/unit and related supports provided to students in determining which math courses they need.

1. I'd like to hear about your role at the college. What is your position and how long have you been in this role?
 - b. What are the main responsibilities of someone in your position?

[Sensemaking]

Now I'm going to shift gears a bit to learn a little more about how you learned about changes in the state's policy for developmental education and hear how your college and department have adjusted to the policy.

[Policy signals:]

2. How would you describe the new dev-ed policy passed in 2017, House Bill 2223 (the corequisite mandate)?
3. Where did you learn about the policy changes related to HB 2223?
4. Can you describe the information you received about it?
5. How did that information help you interpret the policy?

[Micro-context (schemas, deliberation approaches, and preferred practices):]

I'd like you to think back to when you first learned about the policy:

6. When you learned about the policy change and envisioned what it would mean for your college/department, what did you think it would look like?
 - d. *Probe*: What made you think that?
 - e. *Follow-ups*: Any challenges you anticipated for implementing at your college?
 - a. *Probes*: in terms of how to change course offerings, which students should be eligible at different phases, how to advise students, etc.
 - f. Did you think there was an ideal way to implement it?
7. What do you see as the goals of the policy change?
 - b. *Probes*:
 - ii. Which challenges did it seek to address?
 - iii. Were any students the primary focus of the policy change?
8. How do you think the changes will impact colleges and students?
9. When you think about developmental math vs college-level math, what do you see as the goals/purpose of each?
 - a. When you think about which students these courses are intended for, what do you see as the delineation between who should be in dev-ed vs. college-level math?

[Implementation]

[Individual practices:]

10. Can you describe a time when you had to advise students about whether to take corequisite math coursework vs. prerequisite dev-ed math?
 - ii. How did you proceed? What informed your advice?

[Collective practices:]

11. Can you describe your institution's plan—at least as related to advising—for responding to HB2223, including how it addressed the mandated targets set for in fall 2018, fall 2019, and fall 2020?
12. How did the college/department decide on their plan? (follow-up: were advisors involved in decisions?)
13. How have the plans for implementation changed over time?

I'd like to hear a little more about how the college made decisions about which courses were offered and which students were eligible:

14. How did the college decide *which* students would be eligible for corequisite math courses?
 - iv. How did you, as an advisor/advising team lead, learn about those decisions?
15. As an advisor, how did you determine which math course students should take *prior to HB2223* for students that did not meet college readiness standards?
 - a. How do you determine which math courses those students should take now, after HB2223 [Note: only need to ask if not addressed above]?
16. How did/do students find out about corequisite math courses?
 - a. Pretend I'm a student who didn't meet college-readiness standards in math. If I'm trying to decide which math course to take, are there specific advising for students or resources to help me decide?
 - b. *Probe*: What are they and what would that look like?
17. How does your college plan to proceed after reaching the mandated 75% corequisite enrollment?
 - a. [Probe: Will they move to 100%, if not, what will happen to students who remain in more traditional dev-ed?]
 - b. *[(If maintaining some form of prerequisite dev-ed math):]* In maintaining a prerequisite dev-ed sequence, what will that sequence look like?
 - i. Are any changes being made to it?
 - v. Who is it intended for?
 - c. How was this plan determined?

[Other information on contexts]

18. Can you describe any outside factors that informed the colleges plans or processes for implementing HB2223?
 - a. *Probes (if there's time)*: some potential factors might include changes in observed student performance, information about how other colleges are implementing, feedback from the coordinating board, implementation of other reforms (e.g., guided pathways, math pathways)
19. How did the pandemic and challenges that arose due to COVID-19 impact the college's plan for implementing HB2223?

[Concluding Questions]

20. Is there anything else you'd like to share about your experience with HB2223 so far?
21. Are there any colleagues, at your institution or another Texas community college, that you think might be able to offer some useful insights about implementing corequisite math?

Semi-structured Interview Protocol for Intermediaries, Policymakers, and non-institutional reps with expertise: Corequisite Math Implementation Study

[Background]

This project has focused on the responses of college personnel to changes in the state's developmental education policies, particularly in math. In the course of our interviews, we heard from administrators and faculty about where they learned about HB2223 and asked for recommendations other others in the field we should speak with – your name came up.

First, I'm going to ask you about your role or experience with developmental math instruction and/or the implementation of HB2223.

1. I'd like to hear about your role. What is your position and how long have you been in this role?
 - a. What are the main responsibilities of someone in your position?
2. [for participants who are not at a college] What role does your organization play in policy decisions or institutional decision related to developmental education in math?
 - a. In your role, how do you interact with personnel at colleges?
 - b. How do you interact with policymakers around issues related to dev-ed math?

[Sensemaking]

Now I'm going to shift gears a bit to learn a little more about how you learned about changes in the state's policy for developmental education and hear how your college and department have adjusted to the policy.

[Policy signals:]

3. How would you describe the new dev-ed policy passed in 2017, House Bill 2223 (the corequisite mandate)?
 - c. *Probes:*
 - iv. What do you see at the goals of the policy change?
 1. Which challenges did it seek to address?
 - v. Were any students the primary focus of the policy change?
4. Where did you learn about the policy changes related to HB 2223?
5. What was your impression about what the policy would mean for students and for personnel at community colleges?
 - a. What informed that impression?
6. Can you describe the information you received about it?
 - a. How did that information help you interpret the policy?

[Implementation]

[Individual practices:]

7. What was/is your role in informing the implementation of HB2223?
8. If you interact with faculty and staff at colleges to inform their decisions about corequisite math courses, what do those interactions look like?

- a. What kind of information do you provide?
 - i. What is the source of your information about the policy change?
 - ii. How do you work to make that information digestible for college personnel?
 - b. What is your goal (or your organization’s goal) in providing that information?
9. Did you adapt your messaging or role based on feedback from college personnel? Or responses from the coordinating board?
- a. How has your “message” about HB2223 changed over time?

[Collective practices:]

10. Who are the (other) key players informing decisions colleges are making to implement corequisite coursework?
- a. What do you see as the goals of those key players?
 - b. [we want to get a sense of what this “space” looks like – who is influencing colleges as they work to make sense of the policy?]
11. What is your sense of how most institution’s have responded to HB2223, including how they addressed the mandated targets set for in fall 2018, fall 2019, and fall 2020?
- a. How do colleges decide on their responses to HB2223 and how to roll out corequisite courses?
12. What do you see as the main challenges that colleges faced in meeting those targets?
13. Based on your knowledge, do you think most colleges will proceed to offer 100% corequisites for students who do not meet college-readiness standards? Why?
- a. What would be the biggest obstacles/concerns?
 - b. If colleges do not move to 100%, what is your sense of what will happen to students who remain in more traditional dev-ed?

[Other information on contexts]

14. Can you describe any additional factors that inform colleges’ plans or processes for implementing HB2223?
- a. *Probes (if there’s time):* some potential factors might include changes in observed student performance, information about how other colleges are implementing, feedback from the coordinating board, implementation of other reforms (e.g., guided pathways, math pathways)
15. Thinking back to the policy and how it was rolled out (the targets for fall 2018-2020 and even the new rule-making for fall 2021), what do you think would be helpful for other contexts to know if they try to move toward offering more corequisites?
- a. How was the policy roll out successful and how could it have gone smoother?

[Concluding Questions]

16. Is there anything else you’d like to share about your experience with HB2223 so far?
- Are there any people we should talk to that you think might be able to offer some useful insights about how colleges in Texas are implementing corequisite math?