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New Student Orientation: Impact Analysis Fall 2017 to Spring 2019


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Hagman, Amanda M.; Van den Akker, Jacob; Dickamore, Erik; and Simmons, Lisa, "New Student Orientation: Impact Analysis Fall 2017 to Spring 2019" (2020). *Publications*. Paper 19.
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New Student Orientation:

IMPACT ANALYSIS

FALL 2017 TO SPRING 2019

Powered by Academic and Instructional Services

UtahStateUniversity[®]

Online Orientation Modules Support Student Persistence

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Student Orientation & Transition Services

Utah State University has transitioned orientation to a phased, online orientation system to provide students information just-in-time for applications. Phased-orientation is associated with an increase in persistence (DID = 3.62%, $p < 0.01$). No difference was found between in-person or online Module 3 completion.

ABSTRACT:

The transition to university represents a major life change more incoming students. To facilitate this transition, USU adopted a phased-orientation system that provides students information just-in-time for use. Currently, Module 3 can be completed either in-person or online. This analysis explores both the impact of the phased-orientation modules and the impact of completing Module 3 online verse in-person on student persistence to the next term.

METHODS: First students who completed Module 3 online were compared to students who completed Module 3 in-person. Next students who completed all 5 modules were compared to students who only completed the required

modules. Students were compared using prediction-based propensity score matching (PPSM). Students were matched with students by their persistence prediction and their propensity to participate. The groups were compared using difference-in-difference testing (DID).

FINDINGS: Students were 99% similar following matching for both analyses. Students who completed Module 3 online did not differ in terms of persistence from students who completed Module 3 in-person. Student who completed all 5 modules were significantly more likely to persist to the next semester compared to similar students who did not (DID = 3.62%, CI: 2.12% - 5.12%).

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Does new student orientation influence student persistence to the next term?

WHY PERSISTENCE?

Student success can be defined in various ways. One valuable way to view student success is through progress towards graduation. Progress towards graduation represents students acquiring the necessary knowledge and accumulating credentials that prepare them for graduation. Progress towards graduation can be measured through student persistence. Here, persistence is defined as term-to-term enrolment at Utah State University. As a measurement, persistence facilitates a quick feedback loop to identify what's working well and what can be better (Colver, 2019; Bear, Hagman, & Kil, 2020).

WHY ANALYTICS?

Higher education professionals labor to support student success in all its various forms. To accomplish this, professionals must leverage their education and experience to meet students' needs. However, professionals now have access to far more data than they can feasibly interpret and utilize to support student success. Fortunately, USU has access to professionals and tools that can process and organize data into insights that have historically been hidden from view (Appendix A). University professionals can leverage insights to directly influence student success (Baer, Kil, & Hagman, 2019). Indeed, analytics aligns with USU's mission to be a "premier student-centered land-grant institution" by allowing professionals to know what is going well and what could be better (see Appendix G for the evaluation cycle).

PERSISTENCE & NEW STUDENT ORIENTATION

Students entering higher education are faced with a new world that they often don't understand. Indeed, many new students lack the institutional knowledge necessary to successfully navigate higher education (Hottinger & Rose, 2006). To build this knowledge, universities traditionally provide 1-day orientations that expose students to institutional knowledge that will bolster their success. Learning theories, however, suggest that 1-day orientation modules may be insufficient for transmitting knowledge (Krathwohl, 2002; Vygotsky, 1978). Instead, information should be presented in stride with opportunities to utilize knowledge. The opportunity to learn and apply supports higher order thinking.

To better support student success and align with learning theory, USU transitioned to a phased-orientation design in 2017. Phased-orientation provided students with knowledge at the precise time students needed to utilize it, i.e. information about registration was provided as registration approached. Given that orientations are designed to transmit institutional knowledge that will help students be successful, orientation was expected to promote student persistence.

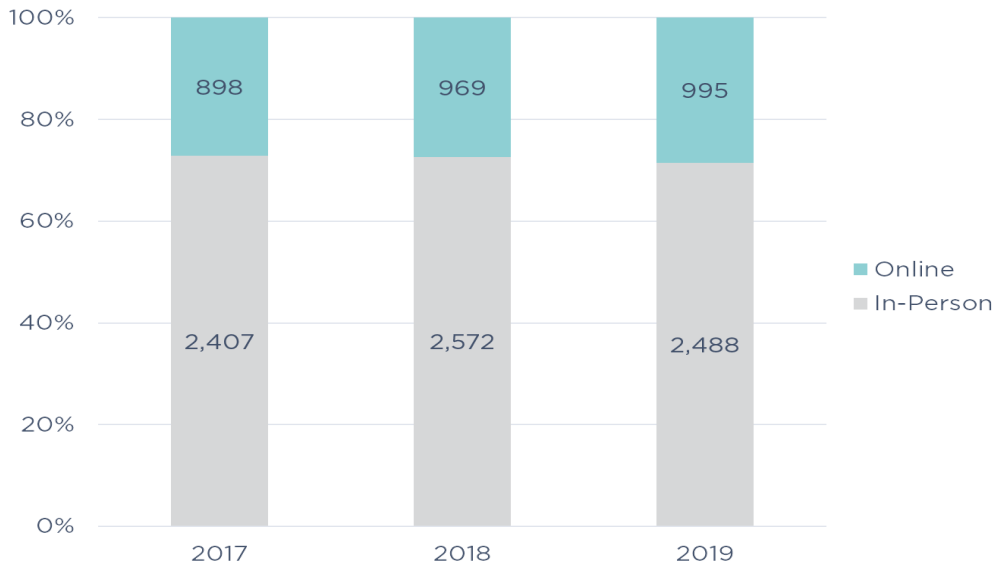


FIGURE 1
Consistent proportions of students complete orientation online and in-person across time.

SUMMARY STATISTICS

Analysis Terms:.....	Fa17, Fa18, F19
Total Students.....	10,680 Student
Students Completing Module 5:	5,929 Students (57.4%)
In-Person Module 3.....	7,705 Students (72.1%)
Online Module 3.....	2,975 Students (27.9%)

Descriptive Data Insights

In 2017, USU transformed their orientation program to a phased-orientation. This transition moved from a 1-day orientation to a 5-module online orientation. The phased-orientation was deliberately spaced to provide information just-in-time for utilization. The orientation program has maintain an in-person option for Module 3 that closely aligned with what traditionally taught during the 1-day orientation. Module 3 is also available online, like the other modules.

Across time, roughly a 25% of students have opted to complete Module 3 online. The other 75% of students visit the USU campus during the summer to receive the Module 3 curriculum. A regression model that distinguished between those who were most likely to complete Module 3 online was conducted. The following variables emerged as significant predictors of online Module 3 completion:

- Distance from USU
- Living in Cache Valley
- Number of registered hours
- Gender
- Ethnicity
- College

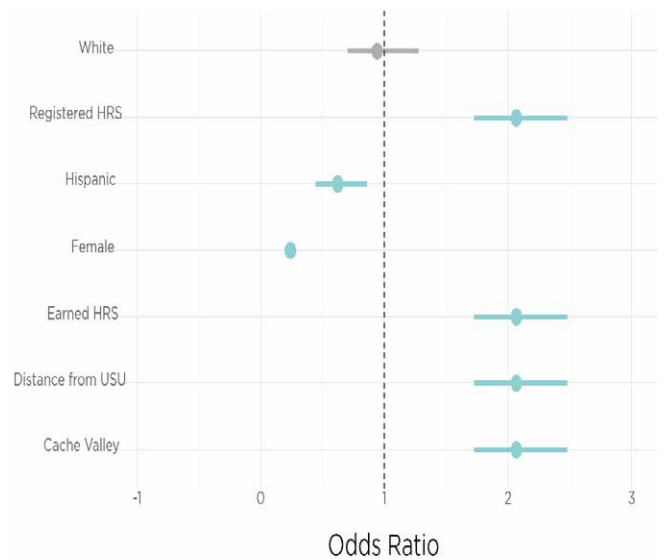
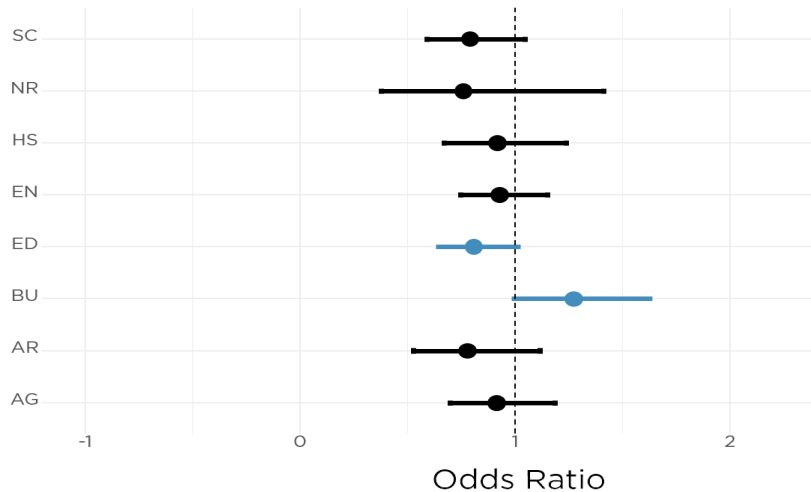


FIGURE 2 WHO USES ONLINE MODULE 3
Odds ratios of variables predicting student completion of online Module 3. Blue lines are significantly different between groups.

Do any of these predictors surprise you?

FIGURE 3

Differences in college participation in online Module 3. Referenced to College of UN. Blue lines are nearly significant.



Is there any reason for education or business majors to prefer one mode over another?

Predictors of Online Module 3 Completion

Not surprisingly, distance played a role Online Module 3 completion, even among in-state students. Students who lived further away from USU, were more likely to complete Module 3 online. One exception emerged, students from Cache Valley were more likely to participate in Module 3 online than in-person.

Students who entered with more hours earned and who were registered for more credit hours were also more likely to complete Module 3 online. Students who identified as female or Hispanic were less likely to complete Module 3 online, instead opting for the in-person option.

Registered college was also predictive of Module 3 mode. Compared to peers in the College of University Studies (UN), students in the College of Education (ED) were less likely to do the online Module 3 and student in the College of Business were more likely to complete the online Module 3.

Taken together, this data paints a picture of the types of students opting into the online orientation Module 3. The module account for 53% of the variance in the model, indicating a moderate to strong predictive value.

Do students who complete Module 3 online have difference outcomes than students who complete Module 3 in-person?

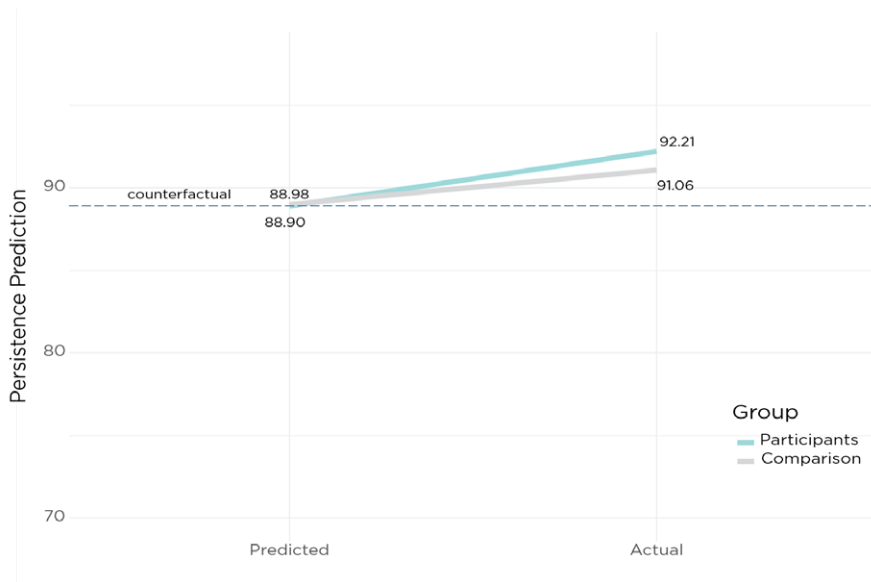


FIGURE 4

Participant and comparison students begin with similar persistence predictions. Actual persistence was not significantly different between groups.

MEASURING CHANGE IN PERSISTENCE:

Student impact is measured using difference-in-difference (DID) testing. Details of this analytic technique can be found in Appendix B.

DIFFERENCES BETWEEN PARTICIPANTS AND COMPARISON

students were seen in gender and ethnicity.

More male students completed Module 3 online (53%) than would be expected from the general USU freshmen population (45%; $\chi^2(1) = 36.5, p < .001$).

Fewer Hispanic students completed orientation online (4.8%) than would be expected from the USU freshmen population (7%; $\chi^2(1) = 12.5, p < .001$).

Online Orientation Impact Results

STUDENT IMPACT

Students who completed Module 3 online did not differ significantly in terms of persistence compared to students who completed to module in-person. This suggests that Module 3 contents were similarly impactful through both the online and the in-person programs. While the overall impact of orientation type did not differ, several student segments were impacted positively and significantly through online Module 3 completion.

SUMMARY STATISTICS

Overall Change in Persistence:	1.22% (CI: -0.01% to 2.45%)
Overall Change in Students (per year):	NA
Students Available for Analysis:	2,862 Students
Percent of Student Body Participating:	27.7%
Students Matched for Analysis:	2,275 Students
Percent of Students Matched for Analysis:	79.5%

Participants

PARTICIPANT DEMOGRAPHICS

Matching procedures for this analysis resulted in the inclusion of 79.5% of available participants (see Appendix E for matching details). Students were 52.9% male, 92.2% Caucasian, and 4.8% Hispanic/Latino. Included students were 99.8% first-time college students and 100% undergraduate.

PARTICIPANTS

Non-degree seeking students were excluded from the analysis. All students were incoming new freshmen to the USU Logan Main Campus. Participating students completed Module 3 online. Comparison students completed Module 3 in-person.

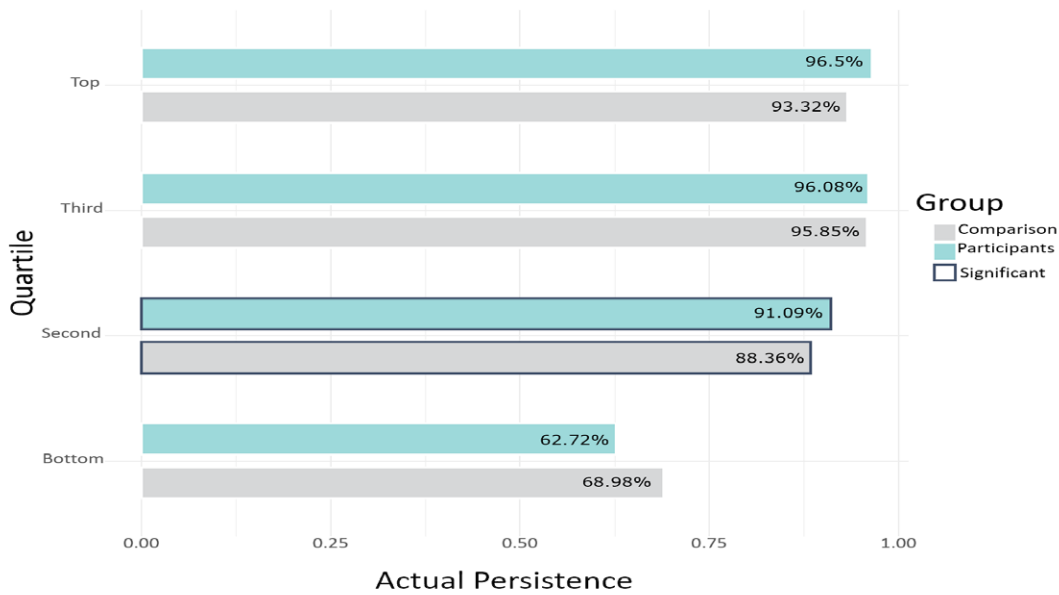


FIGURE 5
Actual persistence between participating and comparison students.

Persistence Prediction Quartiles

IMPACT BY PERSISTENCE PREDICTION

The predictive analytic model adopted by USU divides students into predicted quartiles. Students in the top persistence quartile are considered the most likely to persist at USU. Students in the second persistence quartile have a lower than average likelihood to persist at USU. These students were significantly impacted by the online Module 3 compared to the in-person Module 3. Figure 5 displays the actual persistence of students by quartile. The change in persistence for the second persistence quartile retained an estimated 10 students each fall semester.

Interestingly, most of the students who completed Module 3 online belonged to the second and third persistence quartile groups (88.8%). Only 6% of the students who completed module 3 were from the top persistence quartile and 6% belonged to the bottom persistence quartile. It does appear that bottom persistence quartile students may be negatively impacted by participating in Module 3 online. While this difference is non-significant, it may merit further exploration to better support these students who are at an elevated risk of drop-out.

Why might top & bottom quartile students prefer in-person orientation?

IMPACT BY TERM

The change in persistence varied by term; however, none of terms were independently significant. Each term had roughly the same number of participants, about 700.

Did anything change between 201740 & 201840?

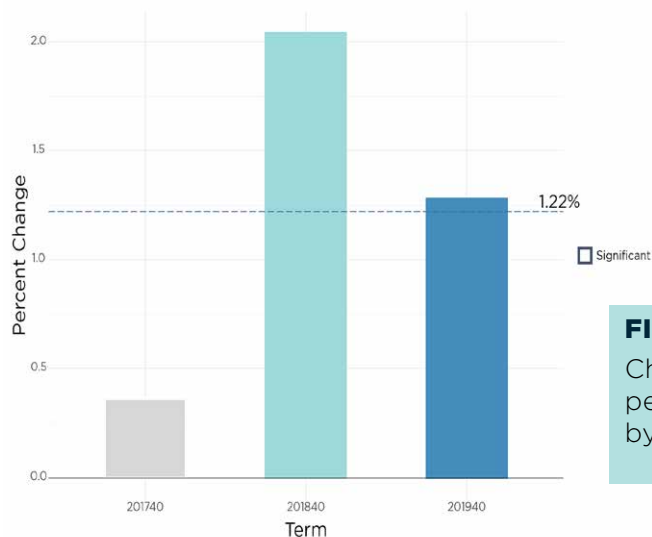


FIGURE 6
Change in persistence by term.

Student Segments Findings

IMPACTED STUDENT GROUPS

Illume Impact provides an analysis that looks at various student groups to identify how the program influenced different populations of students. Please note that the student groups are not mutually exclusive. Table 1 shows all student groups who experienced a significant change. Appendix A lists all subgroups with non-significant findings.

In general, students who completed Module 3 online did not experience a change in persistence. Within the subgroup analyses, there were two student segments that experienced significant changes.

students where classified as either full-time or part-time. Students who were registered as full-time significantly benefited by completing Module 3 online. Students who were part-time experienced a wide variety range of persistence outcomes; however, too few part-time students participated in Module 3 online to make a definitive conclusion.

Major Type: The analysis breaks down major into 2-groups, STEM and non-STEM students. Students who were in a STEM major and who also participated in the online Module 3 were more likely to persist than similar peers.

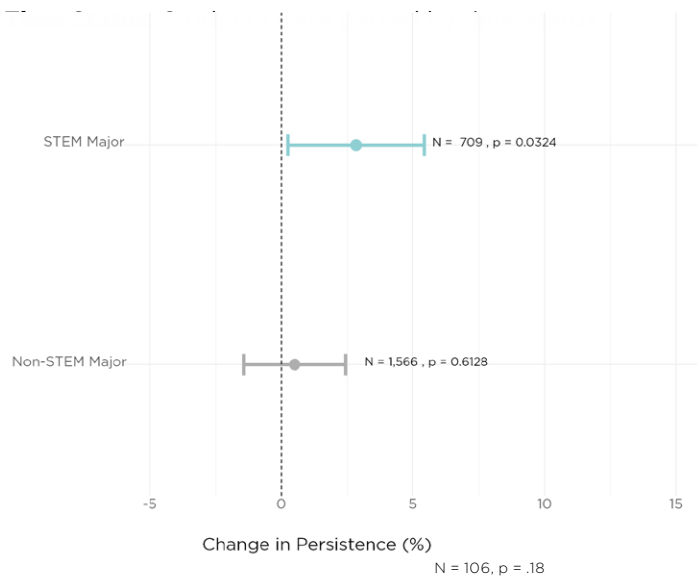


FIGURE 7

Change in persistence by student time status.

What might explain the impact on STEM majors?

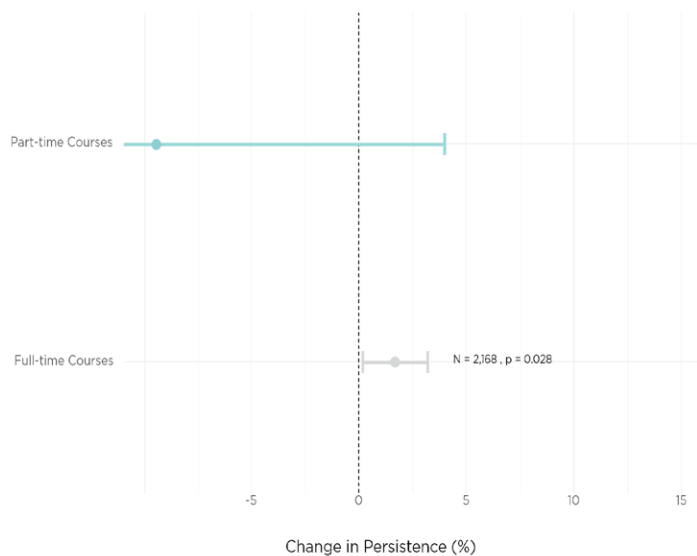


FIGURE 8

Change in persistence by major type.

Do part-time freshmen need to complete orientation?

Student Segment Table

TABLE 1:

Student Segments Experiencing a Significant Change From Participating

N	Student Group**	Model Fit***	Actual Persistence		Difference-of-Difference	CI	p-value	Lift in People
			Participant	Comparison				
2,168	Full-time Courses	Adequate	93.73%	92.11%	1.69%	1.51%	0.028	12
991	Second Persistence Prediction Quartile (25th - 49th Percentiles)	Good	91.09%	88.36%	3.02%	2.65%	0.0257	10
709	STEM Major	Adequate	94.44%	91.62%	2.83%	2.59%	0.0324	7

*Subgroups with fewer than 250 students are considered too small for reliable analysis

**Definitions of student segments can be found in Appendix F

***Model fit is measured considering the fidelity of the comparison group to the predicted persistence. Good fit is ascertained when comparison students' actual persistence was similar to their predicted persistence (< 1% difference). Adequate fit has a difference between 1% and 2.9% between actual and predicted persistence. Poor fit has greater than 3% difference between actual and predicted persistence.

Additional Analyses

IMPACT OF COMPLETING ALL 5 MODULES

In 2018, a report explored the impact of the new phased-orientation program on student persistence. The report found that students who complete all 5 orientation modules experienced a significant increase in persistence to the next term. All 5 modules are required; however, modules 1 through 4 act as gatekeepers to important tasks for freshmen, making completion compulsory. Module 5 is not a gatekeeper to any specific task. Across the 3 years considered in this analysis, about 60% of freshmen completed this final module.

Students with a record of completing Module 5 experienced a significant 3.62% (CI: 2.12% to 5.12%) increase in persistence to the next term. This estimated increase reflected retaining 32 (CI: 18 to 45) students who were otherwise not expected to persist per year. Using an adjusted net tuition multiple from 2017/2018, the estimated retention reflected \$152,114.24 (CI: \$85,564.26 to \$213,910.65) in retained tuition through completing all 5 orientation modules (see Appendix C for tuition multiplier details).

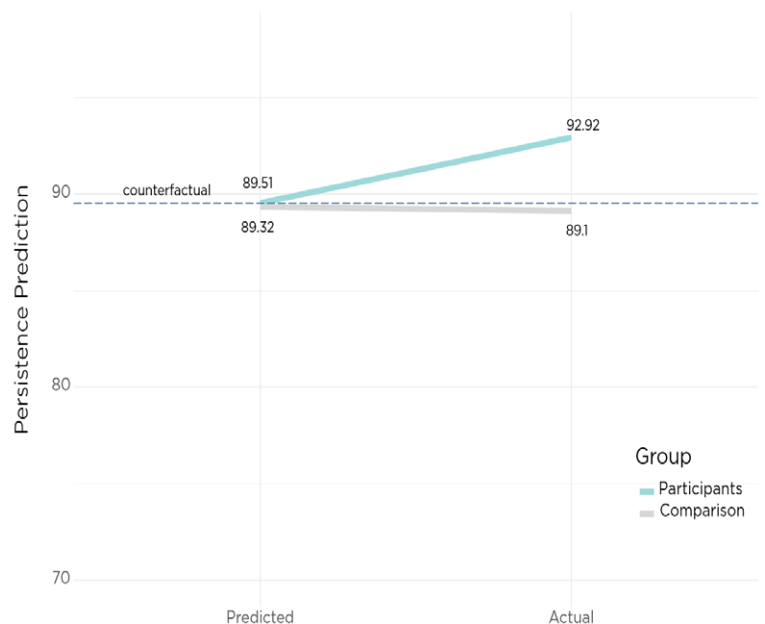


FIGURE 9

Participant and comparison students begin with similar persistence predictions. Actual persistence was not significantly different between groups.

Student Segment Findings

IMPACTED STUDENT GROUPS

Illume Impact provides an analysis that looks at various student segments to identify how the program influenced different populations of students. Please note that the student segments are not mutually exclusive. Table 2 shows all student groups who experienced a significant change. Appendix B lists all subgroups with non-significant findings.

In general, exploratory students who completed all 5 modules experienced an increase in persistence. Within the subgroup analyses, there were several subgroups that experienced significant changes.

Race & Ethnicity: USU has a high population of White or Caucasian and non-Hispanic or Latino students. For this reason, Impact analyses can often detect change in persistence for these groups; however, students of other races or ethnicities rarely reach the critical mass necessary to detect a significant change. With this in mind, the analysis found a significant increase in persistence for Caucasian and non-Hispanic/Latino students. Additionally, Hispanic/Latino students experienced a significant increase in persistence from completing Module 5 compared to similar students who did not complete the module.

Student Time Status (Figure 5): Full-time, but not part-time students who completed Module 5 experienced significant gain in persistence.

Terms Complete (Figure 6). The analysis considered three term breakpoints: new students (0 terms completed), early career students (1 to 3 terms completed), and later career students (4 or more terms). Orientation is designed for 0 term students and significant increases in persistence were seen for this group. The analysis did not detect a significant difference for students with more completed terms.

Course Modality. There were three types of course modality considered in the analysis; all on-ground, mixed modality, and all online. Completing Module 5 significantly impacted persistence for students taking courses all on-ground. Few students who had mixed modality or all online courses were included in the analysis, a significant difference was not detected in the analysis.

Student Gender. Both male and female students who used the ARC experienced an increase in persistence. The increase for both groups were similar, 1.15% for males and 1.14% for females.

Student Type (Figure 5). The analysis considered three student types, first-time, transfer, and re-admitted. Neither transfer or readmitted reached the critical mass necessary for a reliable analysis. First-time in college students were significantly impacted by completing Module 5 compared to similar students.

Degree Type. The analysis divided students by majors into STEM and Non-STEM students. Both STEM and Non-STEM majors experienced a significant increase in persistence.

Student Gender. Both students who identify as male and female who completed Module 5 were more likely to persist than similar students who did not complete Module 5.

Do transfer students take the orientation modules?

Do any of these student segments surprise you?

Student Segment Table for Module Completion

TABLE 2:

Student Segments Experiencing a Significant Change From Participating

N	Student Group	Model Fit**	Actual Persistence		Difference-of-Difference	CI	p-value	Lift in People
			Participant	Comparison				
2,656	Overall	Good	92.92%	89.10%	3.62%	1.50%	0.0001	32
2,656	Undergraduate Students	Good	92.92%	89.10%	3.62%	1.50%	0.0001	32
2,651	First Time in College	Good	92.90%	89.12%	3.60%	1.50%	0.0001	32
2,511	Full-time Courses	Good	94.08%	90.46%	3.43%	1.46%	0.0001	29
2,496	Not Hispanic or Latino	Good	92.89%	89.38%	3.30%	1.54%	0.0001	27
2,435	White or Caucasian	Good	92.86%	89.49%	3.16%	1.56%	0.0001	26
2,347	All On-Ground Status	Good	92.89%	88.87%	3.85%	1.61%	0.0001	30
2,112	0 Terms Completed	Good	92.99%	89.37%	3.43%	1.66%	0.0001	24
1,907	Non-STEM Major	Good	91.92%	88.66%	3.11%	1.83%	0.0009	20
1,497	Female Students	Good	93.11%	90.65%	2.31%	1.92%	0.0184	12
1,231	Third Persistence Prediction Quartile (50th - 74th Percentiles)	Poor	96.85%	94.08%	2.55%	1.64%	0.0024	10
1,158	Male Students	Good	92.67%	87.12%	5.30%	2.39%	0.0001	20
969	Second Persistence Prediction Quartile (25th - 49th Percentiles)	Adequate	89.62%	86.05%	3.63%	2.89%	0.0138	12
748	STEM Major	Good	95.46%	90.24%	4.94%	2.56%	0.0002	12
159	Hispanic or Latino	Adequate	93.37%	85.01%	8.46%	6.63%	0.0126	4
136	Bottom Persistence Prediction Quartile (1st - 24th Percentiles)	Poor	75.29%	63.00%	12.26%	10.83%	0.0267	6

*Subgroups with fewer than 250 students are considered too small for reliable analysis

**Model fit is measured considering the fidelity of the comparison group to the predicted persistence. Good fit is ascertained when comparison students' actual persistence was similar to their predicted persistence (< 1% difference). Adequate fit has a difference between 1% and 2.9% between actual and predicted persistence. Poor fit has greater than 3% difference between actual and predicted persistence.

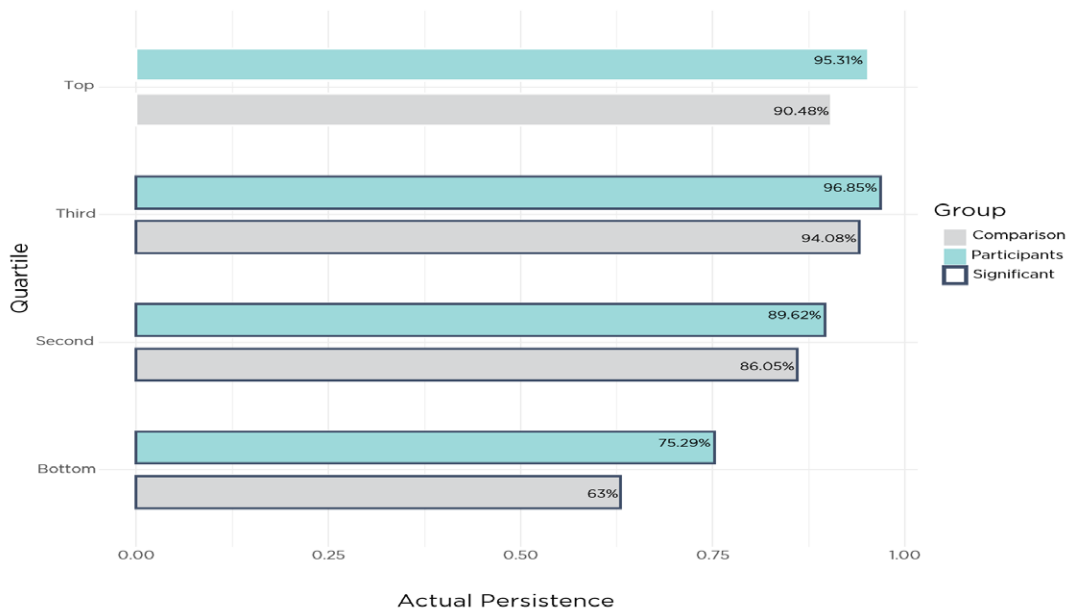


FIGURE 10

Difference in actual persistence between participating and comparison students.

Persistence Prediction Quartiles

IMPACT BY PERSISTENCE PREDICTION

The predictive analytic model adopted by USU divides students into predicted quartiles. Students in the top persistence quartile are considered the most likely to persist at USU. Students in the bottom persistence quartile are considered the least likely to persist at USU.

Completing Module 5 significantly impacted persistence for the 3rd, 2nd, and bottom persistence quartiles. Figure 5 displays the actual persistence of students by quartile

for participating and comparison students. The change in persistence for the third persistence quartile retained an estimated 10 students each fall semester. The change among the second persistence quartile students retained an estimated 11 students each fall semester. Finally approximately 5 students were retained each fall in the bottom persistence quartile.

How might Module 5 influence students in different quartiles?

The Lifecycle of sustainable analytics

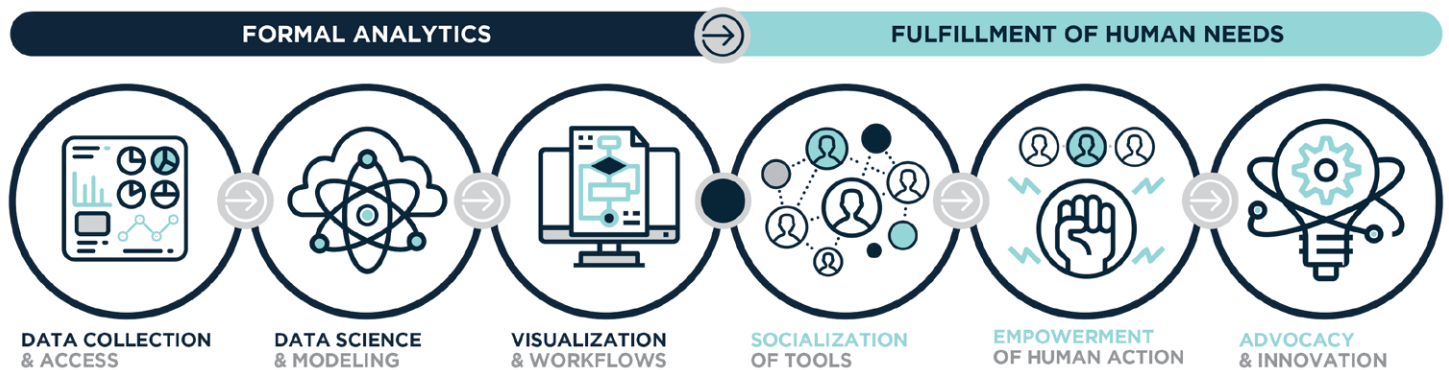


FIGURE 13
The Lifecycle of Sustainable Analytics.

Insights & Next Steps

A major goal of analytics is to identify areas for improvement and innovation. To be successful, all initiatives must consider the role of formal analytics and role of the humans needs. The Lifecycle for Sustainable Analytics presents the major domains within any successful analytics initiatives. It requires sound data science practices on the left-hand and proactive human relations on the right. Together the 6-domains support the development and utilization of analytics insights for improvement and innovation.

Orientation Insights

These analyses offer substantial insights into current online orientation practices. Specifically, that completing all 5 online modules maintains a significant impact on student persistence. And, that online and in-person module 3 have a comparable impact.

Phased-Orientation Supports Student Success:

The main objective of the Student Orientation and Transition Services to scaffold the transition into the Aggie family. The phased-orientation modules was designed to do just that. Initial student feedback showed that students had fewer concerns about a dozen different university domains following the phased orientation compared to the one-day orientation. The results that the modules also impact student persist highlight the importance of supporting student transitions in a way that puts students at the center of the service.

The Office of Student Orientation and Transition Services has targeted 2 areas they would like to pursue following this analysis.

1. Consider how the contents of Module 5 may be impacting student persistence. Specifically, discuss how the contents of

Module 5 may impact specific student segments.

2. Targeting certain students for Module 5 completion. Using other Civitas tools (Illume), staff can do targeted outreach to nudge students to complete all orientation modules.

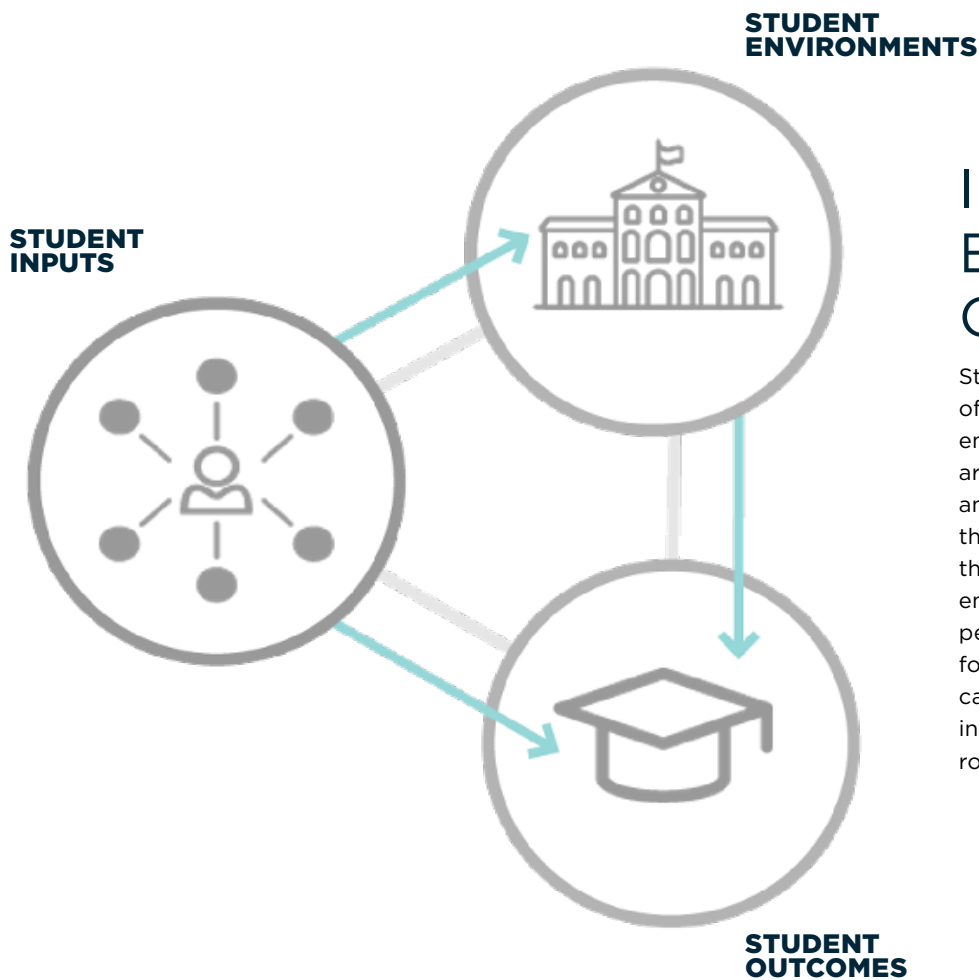
Module 3 Online is Effective: This insight is very important given the current COVID-19 lockdown conditions. In summer 2020 students didn't have an option of attending face-to-face. Knowing that the impacts of Module 3 online were just as effective as the in-person module ease any concerns about losing this option in 2020. This insight also offers support for future directions. Currently, in-state students are strongly urged to complete Module 3 in-person. The insights from this report suggest that this strong recommendation could be relaxed. Instead, in-person orientation could become more targeted, identifying students who would be best suited for on-campus participation. Future considerations will also look at why some student prefer online Module 3.

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Appendix A

THEORETICAL FOUNDATION FOR IMPACT ANALYSES: INPUT, ENVIRONMENT, OUTPUT MODEL (ASTIN , 1993)



Input - Environment - Outcomes

Student success is composed of both personal inputs and environments to which individuals are exposed (Astin, 1969). Impact analysis controls for student input though participant matching on (1) their likelihood to be involved in an environment and (2) their predicted persistence score. By controlling for student inputs, impact analyses can more accurately measure the influence of specific student environments on student persistence.

STUDENT INPUTS

Students bring different combinations of strengths to their university experience. Their inputs influence student life and success, but do not determine it.

STUDENT ENVIRONMENTS

The University provides a diverse array of curricular, co-curricular, and extra-curricular activities to enhance the student experience. Students selectively participate to varying degrees in activities. Student environments influence student life and success, but do not determine it.

STUDENT OUTCOMES

While student success can be defined in multiple ways, a good indicator of student success is persistence to the next term. It means that students are continuing on a path towards graduation. Persistence is influenced by student inputs and University environments.

IMPACT ANALYSIS

An impact analysis can effectively measure the influence of University initiatives on student persistence by accounting for student inputs through matching participants with similar students who chose not to participate.

Appendix B

ANALYTIC DETAILS: ESTIMATING PROGRAMMATIC IMPACT THROUGH PREDICTION-BASED PROPENSITY SCORE MATCHING (PPSM)

Impact analyses are quasi-experiments that compare students who participate in University initiatives to similar students who do not. Students who participate are called participants, students who do not have a record of participation are called comparison students. The analysis results in an estimation of the effect of the treatment on the treated (ETT). In other words, it estimates the effect of participating in University initiatives on student persistence for students who participated. This estimation is appropriate for observational studies with voluntary participation (Geneletti & Dawid, 2009).

Accounting for bias. While ETT is appropriate for observational studies with voluntary participation, voluntary participation adds bias. Specifically, voluntary participation results in self-selection bias, which refers to the fact that participants and comparison students may be innately different. For example, students who self-select into math tutoring (or intramurals or the Harry Potter Club) may be quantitatively and qualitatively different than students who do not use math tutoring (or intramurals or the Harry Potter Club). To account for these differences, reduce the effect of self-selection bias, and increase validity, a matching technique called Prediction-Based Propensity Score Matching (PPSM) is used.

In PPSM, matching is achieved by pairing participating students with non-participating students who are similar in both their (a) predicted persistence and (b) their propensity to participate in an iterative, boot-strapped analysis (Milliron, Kil, Malcolm, & Gee, 2017).

(A) Predicted Persistence. Utah State University utilizes student data to create a persistence prediction for each student. The main benefit to students from the predictive system is an as early alert system; it identifies students in need of additional resources to support their success at USU. A secondary use of the predicted persistence scores are to evaluate the impact on student-facing programs on student success. This is an invaluable practice that fosters accountability, efficiency, and innovation for the benefit of students.

The predicted persistence scores are derived through a regularized ridge regression. This technique allows for the incorporation of numerous student data points, including:

- academic performance
- degree progress metrics
- socioeconomic status
- student engagement

The ridge regression rank orders the numerous covariates by their predictive power. This equation is then used to predict student persistence scores for students at USU. This score is utilized as one point for matching in PPSM.

(B) Propensity to Participate. The second point used for matching in PPSM is a propensity score. Propensity scores reflect a student's likelihood to participate in an initiative (Rosenbaum & Rubin, 1983). It is derived through logistic ridge regression that utilizes participation status as the outcome variable. Using the equation, each student is given a propensity score which reflects their likelihood to participate regardless of their actual participation status.

Matching is achieved through bootstrapped iterations that randomly selects a subset of participant and comparison students. Within each bootstrapped iteration, comparison students are paired using 1-to-1, nearest neighbor matching. Matches are created when student predicted persistence and propensity scores match within a 0.05 caliper width. Within the random bootstrapping iterations, all participants are included at least once. Students who do not find an adequate match are excluded from the analysis (for additional details see Louviere, 2020).

Difference-in-Difference. To measure the impact of University services on student persistence, a difference-in-difference analysis is used. A difference-in-difference analysis compares the calculated predicted means from the bootstrapped iteration distributions to the actual persistence rates of participating and comparison students. In other words, the analysis looks at the difference between predicted persistence and actual persistence between the two groups of well-matched students. Statistical significance is measured at the 0.05 alpha level and utilizes confidence intervals.

Appendix C

ADJUSTED RETAINED TUITION MULTIPLIER

Retained tuition is calculated by multiplying retained students by the USU average adjusted tuition. Average adjusted tuition was calculated in 2018/2019 dollars with support from the Budget and Planning Office. The amounts in the below table reflect net tuition which removes all tuition waivers from the overall gross tuition amounts. Utilizing net tuition provides a more accurate and conservative multiplier for understanding the impact of University initiatives on retained tuition. The table below parses the average adjusted tuition by campus and academic level. The highlighted cell represents the multiplier used in this analysis.

RETAINED TUITION MULTIPLIER CALCULATION

Student Groups	Net Tuition	Number of Students	Average Annual Tuition & Fees
All USU Students	\$148,864,384	33,070	\$4,501.49
Undergraduates	\$131,932,035	29,033	\$4,544.21
Graduates	\$16,932,349	4,037	\$4,194.29
Logan Campus Students	\$119,051,003	25,106	\$4,741.93
Undergraduates	\$107,711,149	22,659	\$4,753.57
Graduates	\$11,339,854	2,447	\$4,634.19
Statewide Campus Students	\$25,941,419	7,964	\$3,257.34
Undergraduates	\$20,303,215	3,864	\$5,254.46
Graduates	\$5,638,204	1,590	\$3,546.04
USU-E Price & Blanding Students	\$3,871,962	2,560	\$1,512.49

Appendix D

STUDENT SUBGROUPS THAT DO NOT EXPERIENCE A SIGNIFICANT CHANGE IN PERSISTENCE

N	Student Group**	Model Fit***	Actual Persistence		Difference of Difference	Confidence Interval	p-value
			Participant	Comparison			
2,275	Overall	Adequate	92.21%	91.06%	1.22%	1.56%	0.1256
2,275	Undergraduate Students	Adequate	92.21%	91.06%	1.22%	1.56%	0.1256
2,271	First Time in College	Adequate	92.19%	91.07%	1.20%	1.56%	0.1338
2,166	Not Hispanic or Latino	Adequate	92.34%	91.24%	1.16%	1.59%	0.1516
2,097	White or Caucasian	Adequate	92.37%	91.36%	1.08%	1.61%	0.1894
2,033	All On-Ground Status	Adequate	92.31%	91.01%	1.37%	1.65%	0.1032
1,995	0 Terms Completed	Adequate	92.24%	91.10%	1.19%	1.66%	0.1577
1,566	Non-STEM Major	Adequate	91.21%	90.81%	0.50%	1.94%	0.6128
1,204	Male Students	Good	91.19%	90.24%	1.09%	2.25%	0.3442
1,070	Female Students	Adequate	93.34%	91.98%	1.37%	2.14%	0.2111
1,029	Third Persistence Prediction Quartile (50th - 74th Percentiles)	Poor	96.08%	95.85%	0.06%	1.69%	0.9491
237	1-3 Terms Completed	Good	90.96%	90.72%	0.45%	5.13%	0.8635
237	Mixed or Blended Status	Good	91.48%	91.83%	-0.14%	4.92%	0.956
136	Top Persistence Prediction Quartile (75th - 100th Percentiles)	Adequate	96.50%	93.32%	3.17%	5.15%	0.2266
116	Bottom Persistence Prediction Quartile (1st - 24th Percentiles)	Poor	62.72%	68.98%	-5.70%	12.12%	0.3553
109	Hispanic or Latino	Good	89.47%	87.57%	2.25%	8.21%	0.5895
106	Part-time Courses	Poor	60.97%	69.85%	-8.59%	12.58%	0.1795
68	Unknown Racial Heritage	Poor	90.96%	84.71%	6.43%	10.67%	0.2353
60	Two or More Racial Heritages	Poor	92.08%	92.52%	-0.34%	9.34%	0.9419
42	4+ Terms Completed	Good	97.80%	92.12%	6.18%	9.26%	0.1875
15	Asian or Asian American	Good	92.62%	89.72%	2.93%	20.56%	0.7726
13	American Indian/Alaskan Native	Good	88.78%	87.78%	0.99%	23.00%	0.9303
12	Pacific Islander	Adequate	81.75%	81.60%	0.57%	30.05%	0.9687
6	Black or African American	Poor	75.42%	74.51%	1.23%	48.57%	0.9557
5	All Online Status	Poor	82.06%	77.13%	4.46%	50.36%	0.8409

Appendix E

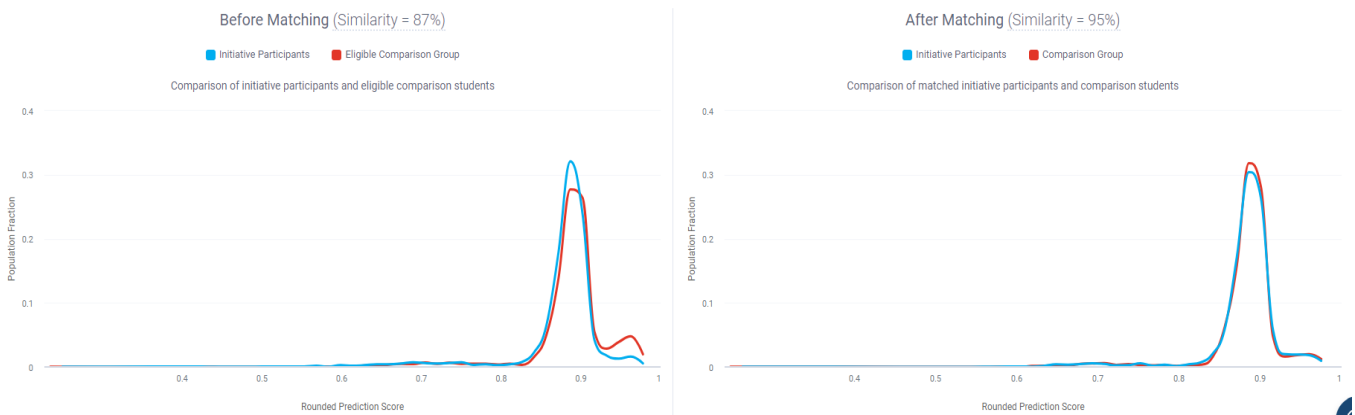
MATCHING DETAILS

Matching for the analysis resulted in 80% of available participants, or 2,275 students, being successfully matched for the analysis. Participating students who did not have an adequate match in the comparison group during the PPSM process were excluded from the analysis. While higher matching is preferred, a 58% match is adequate with a large sample size, like those seen in this analysis.

Predicted Persistence Matching: Prior to matching samples were 87% similar based on students' predicted persistence (Figure A). Following matching the samples were 95% similar.

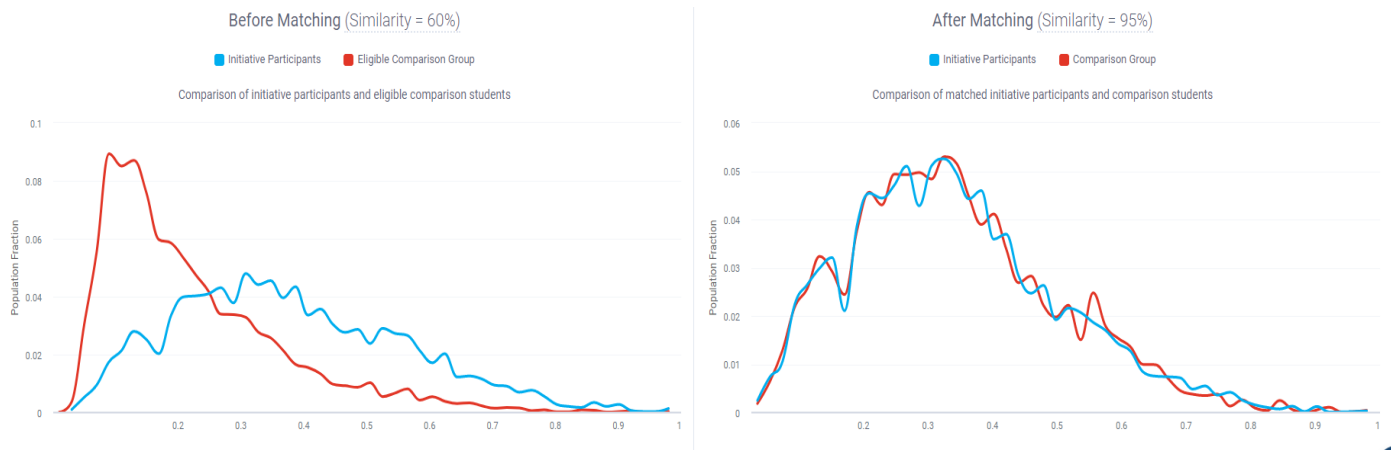
Propensity Matching: Participating and comparison students were 60% similar based on propensity score prior to matching (Figure B). Following matching, the similarity in propensity was 95%.

The predicted persistence between participating and comparison youth were similar, even prior to matching. The distribution of the propensity score between participating and comparison students was not. The comparison student distribution had a large peak towards lower propensity scores. This indicates that there is a "type" of student who is less likely to participate in the online module.



PREDICTED PERSISTENCE: PARTICIPATING & COMPARISON STUDENTS

Participating and comparison students receive scores based on their predicted persistence to the next semester. This score is based on historic data from Utah State University Students



PROPENSITY TO PARTICIPATE BTW PARTICIPATING & COMPARISON STUDENTS

Participating and comparison students receive scores based on their likelihood to participate in the initiative.

Appendix F

STUDENT SEGMENT DEFINITIONS

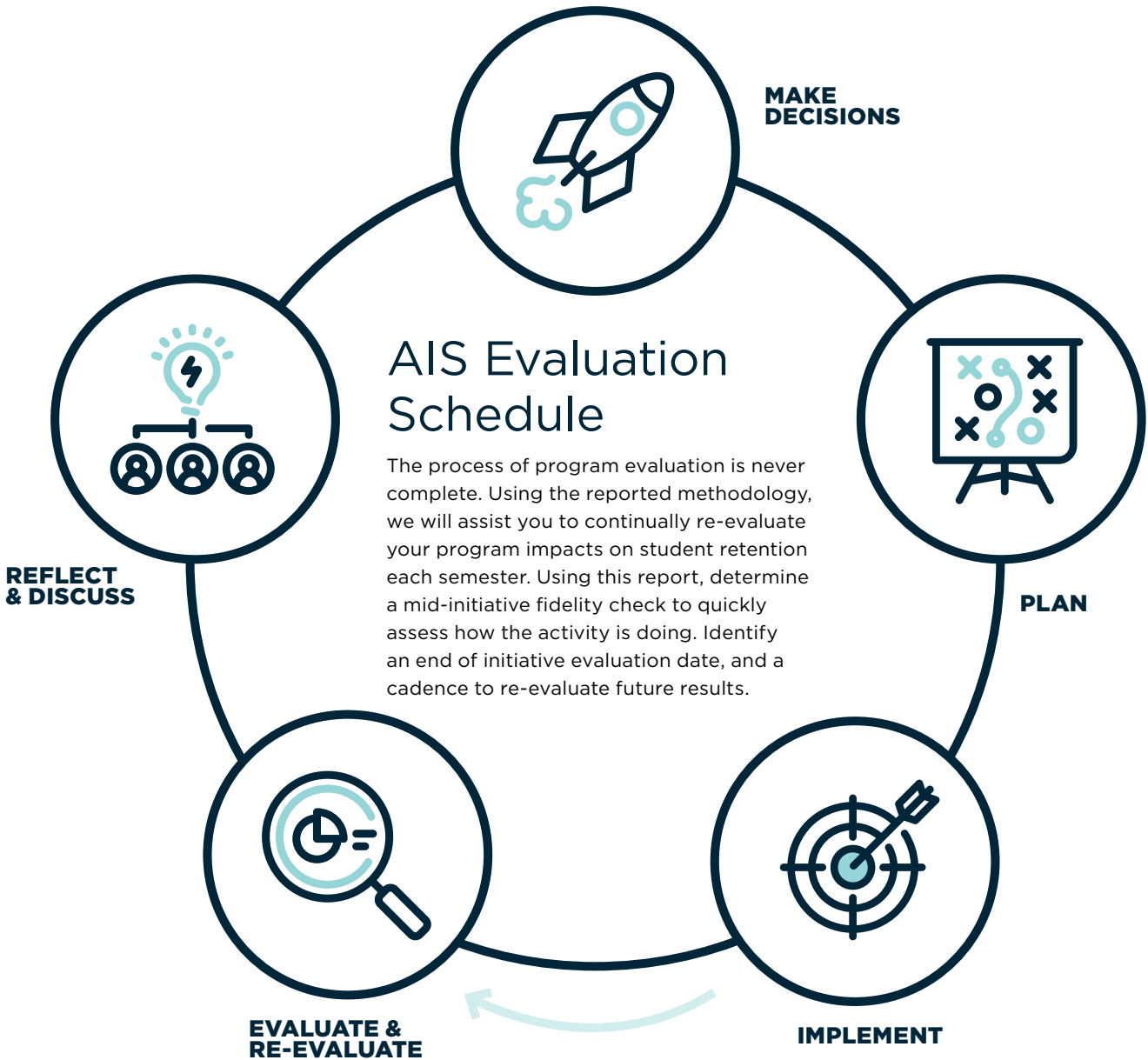
Student Subgroup	Definition
0 Terms Completed	Students with 0 terms in their collegiate career completed; incoming freshmen
1 - 3 Terms Completed	Students who have completed 1 to 3 terms in their collegiate career
4+ Terms Completed	Students with 4 or more terms in their collegiate career completed
All On-Campus	Students attending all courses face-to-face
Online or Broadcast	Students attending all courses online or via broadcast
Mixed or Blended Course Modality	Students attending both face-to-face and online or broadcast courses
Full-time Students	Undergraduate students enrolled in 12 or more credits; Graduate students enrolled in 9 or more credits
Part-time Students	Undergraduate students enrolled in less than 12 credits; Graduate students enrolled in less than 9 credits
First Time in College	Students who enter USU as new freshmen, who have maintained continuous enrollment or records of absences (i.e. LOA)
Transfer Students	Students who attended another university prior to attending USU
Readmitted Students	Students who attended USU, left for a time (without filing a LOA), and returned after re-applying to USU
Unknown Undergraduate Type	Students with an unknown admitted type
High School Dual Enrollment	High school students simultaneously taking high school and college courses
STEM	Students with a primary major in science, technology, engineering, or mathematics
Non-STEM	Students with a primary major that is not in science, technology, engineering, or mathematics
Top Persistence Prediction Quartile	The total USU student population is divided so that 25% of students fall in each quartile. The top quartile contains students with the highest predicted persistence (75th - 100th percentile)
Third Persistence Prediction Quartile	The total USU student population is divided so that 25% of students fall in each quartile. The third quartile contains students with higher predicted persistence (50th - 74th percentiles)
Second Persistence Quartile	The total USU student population is divided so that 25% of students fall in each quartile. The second quartile contains students with lower predicted persistence (25th - 49th percentiles)
Bottom Persistence Quartile	The total USU student population is divided so that 25% of students fall in each quartile. The bottom quartile contains students with the lowest predicted persistence (1st - 24th percentile students)
Female	Students identifying as female
Male	Students identifying as male

STUDENT SEGMENT DEFINITIONS [CONTINUED]

Student Subgroup	Definition
Non-Hispanic or Latino	Students who do not identify as Hispanic or Latino
Hispanic or Latino	Students who identify as Hispanic or Latino
Race: Two or More	Students who identify with two or more races
Race: Unknown	Students who did not provide race information
Race: Asian	Students who identify as Asian
Race: Black or African American	Students who identify as African American
Race: Pacific Islander	Students who identify as a Pacific Islander
Race: American Indian/Alaskan Native	Students who identify as American Indian or Alaska Native
Race: White or Caucasian	Students who identify as White or Caucasian

Appendix G

UTAH STATE UNIVERSITY'S EVALUATION CYCLE



EVALUATE & RE-EVALUATE

Get the data to AIS and we can run an evaluation on persistence. For goals that don't include persistence AIS can assist you in finding resources to measure your improvement.

REFLECT & DISCUSS

Consider the report and the evaluators insights to produce discussion within your department.

MAKE DECISIONS

Formulate possible actions to improve your program. Select actions that align with your program goals.

PLAN

Make concrete plans to apply your decisions. Determine the who, where, and when of your actions.

IMPLEMENT

Put your plans into actions. Remember to periodically check the progress of your plans as they are being implemented.