

EPPS 6323 Proposal

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Background

From the 2006-07 academic year to the 2016-17 academic year, the international student population in the United States (US) postsecondary education system has grown more than 84% to over \$1 million students (Alsakran 2018).

Prior descriptive studies have identified differences in persistence and graduation rates between domestic and international students (Alsakran 2018). Theoretical models have also been proposed which consider preexisting student characteristics such as the country of origin, financial support, gender, institutional status (new or transfer student), and TOEFL score (Kwai 2010). Model features also included common persistence metrics consisting of attempted credit hours per semester (momentum), grade point averages (GPA), and campus community engagement and participation. While these methods thoroughly illustrate the lower success rates of international students, they have not adequately explained or predicted outcomes.

This paper's objective is to take what is known about international student attainment and compare predictors to machine learning models, which are capable of utilizing a much larger set of features.

Existing Literature

Existing studies have examined how transferring between higher education institutions impacts persistence and found that students who are willing and able to stay at the same institution are generally more likely to enroll in the next academic year (Alsakran 2018). These studies focused on community college students, and persistence patterns were similar across race

classifications of US students. International students have the additional burden of maintaining their international visa requirements which may impact their ability to persist in college. Alsakran (2018) demonstrated that the international students who transferred to different community colleges were more likely to drop out than those who stayed at the same institution.

Alsakran and Slate (2017) found that international student persistence was inconsistent across Texas community colleges in a descriptive study covering the 2010-11 to 2012-13 academic years. In this study, the authors found that the gap between community college persistence rates for international students was as high as 35.5%. The large difference may be an indication of the type of support, advising, or services available to international students at some institutions and not others.

Research Question

How do student characteristics and institutional factors influence the degree attainment of undergraduate international students in Texas?

Method

The outcomes measured in this study will be a binary variable; either bachelor's degree completed or not completed. This structure is well suited to machine learning classification models. Tree and forest-based classification methods will be used to identify the primary contributing features that lead international student degree attainment. Although the planned methods will primarily focus on supervised learning techniques, unsupervised clustering methods may also be applied to add context to preexisting and experiential student characteristics.

Data

The Texas Schools Project (TSP) at the University of Texas at Dallas (UT Dallas), in connection with the Education Research Center provides a rich set of administrative data from Texas primary and secondary schools, higher education institutions, and employers. The amount of data available for research was unparalleled when first developed and has made Texas a focal point for education research. This study will utilize TSP data in the evaluation of international student outcomes in Texas to take advantage of the large data set available within the state.

References

- Alsakran, R. I. (2018). *Differences in Persistence and Graduation Rates by the Institutional Status of International Students in Texas Community Colleges: A Multiyear, Statewide Study* (dissertation).
- Alsakran, R., & Slate, J. R. (2017). A Descriptive Study of Persistence Rates for International Students in Texas Community Colleges. *AASCIT Journal of Education*, 3(3), 16–21.
- Kwai, C. K. (2010). *Model of International Student Persistence: Factors Influencing Retention of International Undergraduate Students at Two Public Statewide Four-Year University Systems* (dissertation). Dissertation Publishing, Ann Arbor.