

HOW TO REDESIGN A DEVELOPMENTAL MATH PROGRAM BY USING THE EMPORIUM MODEL

XI. Planning and Implementing the Redesign: A Timeline and Checklist

Implementing the Emporium Model involves four phases: (1) planning and development, (2) conducting a pilot term, (3) making revisions to the redesign plan as needed based on the pilot experience, and (4) fully implementing the redesign in all sections of all courses in the developmental math sequence, including assessing and evaluating the full implementation.

Based on the nearly 200 redesigns that NCAT has conducted, a reasonable timeline for completing these four phases is as follows:

- *Six months prior to the pilot term.* Take six months to plan and develop, during which teams engage in concrete preparation for a pilot term.

Once the decision is made to redesign the developmental math sequence by using the Emporium Model, the team should develop a concrete plan that addresses the topics discussed in Chapters I–X. (Chapter XII describes what a plan should include.) Once a solid, well-articulated plan with appropriate approvals and any needed funding is in place, concrete action to prepare for the plan is needed. The checklist found later summarizes the items that need to be addressed in the planning and development phase.

- *Spring term.* Pilot the redesign with a subset of students, and include all or almost all aspects of the redesign.

NCAT recommends that every large-scale redesign conduct a pilot before moving to full implementation. What do we mean by a *pilot*? A pilot involves testing the redesign idea—including most if not all of the important quality improvement and cost savings characteristics of the planned redesign—with a subset of students enrolled in the course. Enrollment in the pilot section(s) needs to be large enough so the redesign team can learn what problems students are likely to face and how to resolve them prior to scaling up to full implementation in all sections of the course. The pilot period provides an opportunity for the redesign team to uncover technology issues or any problems that might emerge with the newly designed assignments or activities. For some institutions, the pilot term also provides a time to collect consistent data on student learning from both traditional and redesign sections that can be compared when consistent historical data are not available. For many institutions, the pilot has provided a time to make sure (1) that important audiences both on and off campus have been informed of changes in the course and (2) that all potential bumps in the road have been smoothed. Overall, a pilot provides the redesign team with a dress rehearsal of the redesigned course and an opportunity to resolve any issues that may arise. Teams have learned that it is much easier to solve problems with 150–200 students rather than with 1,000 students.

- *Summer term.* Continue implementing the redesign with all developmental math students in the summer term while resolving issues that have arisen in the pilot.

Conducting the pilot in the spring term gives the team time during the summer to address issues which may have arisen in the pilot. Inevitably, you will need to tweak the redesign, so that any problems encountered can be resolved. The team may need to modify and/or add policies and procedures to address issues which emerged during the pilot. Training plans may need additional refinement to include new policies or procedures which have been adopted during the pilot. The team should also check with other offices on campus to resolve any difficulties they may have encountered. Some institutions have conducted focus groups with students to uncover problems which can be corrected during this period.

- *Fall term.* Fully implement the redesign with all students enrolled in developmental math including all aspects of the redesign.

A goal of the Emporium Model is to include all students at the institution enrolled in developmental math in the redesign. NCAT calls the first term when this occurs “full implementation” of the redesign. All students benefit from the new learning environment and both students and the institution benefit from reduced costs. Course policies and procedures are consistently applied to all students, and all students have the opportunity to succeed at a pace which is individualized for them. While there may be some modifications of the policies and procedures, these will likely be minimal if the team has carefully thought through their plan and made corrections after the pilot.

Planning and Implementation Checklist

The following set of questions, organized according to the Essential Elements of the Emporium Model, serves as a checklist to ensure that you have addressed all aspects of a good redesign prior to the pilot term. If you are able to answer each of these questions thoughtfully and concretely, your plan has an excellent chance of achieving its academic and financial goals and benefits for students, faculty and your institution. Some institutions have assumed that once they have addressed each of these questions, the redesign activity is over. However, that assumption is mistaken. These questions need to be actively addressed in the planning phase, implemented in the pilot, reviewed and modified during the revision stage and carefully monitored and updated in future terms. The ongoing attention to these ideas will sustain the redesign and help insure its effective continuation.

Element #1: Redesign the whole course sequence and establish greater course consistency.

- Do you intend to redesign the whole course sequence?
- How will you establish greater course consistency?
- Which version of the Emporium Model do you intend to use? Why have you selected it?
- Has the importance of consistency for all students been clearly established among all faculty, both full-time and adjuncts? How will this consistency be assured?
- How will you build and maintain consensus among the multiple redesign stakeholders?
- How will you prepare students (and their parents) for the transition from the traditional format to the redesigned format?
- Has a course coordinator been identified? Have the responsibilities of the coordinator been specified?
- Has a training plan and schedule been established for full-time and adjunct faculty?
- How do you plan to move beyond the initial course design team and enlist other faculty in teaching the redesigned course?

- Have you determined how credit will be assigned for the redesigned developmental math courses?

Element #2: Require active learning and ensure that students are “doing” math.

- How will students be actively engaged with course content?
- How many lab/computer classroom hours will be required each week?
- Do faculty members understand how their roles will change in the Emporium Model?

Element #3: Hold “class” in a computer lab or computer classroom using commercial instructional software.

- Do you have sufficient computer lab space and/or computer classrooms?
- Is the campus technological infrastructure sufficient for the number of students who will use it once the redesign is fully implemented? If not, is there a plan to expand it?
- Will students use their own computers in the lab or will they only use campus computers?
- Do you have a plan to maintain and update the labs/computer classrooms going forward?
- Have you selected appropriate commercial software? Has the software been installed and tested, if necessary?
- How will you deal with software changes and updates?
- Has the IT department created an interface between the instructional software and the campus student information system?
- How will you provide technical support for students in navigating instructional software? Who will do this?
- How will you ensure the integrity of testing?
- If needed, have you established and shared a plan for smoothing out demand in the lab?

Element #4: Modularize course materials and course structure.

- Have you modularized the course sequence from individual courses to a series of smaller modules or "chunks" of content?
- Have you eliminated content overlap among courses?
- Have you decided how students will progress through the modules?
- How will students register for the developmental math courses?
- How will module completion be recorded in the student information system and on student transcripts?
- How will advisors know where their students are in the developmental math sequence?
- How will the redesign conform to financial aid requirements?

Element #5: Require mastery learning.

- Have you established mastery levels for homework and assessments that are doable in the time allotted for the module?
- Have you decided how many times can students submit homework and take quizzes and tests?
- Will you award partial credit? If so, have you developed a rubric to ensure consistent scoring?

Element #6: Build in ongoing assessment and prompt (automated) feedback.

- How do you plan to incorporate ongoing assessment and prompt feedback for students?
- Do you have a plan to automate grading where possible (e.g., low-stakes quizzes, homework exercises, and so on)?

Element #7: Provide students with one-on-one, personalized, on-demand assistance from highly trained personnel.

- How will you provide students with more individualized assistance? Who will do this and how?
- Have you considered the use of various kinds of personnel that can provide needed student assistance and complete administrative tasks (e.g., undergraduate peer tutors, course assistants, tutors, and so on)? Who will do what?
- How will you select, orient and train lab tutors, both initially and ongoing?
- Has a tutor scheduling plan been established? Does it include greater staffing during the early weeks of the term when students need more assistance?

Element #8: Ensure sufficient time on task.

- How will you ensure that students spend sufficient time on task?
- Do you plan to develop materials in addition to the software (notebooks, directions, task lists) to help keep students on task? Have they been reviewed for completeness and clarity?
- Do you have a clear timeline and weekly schedules for students that will enable them to finish on time?

Element #9: Monitor student progress and intervene when necessary.

- How will you monitor student progress? How will you deal with students who are falling behind?
- Have you investigated how the software can monitor and track student performance and support course administration?

Element #10: Measure learning, completion and cost.

- Have you selected a method for obtaining data to compare student learning outcomes during the pilot phase and full implementation phases?
- Will you be able to use existing traditional data or will you collect parallel data from the traditional and redesigned sections during the pilot term?
- Which of the three measurement methods will you use in each phase?
- Have you decided how you will implement your assessment plan, including working with others who may need to collect or analyze data?
- How will you measure completion?
- Have you investigated whether or not there was grade inflation in the traditional format?
- Have you decided to award a Making Progress (MP) grade? If so, have you determined its definition?
- Have you selected a cost reduction strategy to be used in the redesign?
- Have you completed the assessment planning forms, the completion forms and the Cost Planning Tool to document your plans?

Building Consensus among All Stakeholders

From working with more than 200 course redesigns, NCAT has found that the most important implementation issues they encountered revolve around building and maintaining a consensus about the redesign among all stakeholders: students, parents, faculty, professional staff and senior administrators. The need to develop a shared understanding of the redesign begins with developing a redesign plan; continues through the pilot as the redesign plan becomes “real”; becomes even more necessary during full implementation as more students, more faculty and more staff are involved; and, equally important, continues to be maintained on an ongoing basis.

Chapter XIII discusses this issue in detail with an emphasis on sustaining consensus, but it is important for you to consider during the planning period. Having a great plan is not enough; there must be consensus among key stakeholders about that plan. You need to think about building initial consensus by focusing on the following questions:

- How will you prepare students (and their parents) for the transition from the traditional format to the redesigned format?
- How do you plan to achieve faculty consensus about the redesign?
- How do you plan to achieve departmental commitment to the redesign?
- How do you plan to achieve commitment and cooperation from campus offices that will be affected by the redesign (e.g., registrar, financial aid, IT, facilities, advising)?
- How do you plan to achieve commitment and support from administrators?
- What strategies do you have to orient new personnel in college offices and at the senior administrative level?