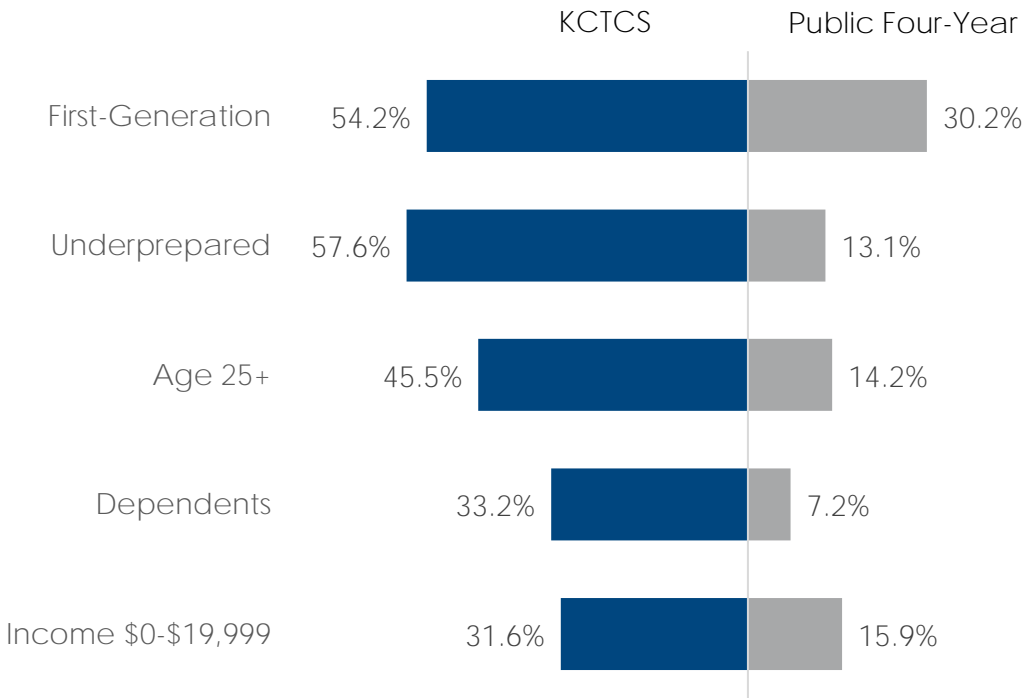# KCTCS Research Study on Starfish Reveals Positive Impact on Student Success and Retention

Introduction:

In a 2019 report from the Kentucky General Assembly's p
challenged to conduct research to better understand five prominent nonaccess institutions, st
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he first in
their family to attend college, academically underprepared, older, care for dependents, and
from low-income households than are students at the state's public four-year institutions. Figure
1 shows a comparison between KCTCS and the state's public four-year institutions on key social
and demographic characteristics. Because of these characteristics, KCTCS students face
nonacademic barriers at a higher frequency and intensity than other postsecondary education
students in Kentucky.

Figure 1
KCTCS and Public Four-Year Student Characteristics
Fall 2019

	KCTCS	Public Four-Year
First-Generation	54.2%	30.2%
Underprepared	57.6%	13.1%
Age 25+	45.5%	14.2%
Dependents	33.2%	7.2%
Income $0-$19,999	31.6%	15.9%

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Investigating Starfish Impact on Students:

Programs designed to decrease nonacademic barriers differ in the support and resources they provide, as well as the short-term impact they are hoping to achieve. However, one commonality among these programs is the hope that the services offered will ultimately result in increased student success (e.g., retention from semester-to-semester, completion of a college credential).

As an established program common across all colleges, multiple years of Starfish data are available that can be linked to other institutional data. This facilitates the assessment of the impact of the program on student success and retention. Additionally, while Starfish is believed to increase engagement and to assist in connecting students with resources for overcoming additional nonacademic barriers, no formal research to date has investigated the relationships between Starfish and factors such as retention, completion, and academic performance at KCTCS.

To measure the use of Starfish, the KCTCS Office of Research and Policy Analysis (ORPA) identified key engagement interaction types available within the program and obtained data on their use. Different interaction types analyzed included kudos (student achievement affirmations), flags (areas of concern), referrals (to resources and/or support services), to-do items (helpful reminders), and appointments (e.g., advising, counseling). Student success outcomes included grade point average (GPA), credits earned, fall-to-fall term retention, and credential completion (within three years of initial enrollment). The sample was limited to credential-seeking students and the period of evaluation covered academic years 2016-17, 2017-18, 2018-19, and 2019-20.

Data and Research Design:

Indicators of success and retention (dependent variables) were determined based on recommendations from the LRC report. Grade point average (GPA), credits earned, and credential completion were identified as the most appropriate measures of student success. GPA is a commonly accepted measure of academic performance, credits earned serve as an indicator of both academic performance and progress to completion, and credential completion is the goal of the majority of KCTCS students. Credential completion was defined as earning a credential within three years of students' initial enrollment term. To gauge retention, a fall-to-fall retention rate was used. The operationalizations of credential completion and retention are consistent with performance measures in the KCTCS Strategic Plan.

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influence the relationships between the key variables of interest. Controlling for demographic and academic differences in students increases the ability to form causal inferences between the variables of interest by removing other possible explanations for findings. In other words, this adds confidence to the accuracy of the results obtained. Further, institutional differences (local practices, structure, geography, etc.) were addressed through standard error adjustments, which decreases the chances that the models would produce a significant effect when they should not. However, it should be noted that ORPA was not able to control for every potential factor. For example, KCTCS does not currently possess data on many nonacademic barriers that may impact student success and retention. Table 1 summarizes the dependent, independent, and control variables used to evaluate student success outcomes.

Table 1: Dependent and Independent Variables

4. Significant findings between Starfish interactions and student success and retention were often more pronounced for specific subgroups. These results can help inform ongoing efforts to reduce achievement gaps for target populations.

    a. Part-time students:

        i. Compared to full-time students who received a kudo, part-time students who received a kudo saw larger lifts in credits earned each semester.

        ii. Part-time students who received one or more kudos were 21.6% more likely to be retained the following fall than part-time students that did not receive at least one kudo. Further, part-time students saw their odds of retention increase at higher rates than full-time students with each successive kudo received.

        iii. Part-time students that received a flag saw significantly larger decreases in their likelihood of being retained than did full-time students that received a flag. Odds continue to decrease at more substantial rates for part-time students with each additional flag received.

    b. URM students (American Indian or Alaska Native, Black/African American, Native Hawaiian or Other Pacific Islander, Hispanic/Latinx, Two or More Races):

        i. Compared to non-URM students who received a kudo, URM students who received a kudo saw larger lifts in credits earned each semester.

        ii. For every additional kudo received, the odds of completion increased for URM students at a rate that was twice as high as the rate for non-URM students.

        iii. URM students that received one or more flags earned significantly fewer

Conclusions and Recommendations:

The results presented in this research brief indicate clear benefits of Starfish. Even when accounting for differences in student characteristics, college, and academic performance, the analysis of specific interactions within Starfish revealed findings with significant implications for student success and retention. The results of the study showed that Starfish can be used to identify which students are struggling academically, which can lead to earlier interventions using real-time data. Colleges should explore approaches for utilizing real-time data from Starfish to better identify and support students who may need additional resources to succeed. This may allow institutions to be more proactive, and less reactive, in supporting students who need assistance meeting the demands of their classes.

Results from this research also indicate that colleges