

Faculty Alerts Preliminary Pilot Results

Abstract

This pilot study evaluated the effectiveness of Faculty Alerts, an instructor-focused student success initiative. Using a two-stage propensity score matching design, Faculty Alerts-supported sections were compared with matched sections of the same courses, and students were matched on key demographic characteristics. Faculty Alerts-supported sections demonstrated lower DFW rates (26.8% versus 39.6%), while students in intervention sections achieved higher course success rates (81.0% versus 64.5%) and higher course grades ($M = 2.76$ versus 2.24). Although multilevel analyses reduced statistical significance after accounting for section-level clustering, all outcomes consistently favored Faculty Alerts-supported sections. Findings provide promising preliminary evidence that Faculty Alerts may improve student success through enhanced faculty engagement and targeted intervention practices.

Faculty Alerts Preliminary Pilot Results

The Faculty Alerts pilot was evaluated using a two-stage propensity score matching (PSM) design intended to reduce selection bias and create comparable treatment and comparison groups. Faculty Alerts-supported course sections were matched to non-participating sections of the same course taught by different instructors. Preliminary regression analyses were conducted to identify the strongest predictors of subsequent DFW outcomes. Results indicated that instructor baseline DFW rates and course baseline DFW rates demonstrated the largest standardized beta coefficients and accounted for the greatest proportion of variance in future DFW rates. Consequently, sections were matched on these two variables. Matching substantially improved balance between groups, reducing the standardized mean difference for instructor baseline DFW from 0.321 to 0.013 (95.8% improvement) and for course baseline DFW from 0.357 to 0.022 (93.8% improvement). The propensity score distance itself was reduced from 0.446 to 0.002, representing a 99.6% improvement in balance. The final matched sample consisted of seven Faculty Alerts-supported sections and seven matched comparison sections.

Following section-level matching, a second-stage student-level matching procedure was conducted within the matched course sample. Students were matched on gender, race/ethnicity, and first-generation status using nearest-neighbor propensity score matching without replacement and a caliper of 0.05. Prior to matching, the largest imbalance was observed for race/ethnicity (standardized mean difference = 0.382) and overall propensity score distance (0.404). Following matching, balance improved substantially across all matching variables. The standardized mean difference for race/ethnicity was reduced from 0.382 to 0.019 (95.0% improvement), first-generation status achieved perfect balance (0.000), and gender remained well balanced (0.084). The propensity score distance was reduced from 0.404 to 0.001, indicating virtually identical treatment and comparison groups on the matching variables. The final matched student sample consisted of 242 students, including 121 treatment students and 121 comparison students.

Course-Level Outcomes

Course-level analyses yielded encouraging evidence in support of the Faculty Alerts initiative. Faculty Alerts-supported sections demonstrated substantially lower DFW rates than matched comparison sections (26.8% versus 39.6%), representing a 12.85 percentage-point reduction in unsuccessful course outcomes. The intervention demonstrated a moderate-to-large practical effect (Cohen's $d = .63$) and accounted for approximately 10.4% of the variance in DFW outcomes. Given that treatment and comparison sections were matched on the strongest historical predictors of DFW performance and represented the same courses, these findings suggest that Faculty Alerts may contribute to improved student success above and beyond prior course and instructor performance patterns.

Student-Level Outcomes

Student-level analyses yielded similarly favorable findings. Students enrolled in Faculty Alerts-supported sections achieved a higher course success rate than matched comparison students (81.0% versus 64.5%), representing a 16.5 percentage-point advantage and a 25.6% relative increase in successful course completion. Treatment students also earned higher average course grades than comparison students ($M = 2.76$ versus 2.24).

For grade analyses, final letter grades were converted to an ordinal scale where Q/F = 0, D = 1, C = 2, B = 3, and A = 4. Withdrawals and non-standard grades were excluded from grade analyses. On this scale, the observed difference of 0.52 points represents approximately one-half of a letter-grade improvement in overall course performance. Although treatment students earned slightly higher overall term GPAs than comparison students ($M = 2.52$ versus 2.37), the difference was not statistically significant.

Initial student-level analyses indicated statistically significant advantages for Faculty Alerts students in both course success and course grades. Students enrolled in Faculty Alerts-supported sections were significantly more likely to successfully complete their courses and earned significantly higher grades than students in matched comparison sections. Robust Welch and Brown-Forsythe tests yielded identical conclusions, indicating that findings were robust to violations of variance assumptions.

Multilevel Analysis

Because Faculty Alerts was designed as a faculty- and course-level intervention rather than a direct student intervention, multilevel models were estimated to assess the degree to which student outcomes were clustered within course sections. Results indicated meaningful clustering for both course success ($ICC = .143$) and course grades ($ICC = .216$), suggesting that between 14.3% and 21.6% of the variance in student outcomes was attributable to differences among course sections.

Importantly, this pattern is consistent with the underlying theory of action for Faculty Alerts. The intervention operates by providing instructors with timely student risk information, support resources, and intervention strategies intended to improve student outcomes. Consequently, some degree of between-section variation is expected because instructors serve as the primary agents of implementation. In this context, meaningful clustering reflects the influence of instructional environments on student outcomes rather than a methodological limitation.

After accounting for course-level clustering, treatment effects remained positive for both course success and course grades, although they were no longer statistically significant. Importantly, the

magnitude and direction of the effects remained largely unchanged. Students enrolled in Faculty Alerts-supported sections continued to demonstrate higher success rates and higher grades than students in matched comparison sections. The reduction in statistical significance appears largely attributable to the limited number of sections included in the pilot sample (seven treatment and seven comparison sections), which substantially constrained statistical power at the level where the intervention was delivered.

Summary

Taken together, findings from this pilot study provide promising preliminary evidence supporting the effectiveness of the Faculty Alerts initiative. Across all major outcomes, including DFW rates, course success, course grades, and term GPA, results consistently favored Faculty Alerts-supported sections and students. No outcome favored the comparison group. Course-level analyses demonstrated meaningful reductions in DFW rates, while student-level analyses revealed higher success rates and higher course grades among students enrolled in Faculty Alerts-supported sections.

Although multilevel analyses reduced statistical significance after accounting for section-level variation, this finding is consistent with the intervention's design as a faculty-focused support initiative. The observed clustering suggests that instructors and instructional environments matter, which is a result that aligns directly with the central premise of Faculty Alerts. Given the consistent direction of effects, moderate-to-large practical significance, strong matching quality, and limited statistical power associated with a pilot sample of only 14 sections, these findings provide encouraging evidence that Faculty Alerts may positively influence student success through enhanced faculty engagement and targeted intervention practices. Future evaluations involving a larger number of instructors and course sections are warranted to provide a more rigorous test of program effectiveness and to further examine the mechanisms through which Faculty Alerts contributes to student achievement.