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Using Data to Enlist Faculty Members in Strategic Enrollment Management

Introduction

Better access to data and improved practice using data to strategize and to monitor student success are changing student support and course management practices at Yakima Valley Community College (YVCC).

In July 2006, YVCC became a partner in the national Achieving the Dream (ATD) initiative and began to undergo a transformation: It evolved from an institution with very limited ability to conduct research to one that earned ATD Leader College Status in 2010. This transformation was primarily the result of YVCC's creation of an Office of Institutional Effectiveness (OIE) to gather and analyze data on student outcomes as well as to enlist faculty members in designing student success activities.

Over the last five years, the OIE has supported YVCC faculty research projects in a number of areas. A significant outcome has been more strategic planning for enrollment based on predicted levels of student success and the course sequences needed to complete degrees.

Getting Faculty Members to Use Data

It has taken time for faculty members to embrace the use of data. From the outset, many were suspicious that data relating to such items as course completion might be used as an evaluation tool. Some were also concerned that some data—for example, on "student success by ethnicity"—might be used to allege that a particular faculty member or department was racist. With administrative support, however, the OIE adopted a number of policies and procedures to quell such suspicions:

- **Data request procedures:** Faculty members may request data directly from OIE staff; supervisors are to be apprised of such requests and informed of any outcomes. Typically, the OIE and the data requestor have several conversations to clarify the request and to articulate what the requestor anticipates the data will reveal. For example, she might expect an increase in a particular rate. Knowing what the requestor expects the data to reveal helps OIE staff members better understand the requestor's intent. By working with OIE staff to answer questions and analyze data, faculty members are more at ease about how data will be used and interpreted. They are involved in the process, and the data are tied to instructional or related strategies that they want either to understand or to improve.
- **Documentation of data sources:** Prior to establishment of the OIE, there was no common understanding at YVCC of the types of data that might be used for research or of how to track the ways in which data were extracted. The OIE team developed a protocol for documenting data sources that includes the actual pathway to the data as well as the archiving of reports on an OIE server. As a result, staff members are able to explain to the college community how data on the same topic may vary from one source to another because of such variables as the particular students included in one database versus another, the timing of the data pull, or even the phrasing of the research question.
- **Access to OIE Web site and reports:** As the OIE responded to more and more requests, it became apparent that some information was needed by nearly all departments and that pivot tables

could be built and updated regularly to provide much of these data via the Web site. Without making formal requests, employees now can access data relating to placement, enrollment, and course completion that are disaggregated by ethnicity, gender, location, and mode of instruction. Departments use these data to analyze for curricular areas, to strategize activities to increase student success, and to help monitor their own progress toward accreditation goals.

As a result of OIE's development of a protocol for responding to data requests, confidence in the accuracy of the data and the ability of the college community to analyze and use data to identify strategies for improvement have increased. More and more, faculty members and academic departments are using student success data to develop course schedules that are based on course-taking patterns and success rather than just past enrollments.

Data on student success have impacted faculty decision-making and enrollment management in four different areas at YVCC: new student orientation and advising; pre-college course design and management; placement and prerequisites; and success in sequences of courses.

Use of Student Success Data to Manage Enrollment

New Student Orientation and Advising

In 2006-07 YVCC analyzed data on first-quarter and first-year retention and conducted focus groups with students, faculty, staff and community members on "barriers to success." The most frequently cited barrier was the lack of clear academic guidance. Students were matriculating at YVCC and were taking whatever classes they could, regardless of whether they needed them or whether they were likely to be successful. Changing orientation and advising to rectify these shortcomings became a faculty initiative because YVCC counselors and advisors are all faculty members.

In spring quarter 2008, YVCC created a new intake process that includes an online orientation to placement testing, a 2-hour mandatory "New Student Orientation and Registration" session, and an Academic Early Warning (AEW) system. Each of these faculty-directed activities incorporates the sharing of information with students about how to succeed in college; particular guidance is offered on selecting programs of study that support the attainment of personal goals.

The impact of these activities has been tracked qualitatively via an "Incoming Student Survey" and an "Annual Fall Student Survey" and quantitatively by tracking first-quarter and first-year retention. Across three years of full implementation, these strategies have been correlated with improved student perceptions of the college and increased retention rates. Across five years, more than 90 percent of new students reported positive perceptions of intake processes on the Incoming and Annual Fall student surveys; approximately 60 percent of students reported support for AEW on the Annual Fall Survey; and more than 90 percent reported that YVCC helps them meet their goals. First-quarter retention rates increased from 76 percent in 2005-06 to 80 percent in 2010-11. Retention rates from fall of the first year to any quarter in the next academic year increased from 58 percent in 2005-06 to 62 percent in 2008-09 (the most recent year for which these data are available).

These data-based activities have had far-reaching impacts on strategic management. Each summer, before New Student Orientation, the registrar provides the advising team with placement data for the in-coming students; the team uses these data to determine whether the courses available are appropriate given the students' achievement levels. Courses are added or eliminated from the schedule accordingly. This process seems to result in more students enrolling in the courses they need-and, consequently, in improved perceptions of the college's ability to adapt to student needs.

Data on AEW have been mixed: Although the faculty support the concept (as evidenced by their participation in the process), there have been no correlated changes in student outcomes either for the quarter when they receive a warning or the quarter after. Nevertheless, students report that the AEW is helpful and that they respond by talking to the instructor and continuing in the class. AEW data are being used to change the system; the hope is that they will contribute to increased retention as well as decreased rates of probation. By keeping more students in courses and helping them succeed, the college can better plan the courses it needs to offer in ensuing quarters, thus better managing enrollment.

Pre-College Course Design and Management

In any given year at YVCC, more than 50 percent of entering students are required to take developmental English, and more than 85 percent are required to take one or more levels of developmental math. Of particular note is the fact that approximately 25 percent of students enter at the lowest levels in English and math; these students' retention and degree completion rates are very

low. An OIE analysis showed that students who begin at the lowest levels of math have very low rates of earning quantitative course credits required for degrees. Conversations with developmental students about what features of their courses and/or support programs helped them the most informed the College's redesign of developmental courses. The College also developed a process for transitioning students from non-credit Adult Basic Education (ABE) courses into credit-bearing developmental and college courses.

YVCC's use of data to strategize for student success in pre-college programs resulted in three significant changes: First, the Math Department did considerable work to align sequences of math courses with student goals and programs of study. This work resulted in the creation of four different pathways to courses that meet the quantitative degree requirement: a calculus-based pathway, a liberal arts pathway, an algebra-based pathway, and a professional-technical pathway. All pathways have the same starting point: qualifying for beginning algebra. As more than 50 percent of entering YVCC students lack the skills required to enter beginning algebra, the Math Department redesigned courses below this level. It worked with ABE to create a new Math 049T course to help ABE and college students transition directly into a math pathway. (Previously, college students who placed into ABE math had to navigate both the ABE and the "credit" systems; most elected not to take math at all.) The initial effect of these changes was a surge in pre-college math enrollment such that YVCC had to hire two additional math instructors in 2010-11.

Second, the English and ABE Departments worked together to redesign pre-college English and reading courses. Eliminating redundancies in programming resulted in more efficient use of college funds. Faculty members also analyzed completion rates in pre-college course sequences alongside student work samples submitted to the English and ABE Departments. Having determined that COMPASS placement appeared adequate for upper levels but insufficient for lower levels, faculty revised the placement procedures for students scoring lower on the COMPASS English test to include a writing sample and a CASAS diagnostic reading test. Data from these additional tools have enabled the faculty to place entering students in any of three different levels of English coursework. Approximately 20 percent of the time, this process results in higher placement for students. Their success in pre-college English courses has remained stable, at 78 percent.

Third, YVCC used an extensive analysis of students who qualified for TRIO Student Support Services (SSS) to strategize services for low-income, first-generation, under-prepared students. An analysis of first-quarter and first-year performance revealed that SSS-eligible students who had participated in learning communities had significantly higher success rates than students who had not. The SSS program was redesigned in fall 2010 such that entering students were required to attend an SSS New Student Orientation session and to enroll in their first quarter in an SSS Learning Community that combined a 5-credit developmental English with a 3-credit student success course. SSS students also were strongly advised to enroll in math in their first quarter and to continue their enrollment until they completed degree requirements. Data comparing TRIO SSS students to a matched cohort of SSS-eligible but non-participating students demonstrate the effectiveness of this approach: 80 percent of first-quarter SSS students enrolled in math compared to only 58 percent of the matched cohort. The first-quarter retention rate for SSS students was 97 percent, compared to 78 percent for the matched cohort. While it is too early to determine first-year retention rates, SSS students who participated in a focus group during spring quarter 2011 noted that the emphasis on taking the right courses in sequence and the increased personal contact afforded through the learning communities had been important to their success. YVCC is considering mandating some form of learning community for all students entering two or more levels below the college level.

Placement and Prerequisites

The OIE has conducted numerous analyses of the effectiveness of placement cut scores and prerequisites on student success. The underlying goal is to improve students' success rates so the college can better plan sequences of courses to meet current and in-coming student demand. Further, improved placement and pass rates lead to financial savings as fewer sections of particular courses are needed. Consider by way of example OIE's analysis for the Psychology Department and the resultant changes to the prerequisite requirements for the entry-level psychology course.

In 2007, a psychology instructor approached the OIE with data she had collected on student performance in the Psych 100 ("Introduction to Psychology") courses she had taught over the past six years. She was concerned about an apparent decrease in students' preparedness for the course. At the time, the only prerequisite was placement into college-level English, co-enrollment in the English course one level below college, or placement into college-level reading. After conferring with the department and dean, OIE agreed to analyze "success in psychology courses" as part of an effort to determine appropriate placement requirements.

The OIE began by matching psychology enrollment data with COMPASS placement data in English and

math-including an analysis of courses taken previously-for a two-year period. Success in psychology was significantly correlated with placement into English 101 and intermediate algebra. Students scoring below these levels had less than a 30 percent course completion rate compared to more than 85 percent for students placing at the aforementioned levels. Because of the high numbers of students placing into beginning algebra, the decision was made to require students to qualify for English 101 and beginning algebra before taking psychology. These prerequisites were first implemented in fall quarter 2010. The improvement was dramatic: Completion with a C or better improved from 64 percent to 75 percent; drop rates were cut in half, from 16 percent to 7 percent. Psychology instructors reported that teaching in a class of similarly prepared students was much more effective and rewarding not only for students but also for themselves.

These changes had an impact on enrollment management as well. During the 2010-11 academic year, one psychology course was eliminated from the schedule, yet the average enrollment rate for the sections offered was the same as in previous years-88 percent. These students filled sections of psychology courses for which Psychology 100 is a prerequisite, and their performance in those courses was better than that of students who had taken Psychology 100 before the new prerequisites went into effect.

Success in Sequences of Courses

YVCC offers healthcare programs in nursing, dental hygiene, and radiologic technology. Each has competitive admissions criteria, including successful completion of a three- or four-quarter biology sequence. In 2007, the Biology Department approached the OIE with a request to analyze student success in the "biology for healthcare" sequence of courses. Previously, the Biology Department had expended considerable effort to redesign the first course in the sequence to include common worksheets and a practice final exam to help students identify topics and processes they needed to study before the final. Faculty members had witnessed increases in the numbers of students completing the course with a C or better. But instructors were concerned that enrollment in subsequent courses seemed unpredictable; relying on the previous year's schedule to plan courses resulted in long wait lists for some classes and empty seats in others.

OIE staff members began the project by analyzing pass rates for all courses in the sequence by ethnicity and gender. Biology instructors then considered their experiences teaching those courses in light of the overall data. They determined that no one instructor seemed to have a better success rate than any other, and neither time of day nor location seemed to influence student success. In addition, no particular group of students fared better than any other. The department then asked OIE to consider prerequisite knowledge in its analysis of student success. As had been true for Psychology 100, the only prerequisite for the first course in the biology sequence was college-level reading or co-enrollment in English one level below college; as a result, students entered the course from vastly different starting points. When student success in the first biology course was analyzed according to math placement and/or previous courses taken, OIE staff found that students who had taken beginning algebra had pass rates of approximately 65 percent compared to approximately 50 percent for students with lower-level math skills. In response to these findings, the Biology Department raised the prerequisites to qualification for English 101 and Math 085.

Analysis of pass rates in the other courses in the sequence revealed that approximately 57 percent of students who passed the first course took the next course in the sequence the following quarter. For the second course, students' completion rate was seven percentage points less than for the first course. The Biology Department responded to this finding by working to implement instructional changes similar to those they had implemented for the first course-i.e., common worksheets and practice finals. They also modified instruction on some key concepts in the first course.

The pathway analyses revealed that only 17 percent of students who began the biology sequence ever completed it. This low completion rate had significant implications for the advising of pre-health care students; for planning the number of course sections to be offered; and for predicting the number of students who might qualify for healthcare degree programs.

Lessons Learned

The OIE identified certain key considerations when supplying faculty members with data and related analyses:

- Before you offer data, be certain you understand not only the sources of information that are available but also their limitations. The goal is to deliver consistent, reliable, replicable reports.
- Determine who can request data and the process for doing so. Will supervisors sign off on data - requests, or will they simply be notified of such requests? Who will receive reports? Be prepared to have several follow-up meetings to determine as precisely as possible the nature of the research to

be conducted and the anticipated outcome. Give priority to requests that are part of department action plans over requests based merely on curiosity.

- Ask “Who ‘owns’ the data?” At YVCC, the OIE team provides support for gathering and analyzing data and generates data reports. Requestors are asked to interpret the data themselves as they are uniquely situated to understand how certain instructional practices may have influenced the data. This is significant: Faculty members need to “own” the data that relate to the courses they teach.
- Be patient! Faculty members may be experts in their fields of study yet have only limited ability to analyze data or to understand the difficulty of retrieving information in particular ways. Consider each interaction as an opportunity to help faculty members learn how data are gathered, stored, and retrieved. In time, this investment will result in a better-informed faculty-and one that is better able to help its members analyze data.

Analyzing student success is a complicated process: One question leads to another which leads to yet another. Confounding variables complicate efforts to understand student behavior and performance. But becoming more methodical in seeking to learn how instructionally related decisions can affect student enrollment and performance can lead to increased success for individual students as well as the college. Increased success in coursework improves retention and persistence-and the college's bottom line. Being able to predict pass rates leads to being better able to predict demand for other courses. This results in turn in creating course schedules such that students are more likely to be able to enroll in the courses they need and in ensuring that they are academically prepared for them. If courses are planned appropriately, the college will fill seats even as its overall completion rates increase. Enlisting faculty members in using data is key to such changes.

When colleges connect student success data with the activities in which they are engaged, they are in a position to strategically change their services so as to improve outcomes. Simply stated, they can manage enrollment that promotes success.

Ms. Dulin has been a faculty member at YVCC for 22 years and is approved to teach in every division of the college. In addition to teaching Student Development courses aimed at under-prepared first-generation college students, she directs the Office of Institutional Effectiveness and serves as the Title V Activity II Diversity Co-Coordinator. Dulin was co-leader of the initial YVCC Core and Data teams and now convenes their replacement, the Institutional Effectiveness Team, a cross-campus group that oversees college initiatives aimed at increasing student success, access, and community support.

Ms. Delquadri has seven years experience as a Data Coordinator for a variety of programs including GEAR UP, Title V, ATD, and other student success programs. For more than three years she has been the Research Analyst for the newly formed Office of Institutional Effectiveness. She was an original member of the Core and Data Teams and continues to oversee research design and data collection for ATD initiatives as well as other college grants and initiatives.

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