

## Using High School and College Data to Predict Teacher Candidates' Performance on the Praxis at Unibetsedåt Guåhan (University of Guam)

Policymakers and educators on Guåhan (Guam) are concerned about the persistent shortage of qualified K–12 teachers. Staff at the Unibetsedåt Guåhan (University of Guam, UOG) School of Education, the only local university that offers a teacher training and certification program, believe that more students are interested in becoming teachers but that the program's admissions requirements—in particular, the Praxis® Core test, which consists of reading, writing, and math subtests—might be a barrier. Little is known about the predictors for passing the Praxis Core test. This makes it difficult to develop and implement targeted interventions to help students pass the test and prepare for the program.

This study examined which student demographic and academic preparation characteristics predict passing the Praxis Core test and each of its subtests. The study examined two groups of students who attempted at least one subtest within three years of enrolling at UOG: students who graduated from a Guåhan public high school (group 1) and all students, regardless of the high school from which they graduated (group 2). Just over half the students in each group passed the Praxis Core test (passed all three subtests) within three years of enrolling at UOG. The pass rate was lower on the math subtest than on the reading and writing subtests. For group 1, students who earned credit for at least one semester of Advanced Placement or honors math courses in high school had a higher pass rate on the Praxis Core test than students who did not earn any credit for those courses, students who earned a grade of 92 percent or higher in grade 10 English had a higher pass rate on the reading subtest than students who earned a lower grade, and students who earned a grade higher than 103 percent in grade 10 English had a higher pass rate on the writing subtest than students who earned a lower grade. For group 2, students who did not receive a Pell Grant (a proxy for socioeconomic status) had a higher Praxis Core test pass rate than students who did receive a Pell Grant, students who earned a grade of B or higher in first-year college English had a higher Praxis Core test pass rate than students who earned a lower grade, and male students had a higher pass rate on the reading and math subtests than female students.

The study findings have several implications for intervention plans at both the secondary and postsecondary levels. Although students must pass all three Praxis subtests to be admitted to the teacher preparation program at the School of Education, examining student performance on each subtest can help stakeholders understand the content areas in which students might need more support. In the long term preparing more prospective teachers for the Praxis Core test might increase program enrollment, which in turn might increase the on-island hiring pool.

### Why this study?

Unibetsedåt Guåhan (University of Guam, UOG) is home to the only local K–12 teacher preparation program on Guåhan (Guam), but the number of students who complete the program each year is not enough to reduce the

Guam Department of Education's (GDOE) chronic teacher shortage.<sup>1</sup> Students must pass the Praxis Core test, which includes subtests in reading, writing, and math, to be admitted to the UOG School of Education, but many students fail to meet this criterion.

This study provides information about which demographic and academic preparation characteristics are related to success on the Praxis Core test and its subtests for students who hope to be admitted to the UOG School of Education. Stakeholders hope that better preparing students for success on the Praxis Core test while they are in high school and during their early years at UOG will increase the number of students admitted into the School of Education, and ultimately, the number of teachers available to GDOE.

## What was studied and how?

The study analyzed data on two groups of students who enrolled at UOG between fall 2012 and fall 2017 and attempted at least one Praxis subtest within three years of enrolling. Group 1 included only students who graduated from a Guåhan public high school ( $n = 128$ ) and was used to explore high school academic preparation characteristics; group 2 included all UOG students, regardless of the high school from which they graduated ( $n = 216$ ), and was used to explore college academic preparation characteristics. The study used descriptive statistics and conditional inference classification tree analysis to address three research questions:

1. What percentage of prospective K–12 teacher candidates passed the Praxis Core test and each of its three subtests (reading, writing, and math)?
2. What student demographic and high school academic preparation characteristics predict whether a prospective teacher candidate in group 1 passes the Praxis Core test and each of its three subtests?
3. What student demographic and college academic preparation characteristics predict whether a prospective teacher candidate in group 2 passes the Praxis Core test and each of its three subtests?

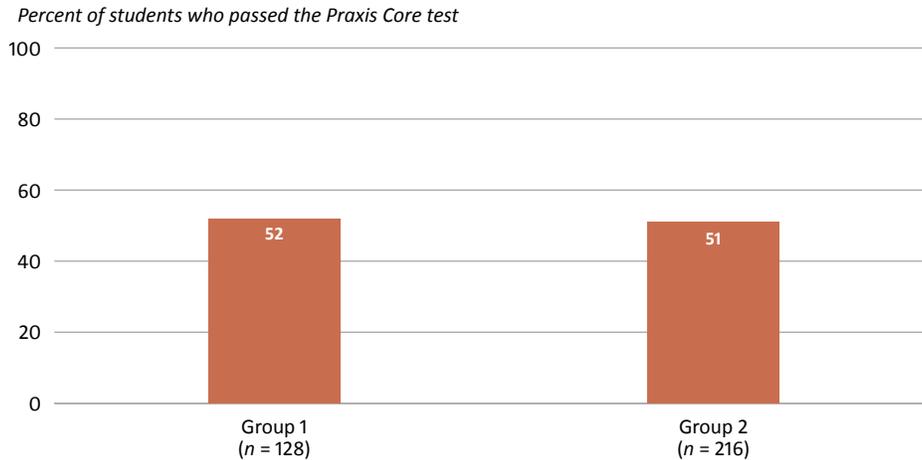
## Findings

- **Over half the students who graduated from a Guåhan public high school and over half of all UOG students passed the Praxis Core test (passed all three subtests).** About 52 percent of Guåhan high school graduates who attempted the Praxis Core test (all three subtests) passed. Similarly, 51 percent of all UOG students who attempted it passed (figure 1).
- **Students were less likely to pass the Praxis math subtest than the reading or writing subtest.** About 79 percent of Guåhan public high school graduates passed the Praxis reading subtest, 72 percent passed the writing subtest, and 61 percent passed the math subtest. Again, the findings for all UOG students were similar: 79 percent passed the reading subtest, 69 percent passed the writing subtest, and 60 percent passed the math subtest (figure 2).
- **Guåhan public high school graduates who earned any Advanced Placement or honors math credits in high school were more likely than graduates who did not earn any Advanced Placement or honors math credits to pass the Praxis Core test.** Guåhan public high school graduates who earned any Advanced Placement or honors math credits in high school had a pass rate of 78 percent on the Praxis Core test compared with 39 percent for graduates who did not earn any Advanced Placement or honors math credits.
- **Guåhan public high school graduates who earned at least one Advanced Placement or honors math credit were also more likely than students who earned less than one Advanced Placement or honors math credit**

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1. Regional Educational Laboratory Pacific reports use the spelling conventions of Indigenous Pacific languages, including diacritical marks, when those spellings are the official names of institutions, languages, ethnicities, and places. Corresponding English spellings are provided on first reference.

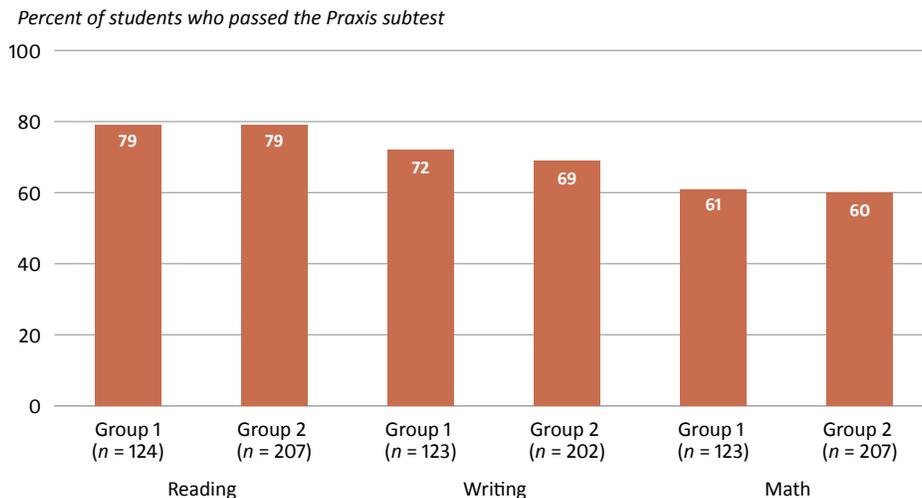
**Figure 1. About 52 percent of Guåhan public high school graduates who attempted the Praxis Core test and 51 percent of all students from Unibetsedåt Guåhan who attempted the Praxis Core test passed it**



Note: Group 1 refers to students who graduated from a Guåhan high school, enrolled at Unibetsedåt Guåhan between fall 2012 and fall 2017, and attempted at least one Praxis subtest within three years of enrolling. Group 2 refers to all students, regardless of the high school from which they graduated, who enrolled at Unibetsedåt Guåhan between fall 2012 and fall 2017 and attempted at least one Praxis subtest within three years of enrolling. Descriptive statistics were used to determine the percentage of students who passed all three subtests.

Source: Authors' analysis of data from the Guam Department of Education and Unibetsedåt Guåhan.

**Figure 2. Students had higher pass rates on the Praxis reading and writing subtests than on the math subtest**



Note: Group 1 refers to students who graduated from a Guåhan high school, enrolled at Unibetsedåt Guåhan between fall 2012 and fall 2017, and attempted at least one Praxis subtest within three years of enrolling. Group 2 refers to all students, regardless of the high school from which they graduated, who enrolled at Unibetsedåt Guåhan between fall 2012 and fall 2017 and attempted at least one Praxis subtest within three years of enrolling. Descriptive statistics were used to determine the percentage of students who passed each subtest.

Source: Authors' calculations based on data from Unibetsedåt Guåhan.

**to pass the Praxis math subtest.** Guåhan public high school graduates who earned at least one Advanced Placement or honors math credit in high school had a pass rate of 88 percent on the Praxis math subtest compared with 46 percent for graduates who earned less than one Advanced Placement or honors math credit.

- **There was a relationship between grade 10 English grades and pass rates on the Praxis reading and writing subtests.** Guåhan public high school graduates who earned a grade of 92 percent or higher in the second semester of grade 10 English had a pass rate of 87 percent on the Praxis reading subtest compared with

54 percent for graduates who earned a grade of 91 percent or lower. The results were similar for the writing subtest. Graduates who earned a grade of 103 percent<sup>2</sup> or higher in the second semester of grade 10 English had a pass rate of 97 percent on the writing subtest compared with 63 percent for graduates who earned a grade of 102 percent or lower. Since students can earn more than 100 percent in honors courses, this finding shows that students who enrolled and performed well in honors grade 10 English had higher pass rates on the writing subtest.

- **UOG students who did not receive a Pell Grant had a higher overall pass rate on the Praxis Core test than students who received a Pell Grant.** The overall pass rate for the Praxis Core test was 59 percent for students who did not receive a Pell Grant in college (used as a proxy for socioeconomic status) compared with 44 percent for students who received a Pell Grant.
- **Grade in the Human Growth and Development course at Unibetsedåt Guåhan predicted pass rates on the Praxis writing subtest.** UOG students who earned a grade of A or higher in Human Growth and Development had a pass rate of 83 percent on the Praxis writing subtest compared with 61 percent for students who earned a grade of B or lower.
- **Male UOG students had higher pass rates on the Praxis reading and math subtests than female students.** Male UOG students had a pass rate of 92 percent on the Praxis reading subtest and 77 percent on the math subtest, while female students had a pass rate of 75 percent on the reading subtest and 55 percent on the math subtest. Among female students, those who received a Pell Grant had a lower pass rate (67 percent) on the reading subtest than those who did not receive a Pell Grant (85 percent).

## Implications

Critical K–12 teacher shortages on Guåhan require an increase in the number of qualified teachers. To do so with locally based prospective teachers necessitates that more students pass the Praxis Core test (reading, writing, and math subtests). Stakeholders at the School of Education could consider several actions to better prepare students for the Praxis Core test. One is ensuring that college curricula are designed to build students' knowledge in areas that they will need to know in order to be successful educators. For example, math courses could emphasize topics tested by the Praxis math subtest. The School of Education faculty might consider providing students with resources and supports, such as study groups, mentorship programs, and supplemental instruction. Also, the School of Education faculty might consider how they can address potential inequities by targeting supports for students from low-income households and female students, groups that have the lowest pass rates.

Because this study is descriptive, a limitation is that one cannot say that any of the characteristics caused students to pass or not pass the Praxis Core test or its subtests. Another limitation is that the analyses were based on small samples. The findings might not be applicable to larger or more diverse samples.

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2. Course grades at Guåhan public high schools range from 0 to 110 for Advanced Placement and honors courses and from 0 to 100 for non-Advanced Placement and nonhonors courses. Courses that have both nonhonors and honors versions were combined in the analysis, but the original grade scales were kept. Appendix B provides more information about the variables used in this study.

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Donahue, T., Rentz, B., Santos, M., Aguon, A. C., & Arens, S. A. (2021). *Using high school and college data to predict teacher candidates' performance on the Praxis at Unibetsedât Guåhan (University of Guam)* (REL 2021–104). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Pacific. This report is available on the Regional Educational Laboratory website at <http://ies.ed.gov/ncee/edlabs>.