Computed Middle

An Inside Higher Ed article "The Murky Middle," introduced a new perspective on student success. The study suggested that while colleges usually target their intervention efforts on freshmen who struggle in the early phase of college, their energy and resources might be better spent focusing on the students in the "Murky Middle." The Education Advisory Board also published findings on the "Murky Middle," stating that the Murky Middle is a sizeable but often overlooked group of students who manage to complete their first year with a GPA between 2.0 and 3.0 but still are at risk of dropping out before completing their degree.

This briefing examines the state of Purdue University West Lafayette Campus students who earn between a 2.0 and 3.0 GPA after completing their first year -- Purdue's Murky Middle population.

Cohort Demographics

The cohort of students analyzed in this study consisted of the fall 2009 entering first-time full-time undergraduates. At Purdue, 37.2% of the fall 2009 cohort ended up in the Murky Middle at the end of their first year. Figure 1, shows the gender breakdown of the entire fall 2009 cohort by GPA segments of the first year cumulative GPA (end of spring 2010 cumulative GPA). Female students make up a greater percentage of the fall 2009 cohort who are in the high performing GPA segment of 3.0 or higher (56.6% females vs 44.8% males). A slightly higher percentage of male students are in the Murky Middle (39.5% males vs 34.2% females). The stacked bar chart shows a trend line of the female proportion of students increasing as the GPA increases. The only exception in the increasing female trend line is in the 2.6 to 2.8 GPA group, which shows a slight downward trend within the female population, picking back up in the 2.8 to 3.0 GPA group.

Figure 1 Cohort Demographics

Entry College/School

Students entering the fall 2009 term in the College of Pharmacy (69.4%), Krannert School of Management (63.8%), and the College of Health and Human Sciences (58.6%) have the highest percentage of students who earn a 3.0 GPA or higher at the end of the first year. The highest percentage of students in the Murky Middle, started in Exploratory Studies (46.0%), Veterinary Technology (43.8% although the cohort is only 16 students), and College of Agriculture (43.3%).

Figure 2 Entry College/School

Course Performance and Transfer Credits

Figure 3 depicts a widening gap between attempted and earned term credits as first-year GPA decreases. It also indicates that both attempted and earned credits increase linearly with first-year GPA. For students completing their first year with a GPA below 2.0, an average 6 credit hours per term were attempted but not earned in the first year. This gap decreases to 3.4 credits in the second year, however. As a result, these students are at a much higher risk of not succeeding at Purdue because they may not be completing enough course credits for their degrees.

The Murky Middle group fared better, but demonstrated a trend of an increasing gap between attempted and earned credits. On average, students in the middle lost 1 credit per term in the first year, but that increased to almost 2 credits in the second year. The long-lasting and accumulated effect of not earning enough credits may still put the fates of students at risk if this increasing trend of unearned credits continues.

By contrast, students who ended their first year with a GPA above 3.0 not only attempted more hours, but only lost 0.3 credits on average. This increased slightly to 0.5 credits in the second year.

Figure 3 Course Performance and Transfer Credits

Parentheses indicate the endpoints are excluded. Brackets indicate the endpoints are included.

For example, (2.2,2.4] is the interval between 2.2 and 2.4, excluding 2.2 and including 2.4.
Murky Middle

Retention and Graduation Rates

As shown in Figure 5, all retention rates and graduation rates increase as first year GPA goes up. The slope by GPA segments is steeper for the Murky Middle group, compared to that of students with a first year GPA higher than 3.0. The Murky Middle students persist at a rate lower than the campus average until reaching a GPA of 2.6 or higher. The slope difference is especially pronounced in four year graduation rates indicating the expanding issues with retention for students who fall in the Murky Middle. While only 22% of students in 2.0-2.2 GPA segment graduated within 4 years, the graduation rate for students in 2.8-3.0 GPA segment are more than twice that number at 49%. Student success initiatives targeted to certain GPA segments within the Murky Middle group could have a great impact on students’ on time degree completion.

Figure 4 Attrition

As the Inside Higher Ed article points out, most student success initiatives focus on first year outcomes, a trend that makes sense on Purdue’s campus as the largest portion of attrition occurs in the first year. Overall for the fall 2009 first-time full-time cohort, 11% of students are academically dropped or voluntarily withdraw from Purdue within their first year of enrollment. The attrition rate increases an additional 6.4% in the second year and another 2.5% in the third ultimately leading to a total attrition rate of 19.9% after three years.

Figure 4 demonstrates that, as expected, those students who earn below a 2.0 GPA their first-year suffer the highest attrition rate. However, the populations within the GPA segments of 2.0 to 2.2 and 2.2 to 2.4 still have attrition rates of 14.1% and 12.0% respectively their first-year. The attrition rates do decrease as GPA increases, but double digit departure rates continue to exist until hitting the population of students earning greater than a 2.4 GPA in their first-year.

Figure 5 Retention and Graduation Rates

Timely Intervention

Timely and targeted intervention can be the key to certain students’ impactful gains. When examining GPA trends for students who persisted at least four years, consistent with the results in the Inside Higher Ed article, the Murky Middle group’s five year graduation rate dramatically improves if the downward trend of term GPA is reversed. The earlier the downward trend is reversed, the higher the outcome. As shown in Figure 6, if the term GPA of the Murky Middle group increases within the first two years of enrollment then the five-year graduation rate for the Murky Middle group becomes consistent with the five-year graduation rate for the population with a first-year GPA of higher than 3.0.

Discussion

Murky Middle students are not failing out of the institution and often continue to make progress toward their degree, so they do not often get labeled as being “at-risk” of not completing their studies. However, they tend not to remain on pace to complete their degrees, and often leave the institution in later stages of their academic career for “murky” reasons. The results of the briefing demonstrate that the Murky Middle students could benefit from intervention and thus make large impacts on their likelihood for degree completion.


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