Engagement & Retention in Student Affairs: Exploring Factors of Student Success

2021 Assessment Institute

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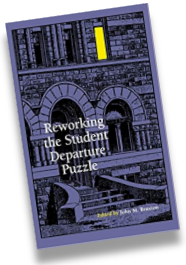
Retention Theories Review

Tinto's Theory of Student Departure

Astin's Theory of Student Involvement



Bean & Eaton's Explanatory Theory of Student Retention

"Retention is quite measurable, but proving that a student stayed in school due to one program is practically impossible…

Anyone and everyone on campus can affect these attitudes, and for this reason everyone on campus is responsible for retention"

-John Bean

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Group Discussion

Do these widely cited theories still represent our modern, diverse students? Why or why not?

CODE - 34902

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More Inclusive Research

Kuh and Love's (2000) cultural perspective on student departure

Museus and Quaye (2009) empirical study of Kuh and Love's model

Rodgers and Summers (2008) modification of Bean and Eaton's (2001) model

Engagement & Attendance Tracking

Benefits

- Connect to student information system
- Illuminate trends of student participation
- Measuring department outreach goals
- Know who is attending what
- Code variety of engagement types
- Ease of use

Limitations

- Difficulty tracking outcomes
- Naturally limiting
  - Binary gender data
  - Racial identities limited
- Hard to differentiate high/low impact

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High Impact Practices

- First-Year Seminar and Experiences
- Undergraduate Research
- Internships
- Capstone Courses and Projects
- Diversity/Global Learning
- ePortfolios
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects
- Service Learning, Community-Based Learning

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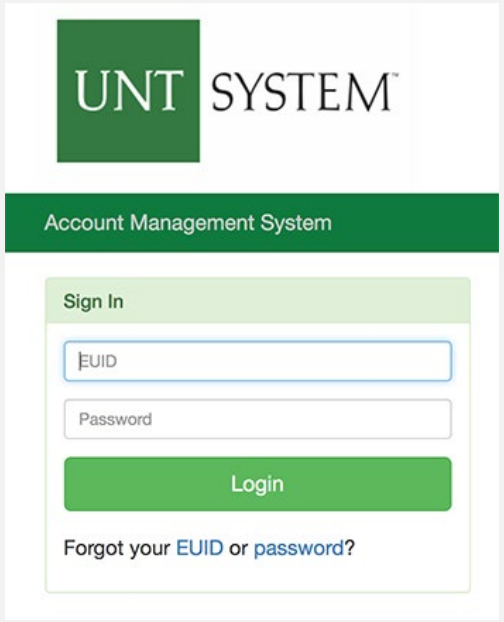
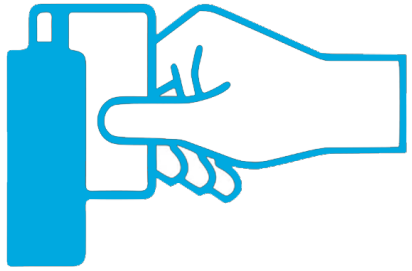
UNT's Attendance Tracking System

Started in 2008

Campus wide use



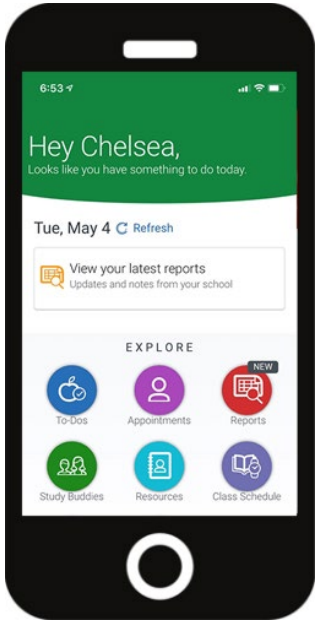
Homegrown system connects to SIS



150k – 175k swipes annually

94%

FTIC swipes



EAB Navigate app

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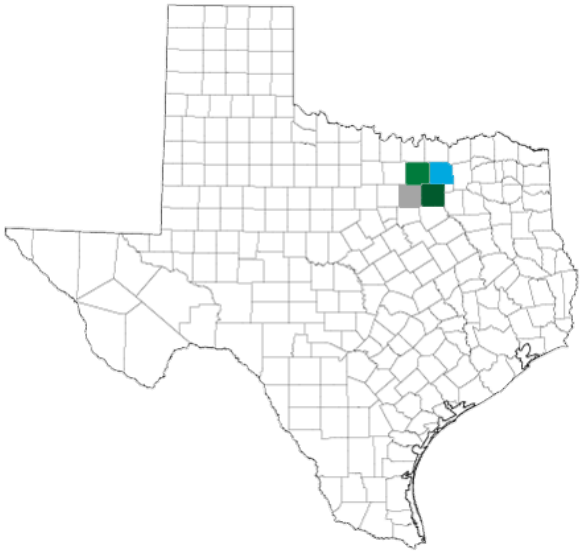
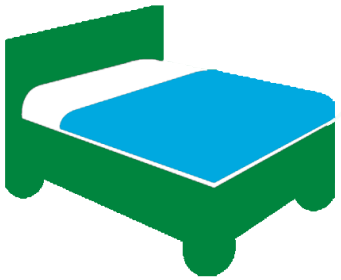
About UNT

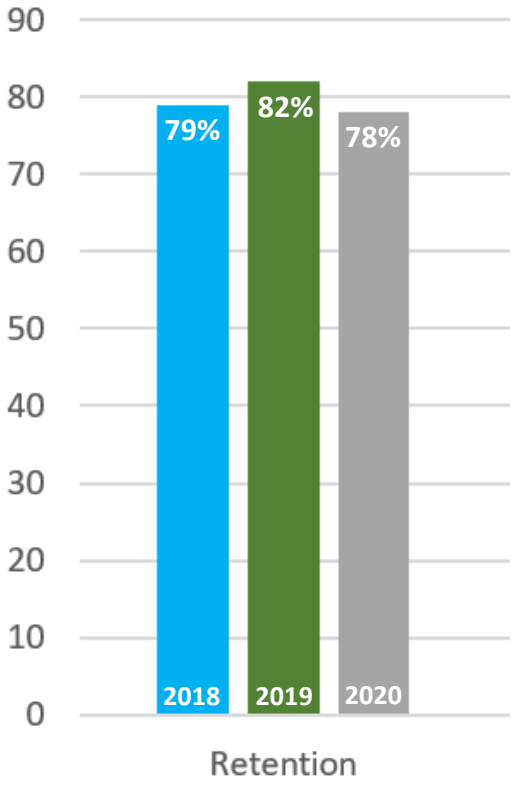


Hispanic Serving Institution

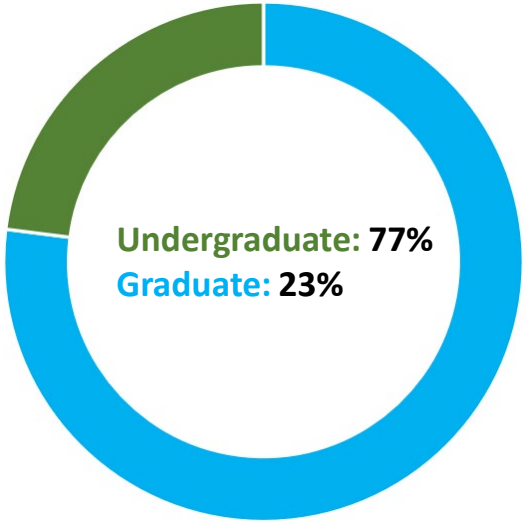


6,000 beds

TIER 1 research university



42,000 enrollment



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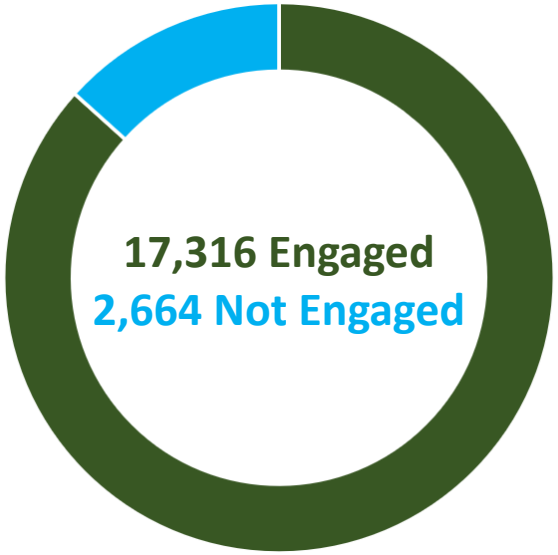
Analysis Overview

Data-set: Fall 2016 – Fall 2019



First Time in College (FTIC)

Methods:

- Visualization & Descriptive statistics
  - Retention rates (engaged vs. non-engaged)
- Logistic regression

Disaggregated & Analyzed By:

- All FTIC students
- Gender
- Card Swipe numbers
- Ethnicity

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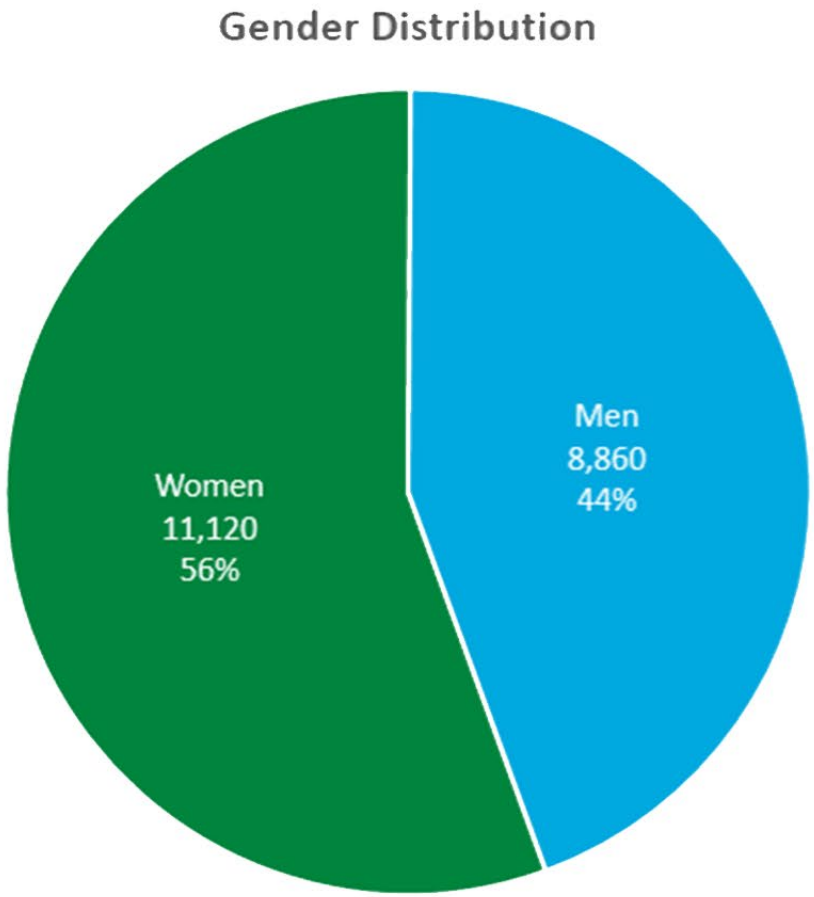

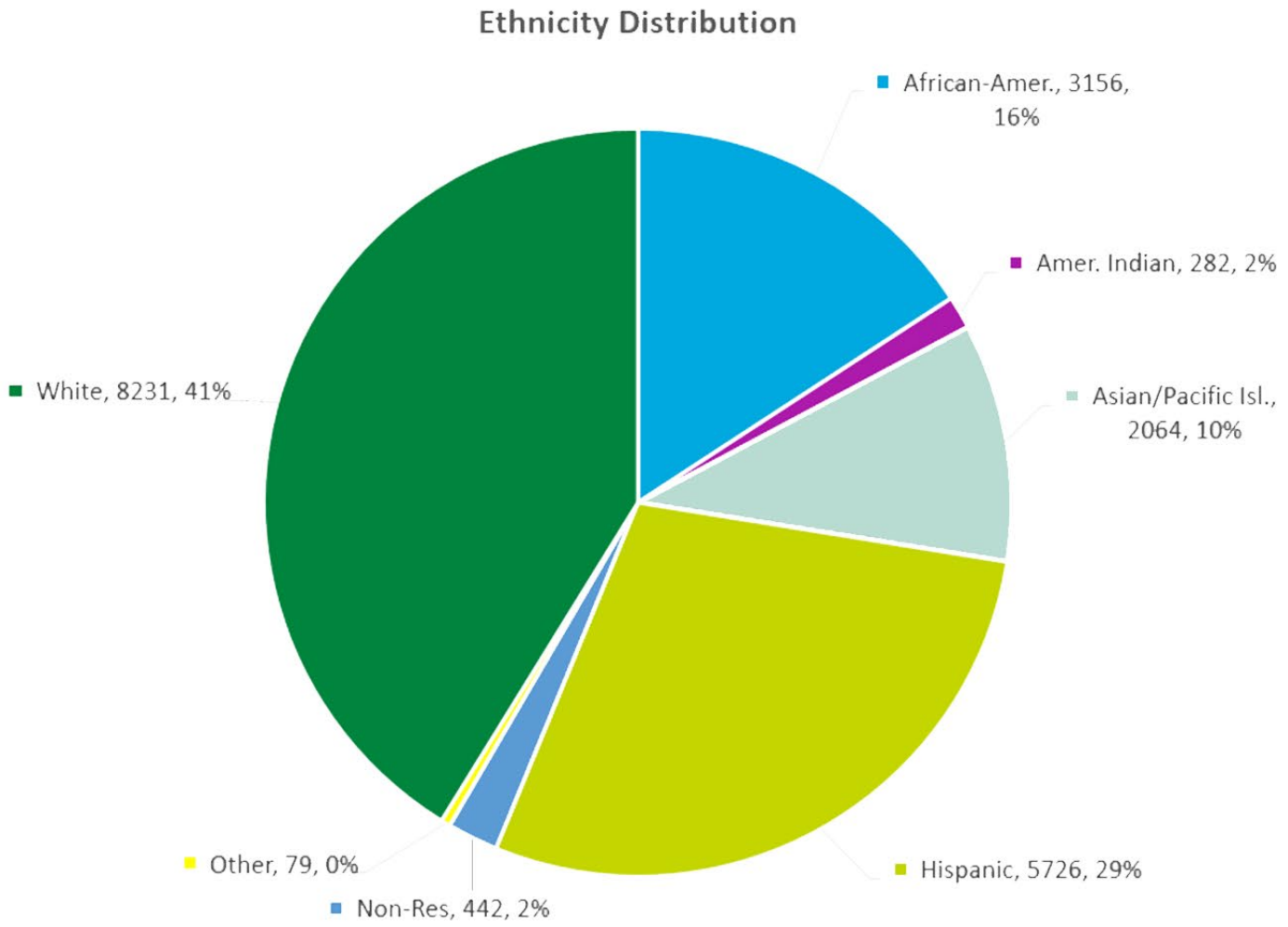

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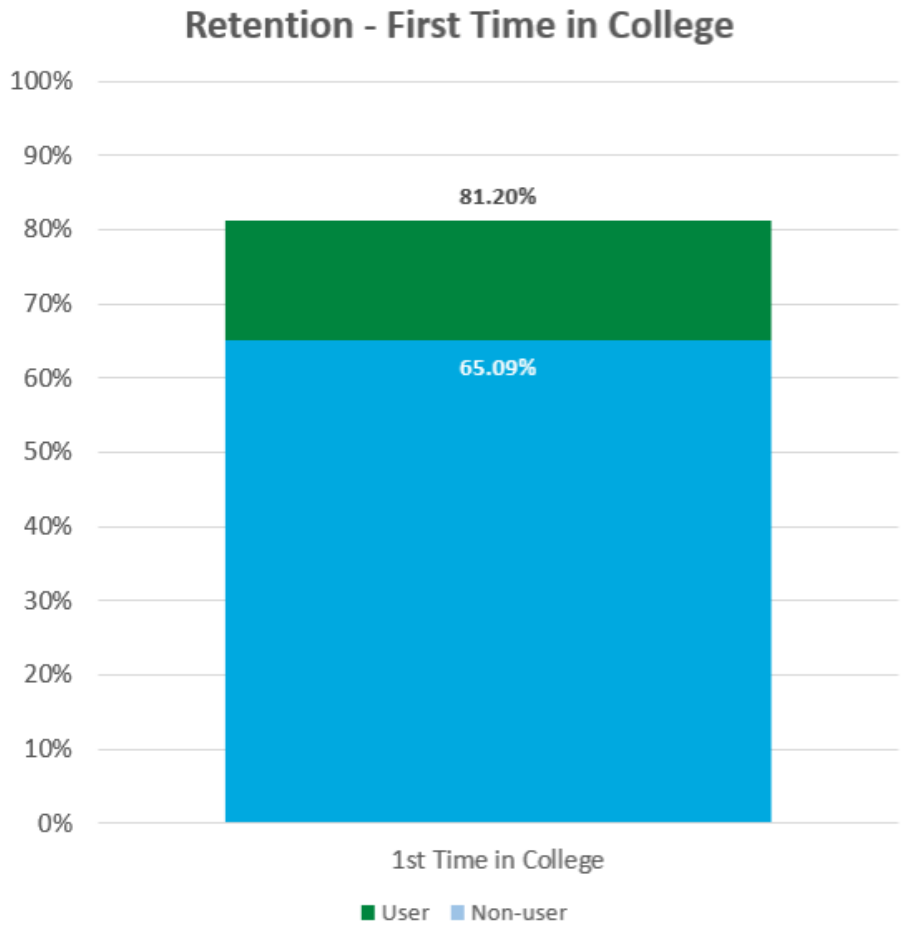
Data Analysis & Findings

- One or more engagements resulted in a 16.11% overall difference in retention compared to zero engagement (81.20% vs 65.09%)
- Women: 15.35% difference (82.73% vs 67.38%)
- Men: 15.83% difference (79.13% vs 63.30%)
- Engagement has slightly greater impact on retention for First Time in College men than for women.
- Positive correlation up to 30/40 swipes between swipe/retention
- Stronger coefficient for higher # of swipes
- Fewer men overall engaged (trend of men opting out)



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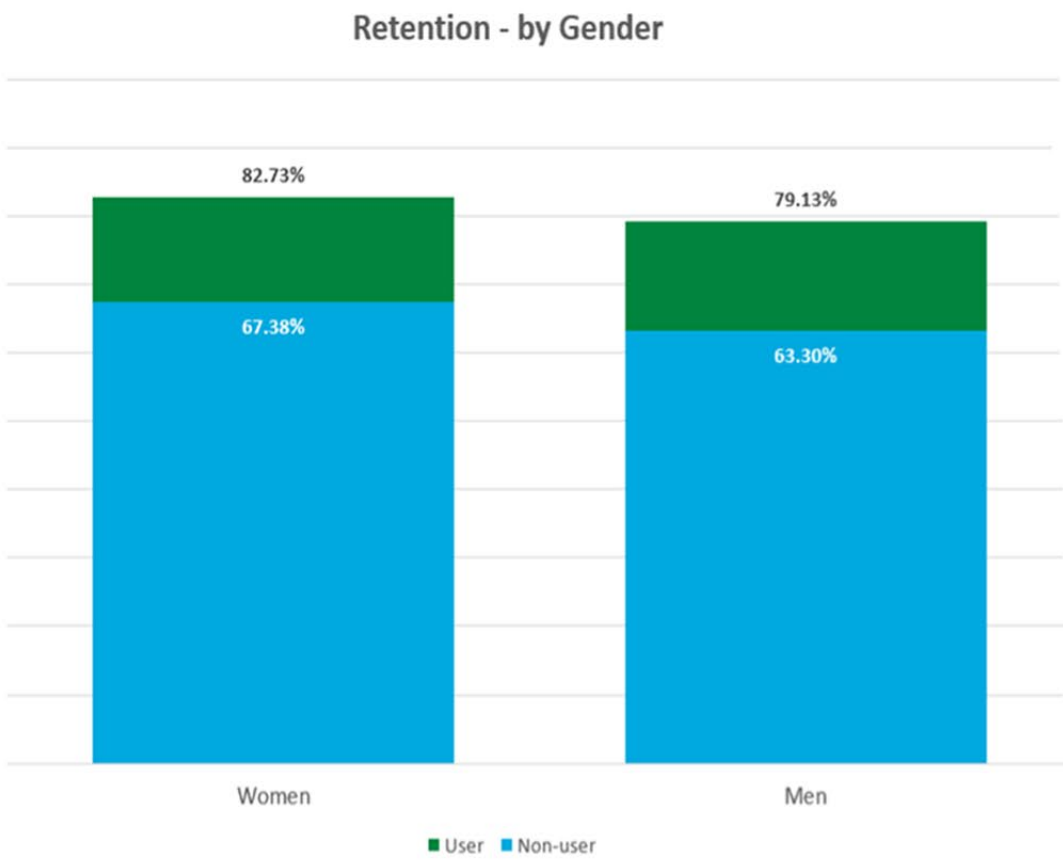

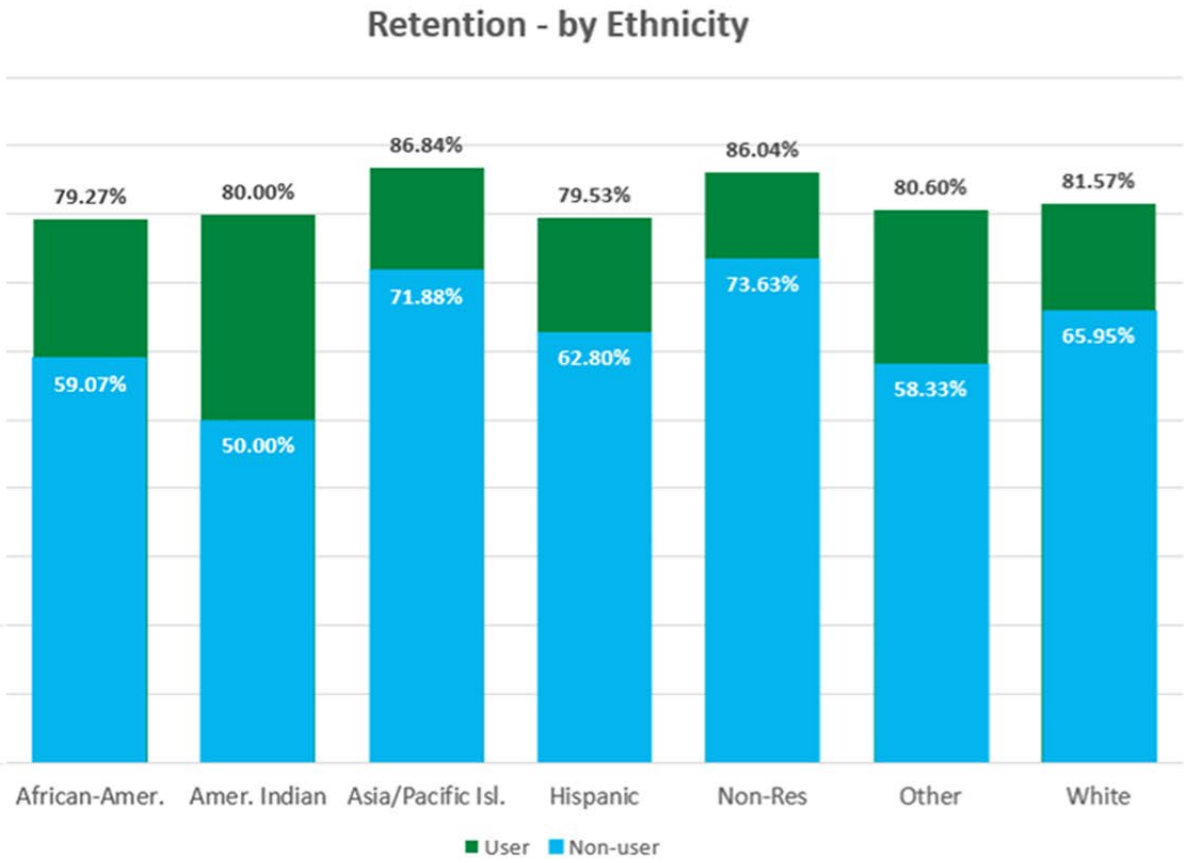

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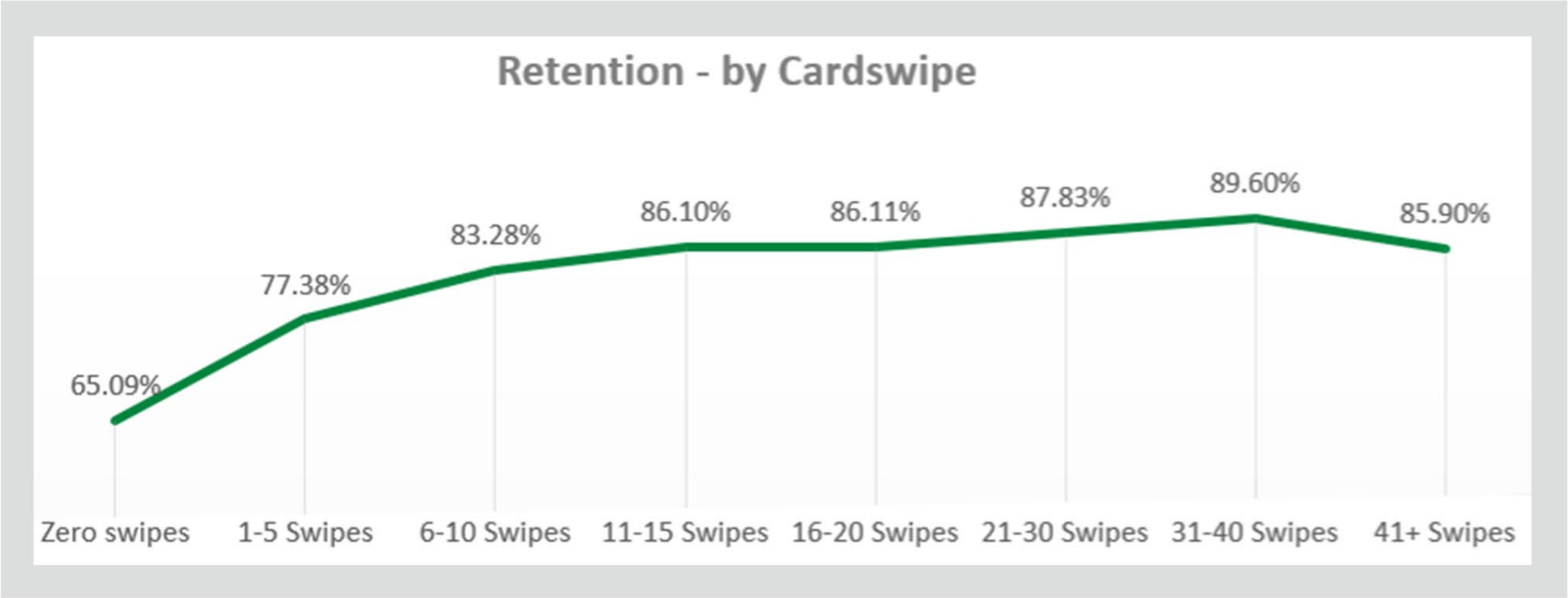

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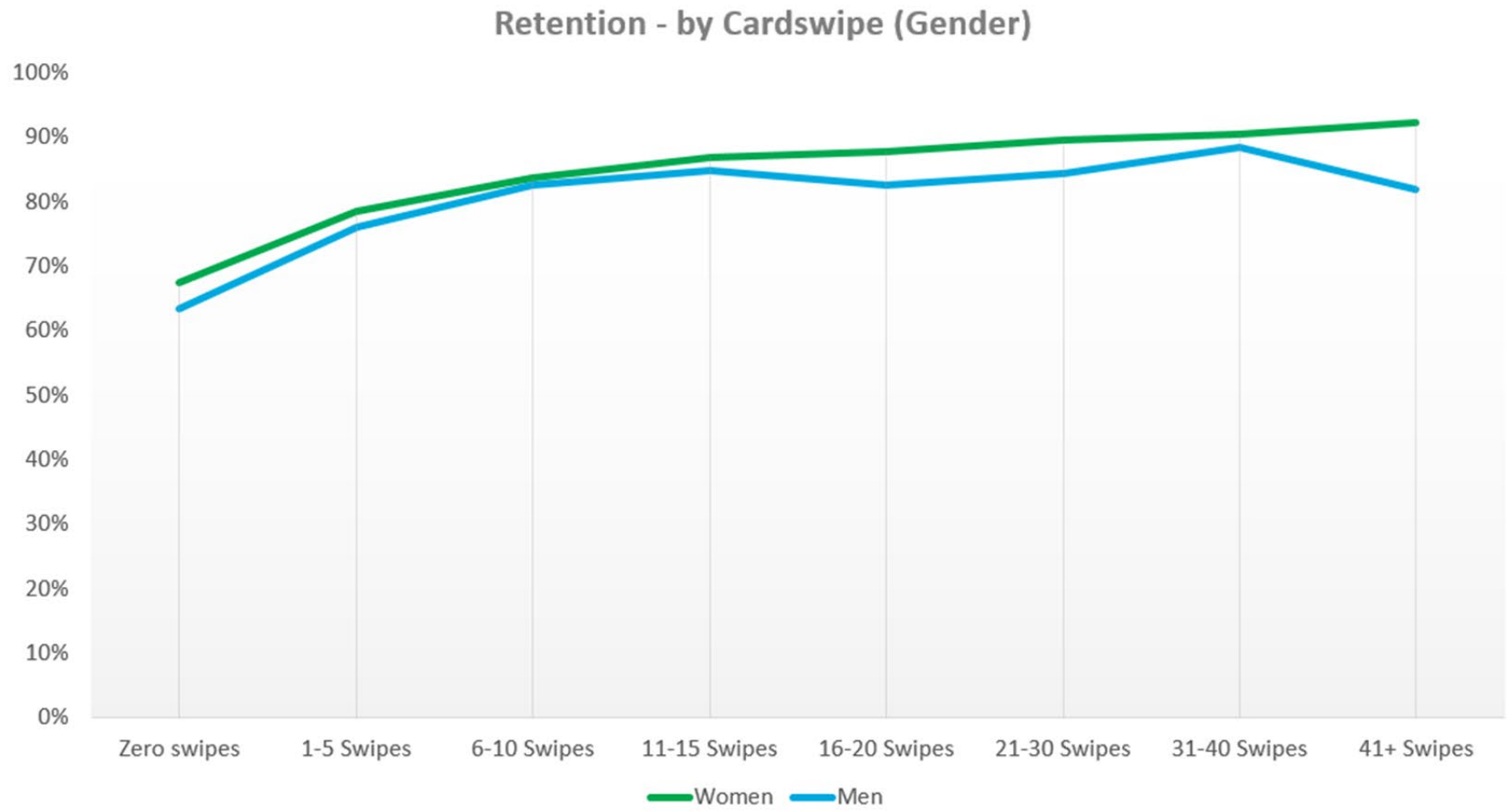
Disaggregated Findings



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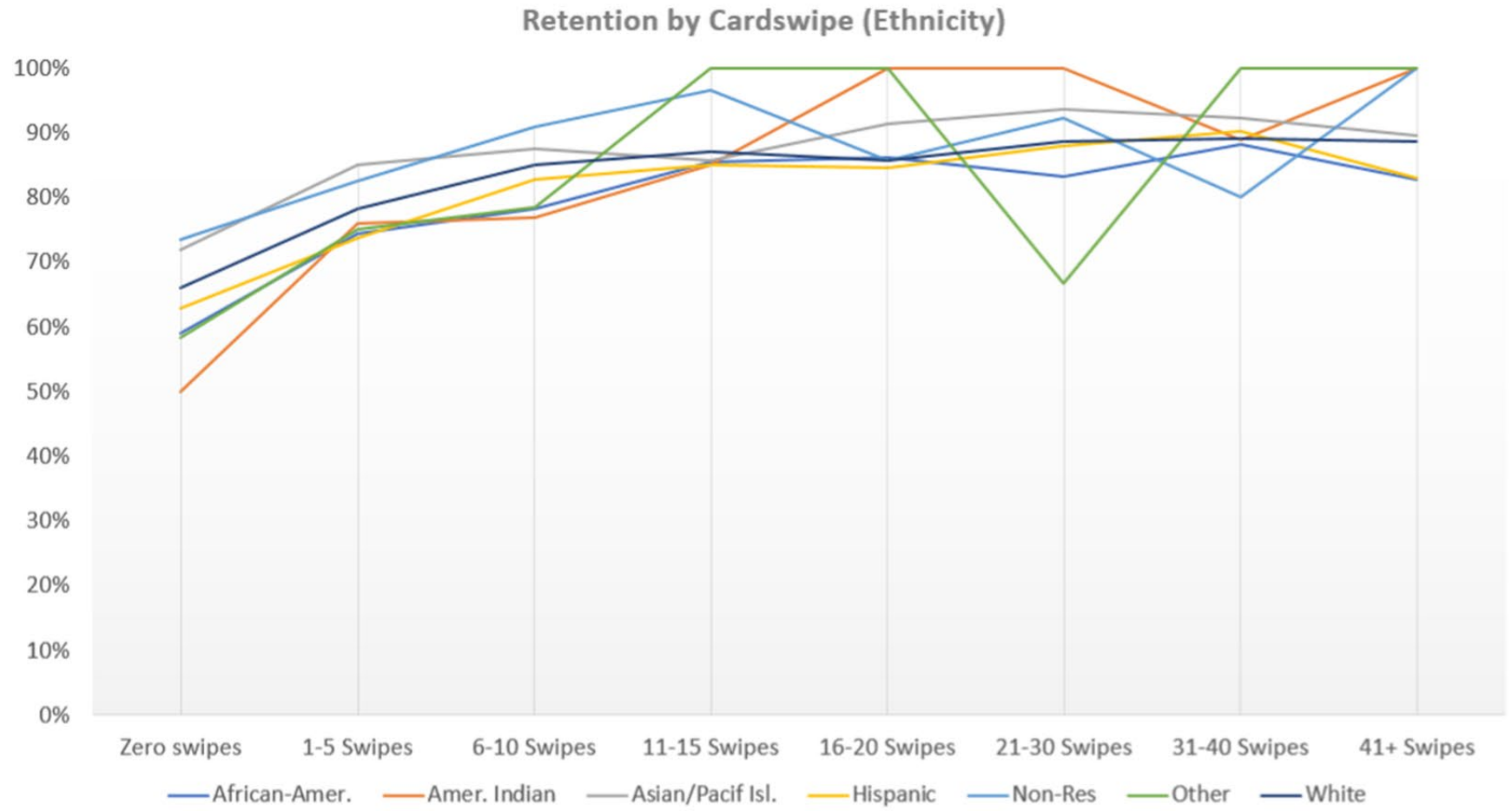

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Statistical Findings

- Card Swipe Count Buckets
- Coefficients:
  - increase up to bucket 6.
  - Statistically significant predictors of retention

- Wald Test (Chi-squared test)
  - Test for an overall effect of Card Swipe ranges.
  - Difference between coefficients of buckets is statistically significant.

- Overall Engagement
  - Statistically significant predictor of retention
  - Wald Test shows that difference between coefficients for engaged vs. not engaged is statistically significant

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.1276   0.5094   0.6048   0.7162   0.9267

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)      0.62300    0.04064   15.33   <2e-16 ***
Swipes_buckets1  0.60677    0.04780   12.70   <2e-16 ***
Swipes_buckets2  0.98286    0.06161   15.95   <2e-16 ***
Swipes_buckets3  1.20086    0.08120   14.79   <2e-16 ***
Swipes_buckets4  1.20180    0.10322   11.64   <2e-16 ***
Swipes_buckets5  1.35364    0.10592   12.78   <2e-16 ***
Swipes_buckets6  1.53055    0.15203   10.07   <2e-16 ***
Swipes_buckets7  1.18418    0.10732   11.03   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 20512  on 19979  degrees of freedom
Residual deviance: 19979  on 19972  degrees of freedom
AIC: 19995

Number of Fisher Scoring iterations: 4
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Wald test:
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Chi-squared test:
X2 = 522.0, df = 7, P(> X2) = 0.0
```

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Takeaways

Gender

- Engagement (1+ card swipe) for both women and men is a statistically significant predictor of retention
- Coefficient for men is lower than for women

Ethnicity

- Engagement is statistically significant only for:
  - Asian/Pacific Isl., Non-Res, White
  - Potentially due to sample size issues
- Negative log-odds coefficient observed for Amer. Indian
- Retention by card swipe numbers follow the general trend of increasing retention with increase in engagement for all ethnicity

Overall

- Engagement does have a positive relationship with retention (correlation not causation)
- Next steps - Are there populations of students where engagement may have bigger impacts?
  - H.S. Quartile Rank
  - First Generation
  - Improving analytics/dashboard

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Future Considerations

Data proliferation/collection:

- Build Classification/Prediction models
  - Evaluate models against each other
    - Decision Trees, Random Forest, Logistic Regression, etc.
  - Can help classify/predict “at-risk” vs. “persistent “ students
  - Can help determine:
    - Which interventions have the greatest impact on retention, and which do not
    - Whether the interventions are equitable for all disaggregated group
      - Guide decisions to modify interventions to make them equitable
      - Guide policy changes

Biases in data:

- Sample sizes of disaggregated groups

Implementing On Your Campus

What campus questions do you want to address?

Identifying campus partners

Identifying potential data collection points

Methods for analyzing and utilizing data

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Questions?

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