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THE UNEXPECTED DETOUR IN THE JOURNEY THROUGH THE TWO-YEAR COLLEGE: DEVELOPMENTAL MATHEMATICS

The Melting Pot of Higher Education

Challenges are inherent in each form of diversity; however, diversity in academic ability poses the greatest challenge. Specifically, many students arrive on campus academically under-prepared for college-level coursework and face an unexpected detour, developmental education. This is an account of how math professors at an Arizona community college set out to guide students through it.

Robert's Dilemma

Robert, a fictitious full-time student at Central Arizona College (CAC), completes a placement exam and scores low in mathematics. Due to his low score, Robert will be required to enroll in developmental math courses (intermediate algebra and below). Two things immediately become apparent to him after meeting with an academic advisor: first, he will need to enroll in courses that may not count towards his program requirements; second, he will need at least one additional semester of coursework, especially if his reading and writing scores are low as well. For Robert, the two-year college suddenly has become a three-year college—something he had not anticipated nor considered.

Robert's dilemma is common. In the math department at CAC, we asked the basic question: "What can we do to help students in Robert's circumstance?" After some casual conversations about our concern and an unwillingness to compromise the academic integrity of our courses, our question became more specific: "What can we do to ensure that students who take developmental math remain on their preconceived timeline?"

Our Approach

Aside from the students who truly needed the courses, we sought to discover why students test into developmental math. We informally surveyed students enrolled in our developmental math courses and earning at least a B; and a few responses became repetitive. For instance, students were not allowed to use calculators on the placement exams—a requirement that we wanted to remain. For many students, at least two or more years had lapsed since completion of their most recent math class. We also found that once students reviewed the material for just a few weeks, many had acquired the basic competencies needed to succeed in the next course. This, we decided, would be the student we could serve best.

The Solution

Our solution called for an alternative to the normal 16-week format for MAT 091: Introductory Algebra, and MAT 121: Intermediate Algebra. We chose to offer MAT 092: Introductory Algebra during the first eight weeks and MAT 122: Intermediate Algebra during the second eight weeks (The number change from 091 to 092 would allow students and faculty to discern between the two formats quickly.) Conceptually, students would enroll in both sections and experience a seamless transition since class time and days were identical for both. Also, the two sections would be taught by the same instructor, another dimension added to ensure smooth transition.

Challenges

"I'm not very good in math, so I'll wait to take it in the summer." This illogical reasoning leaves many math instructors befuddled. Based on personal observation, I have found that students often equate class length to level of difficulty. Many students erroneously believe that the shorter a class is in length, the easier it will be. This was our greatest challenge.

Generalizing to the Nth Term

Is this solution "the answer," cutting-edge, or complex? No! But it is simple, easy to implement, and cost-free. Best of all, it works. The success of this format prompted me to think of other courses where students might benefit from acceleration. I had taught a course called MAT 201: Math for Elementary Teachers. This course was a perfect candidate since recent articulation agreements with our state public universities forced us to split the course into two distinct courses in order to accommodate new standards and learning outcomes. Students rejoiced when they learned of the new offerings: MAT 201: Math for Elementary Teachers I and MAT 202: Math for Elementary Teachers II. This format saved students from completing MAT 202 during the summer, the only time it was offered during the entire year.

The Ball is Rolling—Now What?

Now that our department has offered the accelerated format for each set of courses for two years, we are currently assessing their effectiveness. Data show that enrollment in the intro/intermediate courses is not as popular as the math for elementary teachers I/II courses. The retention and completion rates for both sets of courses reflect the rates of 16-week sections. The question now is: "Should we continue to offer these formats and, if so, to what extent?"

My proposal will be to reduce the number of offerings of the intro/intermediate sections to one for daytime students and one for evening students. In a learner-centered institution, students should be given alternatives to the more conventional approaches. As for the math courses for elementary teachers, I will propose that we continue our current number of offerings—one in the fall and the spring semesters.

Unexpected Outcomes

As the result of collaboration between the math and communication division chairs, students are able to enroll in accelerated developmental reading courses. These courses are set up in a similar manner to the accelerated math courses. Once they complete the reading courses successfully, students may enroll in their English courses and all other transferable courses much sooner, thereby saving even more time.

Recommendations

Reflecting on the evolution of the process to this date, I would reconsider our approach but not our motives. First and foremost, educating advisors and other math professors on the philosophy of the course format is essential. I would ask each MAT 081: Pre-algebra (the course generally taken before MAT 092) instructor to advertise the accelerated courses and explain which type of student is best served. The pace of the course can be overwhelming for students; remind them that *shorter=easier* is not an equation worth committing to memory.

If lack of a calculator, simply a bad testing day, or a need for a skills refresher session was the culprit for low assessment scores, then these students may be good candidates for accelerated courses. Advisors should be provided tips on proper advisement for students who are required to take developmental math. At CAC, we are fortunate to have a group of advisors who welcome and appreciate any such advice.

Remember to address pedagogy. Keep in mind that you will see students more often and for longer periods of time; so plan accordingly.

Developmental education students often feel ostracized by the inability to enroll in "real" college courses. They tend to feel that time and money are being wasted since developmental courses rarely apply toward degrees, certificates, or university transfer. I have learned that some students even feel that being required to take developmental courses is punishment for being academically under-prepared.

Obviously, colleges do not promote ostracism nor do they seek to punish students. On the contrary, community colleges do whatever it takes to nurture student success. The CAC math department exemplifies this commitment with an implement-it-next-semester solution so that the unexpected detour is short and pleasant.

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