Who stays, who leaves and why? Examining retention in non-prerequisite, introductory courses.

Erica Wager, MA, Christina Van Puymbroeck, PhD, Norma Jimenez Hernandez, EdD, Olga Tsoudis, PhD

Estrella Mountain Community College, Avondale, AZ

**Executive Summary**

Research has demonstrated that a significant proportion of community college students will not persist to degree completion. Online students may be particularly at-risk. Academic self-efficacy, perceived value of the curriculum, and certain demographic variables have been identified as important in both retention and persistence. Food insecurity has recently emerged as another critical variable affecting the trajectory and success of college students. We measured these variables four times during SP 2017 semester in a series of five online college classes and one face-to-face (FTF) class. Preliminary analyses investigated the effect of academic self-efficacy, perceived value of the curriculum, and food insecurity on successful completion of the course.

We originally intended to conduct a survival analysis to identify at what point students are most likely to drop out of the courses and how the variables of interest influence whether the students persist or at what point in the semester they withdraw. In doing so, we had hoped to identify critical periods where students are more likely to withdraw in order to understand the complexity of retention and persistence for community college students. At the end of initial data collection, we did not have sufficient numbers of withdrawn students for the power necessary to run a survival analysis. As a result, we further investigated the variable of food insecurity as recent research has demonstrated food insecurity as a significant but largely overlooked variable in college student success.

Additionally, our data suggested some important differences between online students and FTF students in terms of their academic self-efficacy and other factors affecting completion. We have been focusing on ideas for future research about changes that might strengthen a sense of engagement and community for online students with the aim of improving completion within the semester and persistence between semesters. Furthermore, while the withdrawal rate for our online students was not significantly different from the college’s overall withdrawal rates for online students, this could be a result of comparing two importantly distinctive groups. We believe that the characteristics of the courses involved in this study (open access, non- pre-requisite introductory courses) typically involve a higher withdrawal/failure rate than our original comparison statistic, which was the withdrawal rate for all online students at EMCC.

**Preliminary Results**

* N=73 out of 143 (51%) enrolled students completed one measure at least once
	+ 93% of FTF students participated in the study; 39.8% of online students participated
* N=9 out of 73 (12%) of sample withdrawn
	+ 88% of sample completed the course v. 79.52% of all students enrolled in the classes, suggesting that this could be a self-selected group
	+ 80.5% of the sample successfully completed course with A, B or C grade while 19.5% of sample completed course with D/F or withdrew from the course

**Food Insecurity** USDA 6-item survey, items averaged out

* M=1.41, SD=.62 (range from 1-3, 1= low insecurity), we split the sample by the median and assigned students as high or low food insecurity
* Online students were significantly more food insecure than FTF (p<.05)
* People who failed/withdrew were marginally significantly more likely to be food insecure (p<.10)
* 87.1% of food secure students completed the course successfully while only 64.3% of students who were food insecure completed the course successfully (p<.08, Phi=.264)
	+ However: In online classes only, while 94% of food secure students completed successfully, only 58% of food insecure students completed the course successfully (p<.05, Phi=.427); this variable was not significant in F2F students (p=.49)
	+ There was a significant negative, moderate correlation between grades and food insecurity (p<.02)

**Food Insecurity and influences on future retention and persistence**

To further investigate food insecurity, we used the high and low food insecurity groupings to predict future retention (coming back to EMCC for at least one more class in FA 2017 or SP 2018) and persistence (returning contiguously to EMCC for 1 or 2 semesters after our class)

* Significantly fewer students with high food insecurity persisted for two semesters beyond our classes (only 44.8% persisted) as compared to the students with low food insecurity (74.2% persisted, p<.05)

**Perceived Value of the Course** Assessment adapted from Tinto, V., 2016, 9 items averaged out

* M=4.19, SD=.64 (range from 1-5, 1=low perceived value)
* Students perceived course to be valuable
* No significant difference between those who found the course more valuable v. those that reported less value in the course, with a small amount of variance

**Academic Self Efficacy** SELF 19 items averaged out

* M=76.05%, SD=13.57 (range from 0-100%, 0=low self-efficacy)
* Surprisingly, 86.4% of low self-efficacy (below 75%) students completed the course while 78.6% of those with high self-efficacy completed the course

These three variables of interest explain 18.5% of the variance in grades for online students while they explain 12% for FTF students

More interesting relationships that institutions may want to consider:

* For FTF students, there was a significant, negative correlation between self-efficacy and food insecurity (p<.01); students with higher food insecurity had lower self-efficacy, supporting Maslow’s theory of needs, this relationship was not significant for online students
* For online students, there was a significant, positive correlation between self-efficacy and perceived value (p<.001); students with higher self-efficacy scores perceived the course to be more valuable
	+ This relationship was not significant for FTF students

**Discussion and Future Directions**

Food insecurity was the most predictive variable of completion and future persistence in this sample. In addition, due to the low number of withdrawals in our courses, there is reason to believe that participation in the study itself may have served as an intervention that positively affected student completion. All of the study authors whose online classes participated are practiced online instructors with many years of experience in online, non-prerequisite introductory courses. It is our observation that we lost fewer students from the classes during the data collection semester than expected. While this stymied our intention to run survival analyses, it suggested to us that the study itself might have been an unexpected variable affecting completion of our courses. We intend to investigate this further, we hypothesize that checking in with students at multiple points during the semester about issues such as food insecurity and other life – context variables may act as an intervention to support completion.

Food insecurity is measured with behaviors such the frequency of missing meals due to financial limitations. As such, it may serve as a more sensitive indicator of financial anxiety than the absolute numbers that create categorical variables such as financial hardship. If a student is missing meals due to financial concerns, it is likely other essential needs are going unmet, regardless of whether they meet more stringent criteria for financial hardship. For instance, a student skimping on food is probably not updating glasses with new prescriptions, getting regular car maintenance to avoid a serious transportation failure, seeking preventative healthcare, etc. In this way food insecurity behaviors may be a proxy for multiple vulnerabilities that affect a student’s ability to persist and succeed. Based on this reasoning, food insecurity might be an appropriate screening tool utilized with the general population during registration or other times when a variety of information is gathered from students. Used in this manner, stigma is reduced as it does not require singling out individual students but can provide an early opportunity to implement wrap-around services to reduce vulnerabilities that lead to non-persistence. Further research is necessary to test the idea of food insecurity as a screening tool for vulnerability. If the hypothesis proves correct, research can indicate what services and resources most benefit a student in this tenuous position.