

A Priori and Association Rules for Affinity Analysis of Participation in Student Affairs

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Affinity analysis has established use in the retail and entertainment streaming industries to analyze customer data and infer behaviors/preferences and optimize customer engagement. Data collected on university students which tracks their participation in university programs has the potential for similar use. Through affinity analysis using the A priori algorithm and Association Rules, Student Affairs can analyze student data to infer the behaviors/preferences of the student population. To better leverage this data programs are put into categories indicative of the type of experience they provide (e.g. Required). Programs are categorized by department to allow for cross department interaction analysis and understand which programs elicit further engagement between departments. In conjunction with affinity analysis, a robust model of student engagement is needed to verify and present results with descriptive visualizations. Using Microsoft Power BI, a model has been developed which accurately represents the participation profile of each student individually. Using a per student participation profile allows for the emergent property of inter-program interaction analysis in order to further understand which programs prompt students to engagement more often with other programs. Demographic data collected students is used to identify underserved or overserved populations and optimize efficient resource allocation. This project aims to enhance administration awareness of student behavioral trends and leverage student data to create a more wholesome university engagement experience which promotes improved academic performance and operational efficiency.

Affinity Analysis Conclusions at Florida Atlantic University for Academic Year 2018-2019

General

- Only 76% of the student population is engaged.
- 12.4% of engaged students only participate in Required or One-Way engagement.
- The median number of interactions is 11.
- The average number of different departments interacted with is 2.86.
- The average number of interactions within a single department is 6.84.

Demographics

- Commuters in general are less engaged than the average despite being a diverse group.
- Commuter students who engage with Fraternity-Sorority Life have 4.4 times more total interactions than those who do not.
- Engagement falls throughout a student's 4-year matriculation with the Senior Commuter demographic being the least engaged.
- The most engaged demographic is FTIC Residents who have 3.5 times more interactions than the average.

Inter-Departmental

- Student who interact with more than one department have 50% more total interactions on average.
- Student employees interact with 2.2 times more departments than the average.
- If a student interacts with the LEAD department in any capacity, they interact with 80% more departments than the average.
- Commuter students who engage with LEAD engage with 94% more departments than those who do not.
- Commuter students who engage with Housing & Residential Education interact with 2.17 times more departments than those who do not.
- The Career Center has the most inter-departmental connections. Students who are engaged with more than one department are very likely to have interacted with the Career Center.

*One-way engagement are interactions which do not require student input to be recorded (e.g. Newsletters, Emails)