Positive Average Effect of ACUE-Certified Faculty on Student Course Outcomes: A Meta-Analysis

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Executive Summary

In recent years, the Association of College and University Educators (ACUE) has conducted numerous evaluations of its course in Effective Teaching Practices—a faculty development course with the aim of improving students' postsecondary performance through more effective instruction. The evaluations have produced a range of effect sizes, mostly demonstrating a positive impact of "ACUE faculty" on student outcomes (Hecht, 2019; Lawner et al., 2021; Lawner & Snow, 2018, 2019a, 2019b, 2020; Lawner, Snow, & Burt, 2019; Lawner, Snow, MacCormack et al., 2019; Pippins, Chasteen et al., 2021a, 2021b; Pippins, Hartigan et al., 2021). Given the range of effect sizes, there is a need to understand the average effect of ACUE faculty across partnering institutions to better predict the impact of ACUE courses in new institutional contexts.

This report presents the results of a meta-analysis that addresses the question: What is the average effect of ACUE's ETP course on faculty effectiveness as measured by student academic outcomes? We employ random-effects meta-regression and assess the variation in 68 effect sizes both within and across 11 evaluations of ACUE's Effective Teaching Practices course. We use robust variance estimation (RVE) methods—specifically, a Correlated and Hierarchical Effect (CHE) model—that allows us to include all dependent effect sizes in a single meta-regression model (Pustejovsky & Tipton, 2022).

The meta-analytic model indicates a positive average effect of the ACUE course ($d = 0.06$, $p < .01$, 95% PI [0.00, 0.13]) on faculty effectiveness, as measured by student course outcomes. The average effect size can be translated into a 1-percentage point increase in course completion rates, a 3-percentage point decrease in DFW rates, and a .06-point increase in students' average course grades.

About ACUE

The Association of College and University Educators' (ACUE) mission is to ensure student success and equity through quality instruction. In partnership with colleges, universities, higher education systems, and associations, ACUE prepares and credentials faculty in evidence-based teaching practices that improve student achievement and close equity gaps. Numerous and independently validated studies confirm that students are more engaged, learn more, and complete courses in greater numbers—more equitably with their peers—when taught by ACUE-credentialed faculty. ACUE's online, cohort-based credentialing programs are delivered through institutional partnerships and open-enrollment courses endorsed by the American Council on Education.[1]

Introduction

In 2014, the Association of College and University Educators (ACUE) was founded with the mission to improve student outcomes through quality college instruction. ACUE developed the Effective Practice Framework in partnership with colleges and universities and designed courses to equip educators with the skills and knowledge to teach effectively, regardless of discipline (ACUE, 2016). Since 2014, ACUE has partnered with nearly 300 institutions, and more than 25,000 college educators have taken an ACUE course. Importantly, ACUE demonstrates accountability by measuring the efficacy of the ACUE course across partnering institutions. ACUE examines six levels of sequential outcomes (MacCormack et al., 2018): (1) faculty engagement, (2) faculty learning, (3) faculty implementation, (4) student engagement, (5) course-level student outcomes, and (6) institutional outcomes.

[1] To learn more visit acue.org.

Recent evaluations of the ACUE course have focused on course-level student outcomes (level 5), or, more specifically, the impact of "ACUE faculty"—instructors who engage in the full-year or microcredential ACUE courses in Effective Teaching Practices (ETP)—on students' concurrent course outcomes. Positive effects have been found on students' completion rates (Lawner & Snow, 2020; Lawner, Snow, MacCormack et al., 2019), success rates (Hecht, 2019; Lawner & Snow, 2018), passing rates (Lawner & Snow, 2020; Pippins, Chasteen et al., 2021a), and average grades (Hecht, 2019; Lawner & Snow, 2019a, 2019b; Lawner, Snow, & Burt, 2019; Pippins, Chasteen et al., 2021a; Pippins, Hartigan et al., 2021; Pippins, Lawner, & Snow, 2021). Positive effects have also been found on students' subsequent course outcomes (Pippins, Chasteen et al., 2021b) and academic performance across all their courses (Lawner et al., 2021). These findings have consistently emerged using different data types (course-level and student-level), implementing a variety of data methods (difference-in-differences and fixed effects), and focusing on a variety of institutions (2-year and 4-year colleges as well as those with diverse student populations). Given the range of effect sizes reported across evaluations, there is a need to understand the average effect of ACUE faculty across partnering institutions to better predict the impact of ACUE courses in new institutional contexts.

In 2022, ACUE's research team partnered with Elizabeth Tipton, PhD (Northwestern University),[2] to conduct a meta-analysis with the aim of better understanding the average effect of ACUE on faculty effectiveness across partnering college and universities.

[2] Elizabeth Tipton is an Associate Professor of Statistics, the co-director of the Statistics for Evidence-Based Policy and Practice (STEPP) Center, and a faculty fellow in the Institute for Policy Research at Northwestern University. Tipton's research focuses on the design and analysis of field experiments, with a particular focus on issues of external validity and generalizability in experiments; meta-analysis, particularly of dependent effect sizes; and the use of (cluster) robust variance estimation.

The primary research question was:

- What is the average effect of ACUE's ETP course on faculty effectiveness as measured by student academic outcomes?

To answer this question, the analysis reviewed 68 effect estimates from 11 evaluations of ACUE's ETP course. These evaluations were conducted between 2018 and 2022, and each used a difference-in-differences approach to estimate the effect of the ACUE course on the following student course outcomes: course completion rates, passing rates, success rates, DFW rates, and average course grades. Taken together, the evaluation comprised eight unique institutional partners that represented a range of institutional types, including 2- and 4-year colleges and universities of various sizes and geographic locations. Given this variety in institutions, there was likely a distribution of true effects sizes reflected across evaluations. Therefore, we employed random-effects meta-regression and assessed the variation in effect sizes both within and across evaluations. Furthermore, we used robust variance estimation (RVE) methods—specifically, a Correlated and Hierarchical Effect (CHE) model—that allowed us to include all dependent effect sizes in a single meta-regression model (Pustejovsky & Tipton, 2022).

The meta-analytic model indicates a positive average effect of the ACUE course (d = 0.06, p < .01, 95% PI [0.00, 0.13]) on faculty effectiveness, as measured by student course outcomes. The average effect size can be translated into a 1-percentage point increase in course completion rates, a 3-percentage point decrease in DFW rates, and a .06-point increase in students' average course grades (on a 4.0 scale).

Previous Evaluations

The goal of this meta-analysis was to determine the average effect of ACUE's ETP course on faculty effectiveness, as measured by student academic outcomes. To fulfil this aim, we compiled a list of the 68 effect estimates across 11 publicly available and forthcoming evaluations of the ACUE course across eight unique institutions—three institutions had multiple evaluations of the effect of the ACUE course from multiple cohorts over time. See Table 1 for a list of these institutions.

All effect estimates came from evaluations that were conducted between 2018 and 2022, and that included data from fall 2015–spring 2020. Additionally, all evaluations adopted a difference-in-difference (DID) approach to evaluate the effect of the ACUE course. Using a DID approach, evaluators were able to compare the changes in course outcomes—course completion rates, passing rates, success rates, DFW rates, and grades—of students in course sections taught by ACUE faculty to the changes in course outcomes of students in matched course sections taught by non-ACUE faculty. The goal of creating a set of matched courses taught by nonparticipants was to place any improvements seen in the courses taught by ACUE-credentialed faculty in context at each institution and, to the extent possible, account for outside factors occurring on the campus. Differences between courses taught by ACUE and non-ACUE faculty were then compared across three different time periods, including the terms before, while, and after subsets of faculty completed the ACUE course. The range of DID effect sizes from previous ACUE evaluations are reported in Table 2, columns 4 and 6.

Although all evaluations used similar methodologies, they differed along several data dimensions based on confidentiality, data availability, and/or agreements with partnering institutions. First, some evaluations were conducted using student-level data while others used course-level data. In

a standard data request, ACUE requests student- and instructor-level data. Evaluators ask that student-level data include student transcript records (if enrolled in a course taught by ACUE faculty or in a matched course section) and demographic information. Transcript records should comprise course data (semester, section/course ID, course name/number, department, format, instructor, completion status) and final course grades (A, A-, B+, B, B-, etc.). Student demographic data should comprise gender, ethnicity and race, age, class standing, and indicators for first-generation student, international student, and Pell eligibility. Likewise, evaluators ask that instructor-level data include instructor information (name, gender, department, college), instructional status (instruction status, rank), experience (date hired, years at university, total years of teaching experience), and ACUE participation (e.g., participant v. matched cohort, semester of participation). For various reasons, such as to protect student confidentiality, some institutions may only be able to provide course section averages (e.g., percentage of students enrolled by race/ethnicity).

Second, evaluations differed in that some institutions may have only provided a subset of the requested student or instructor demographics based on data availability. The varying missingness across datasets made it such that analyses do not control for the exact same variables, even when aggregated at the same data levels. For example, the evaluation of ACUE faculty at the University of Nevada, Reno was unable to control for any instructor demographics while the evaluation of ACUE faculty at Purdue University Northwest was able to control for instructor rank, gender, and years of teaching experience.

Third, there were differences in the way in which institutions selected matched course sections. As previously mentioned, the goal of creating a set of matched course sections was to control for changes that occur within a given institution over time. ACUE strongly prefers that institutions match

course sections at the section level, where each section taught by an ACUE faculty member is matched with the most similar section of the same course taught by a non-ACUE faculty member during the same semester. As shown in Table 3, this can result in individual faculty members being matched with course sections taught by multiple faculty.[3] However, because section-level matching is not always possible at small institutions, ACUE requests that institutions match course sections at either the section level or at the faculty level. For both types of matching, ACUE asks that institutions match, as closely as possible and in order, on (a) course characteristics, (b) faculty status as full-time faculty, adjunct, or graduate student, and (c) faculty years of instructional experience.

Considering the differences across datasets and evaluations, it is not possible to simply pool together datasets from all institutions to determine the average effect of the ACUE course without exacerbating concerns of selection or confounding bias. This analysis therefore adopted a meta-analytic approach, which is further explained in the next section.

Methodology

The meta-analytic approach employed random-effects meta-regression given the variation in sample size, student populations, covariates, and matching across evaluations. This variation suggested the potential for a distribution of true effect sizes instead of an identical effect size across evaluations. We assessed the variation in effect sizes attributable to both between-study error (treatment effect

[3] Ideally, ACUE sections are matched with another section of the same course, as seen Table 3 with in BIO 101 and BIO 305. When there are no sections of a course taught by non-ACUE faculty, the most similar course section is used—ideally a section of a course at the same level in the same department. See Table 3, where BIO 410 is matched with BIO 435. There may be some rare cases in which there is no suitable match for a course. When this occurs, it should be noted and will likely result in the ACUE course being dropped from the analysis.

heterogeneity) and within-study error (sampling variability). Furthermore, we used robust variance estimation (RVE) methods that allowed us to include all dependent effect sizes in a single meta-regression model. This is important because each evaluation measured several outcomes that are a construct of grades, including course completion rates, passing rates, success rates, DFW rates, and final course grades.

We modeled the dependence structure of the effect sizes using a Correlated and Hierarchical Effect (CHE) working model, which makes the simplifying assumption that there is a single known correlation (ρ) between pairs of effects from the same evaluation, which is the same across all evaluations. We then implemented inverse-variance weighting based upon this working model and used RVE to estimate standard errors and conduct a hypothesis test. This use of a working model with RVE allowed us to improve the precision of our estimates, while also guarding against misspecification. [4] We also formed a prediction interval that summarizes the distribution of true effect sizes.[5] The prediction interval helped us to understand the range of values to expect in future implementations of the ACUE course.[6]

Results

To assess the average effect of ACUE's ETP course, we first visually displayed the distribution of effects for each outcome (converted to the standardized mean difference) across all evaluations of the

[4] For a more technical discussion of the classes of RVE models, see Pustejovsky and Tipton (2022).
[5] A confidence interval pertains to the pooled average across all evaluations; however, unlike a prediction interval, it does not account for treatment heterogeneity. See Jackson and Mackevicius (2021) for a detailed explanation of calculating prediction intervals.
[6] Notice that a prediction interval is different than a confidence interval. The latter has to do with estimation error (i.e., regarding the estimate of an average), whereas the former has to do with true variation (i.e., in effect sizes across studies).

course in a forest plot (Figure 1). The forest plot reports the 95% confidence interval associated with each estimate, as well as the average effect from the meta-regression and its 95% confidence interval. Specific outcomes are color-coded, but the forest plot does not distinguish outcomes by time (during vs. post period).

As shown in the forest plot, the range of estimates was generally positive. While several estimates were imprecise, largely overlapping confidence intervals suggest little heterogeneity across studies. To get a better understanding of the distribution of effects, we also calculated a simple average of the effect sizes. This yielded approximately 0.09σ compared to a median effect of approximately 0.07σ[7], suggesting that evaluations with large effect sizes were inflating the simple average. A weighted average was therefore used to estimate an average effect size. The weighted average was produced in the CHE meta-regression model by applying fully efficient inverse-variance weighting.

Table 4 presents the results from the meta-regression, including the average effect size and its standard error (in parentheses), τ^2 (an estimate of the study-specific variance from the average effect), and the 95% prediction interval. The intercept-only meta-regression revealed the average effect size of 0.06σ, $p < .01$, 95% PI [0.00, 0.13], which is statistically significant. The average effect size translates into an anticipated average effect of a 1-percentage point increase in course completion rates, a 3-percentage point decrease in DFW rates, and a .06-point increase in students' average course grades

[7] These statistics were calculated using estimates from Table 2, column 6.

(on a 4.0 scale).[8] As suggested by the largely overlapping confidence intervals in the forest plot, the τ^2 estimate is small, indicating very little heterogeneity across studies. The 95% prediction interval for what to expect in future evaluations is between -0.00σ and 0.13σ. This suggests that the effect is always positive and that while the average effect is small (0.06σ), the effect in some studies is quite large (0.13σ).

Discussion and Conclusion

This analysis set out to estimate the average effect of ACUE's ETP course on faculty effectiveness as measured by student academic outcomes. Results of this meta-analysis found a positive average effect of ACUE faculty on student outcomes, including course completion rates, passing rates, success rates, DFW rates, and average course grades. While additional analyses of interest were to be examined if the average effect differed across institutions by faculty implementation, such as the average number of practices that ACUE faculty planned to implement, our initial meta-regression found little heterogeneity in effect sizes across studies. Notably, there was more within-study variation observed than between-study variation. To better understand the variation within studies, we performed two additional tests that assessed variation across outcomes. The first used average grades as a moderator given that this was the only consistent continuous outcome measure across evaluations. Follow-up analysis found no evidence to suggest that effects differ between average course grades and other

[8] We only translate completion rates, DFW rates, and grades given their policy relevance to institutional partners.

- To convert completion rates and DFW rates to interpretable measures, we first determined the probability in the "control" condition (p1). We next took the odds ratio and solved it for the exact probability (i.e., given the Odds ratio = [p2/(1-p2)]/[p1/(1-p1)], we solve for p2). We then calculated the difference in probabilities (p2 - p1).
- To convert grades, we simply averaged the standard deviations across all estimates for grades, and then multiplied the average by the effect size, 0.0627.

outcomes (see Table 5, column 1). Second, we used time as a moderator to see if effects were greater in the during-ACUE periods compared to the post-ACUE periods. We again found no significant differences in effect sizes (see Table 5, column 2).[9] This suggests that effects both across outcomes and between time periods may be equally impactful.

One important limitation to both the main meta-regression and the moderator analyses is that the small sample of evaluations yielded results with low degrees of freedom. Thus, results should be interpreted with some caution, even as the average effect is significant at the 1% alpha level. Lastly, because ACUE is continuously partnering with new institutions, this meta-analysis may be considered preliminary as new estimates emerge from future evaluations.

[9] Due to the limited number of evaluations in the analysis, we include only one moderator per meta-regression.

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Table 1

Colleges and Universities Included in Sample

	College or university	Analysis years	Data level
1	Broward College (2)	2016–17 to 2018–19; 2017–18 to 2019–20	Student
2	City College of San Francisco	2016–17 to 2017–18	Course section
3	Miami Dade College	Fall 2017 to spring 2018	Course section
4	Purdue University Northwest	2017–18 to 2019–20	Course section
5	Texas Woman's University	2016–17 to 2018–19	Student
6	University of Arkansas – Pulaski Technical College (2)	2016–17 to 2018–19; 2017–18 to 2019–20	Student
7	University of Nevada, Reno (2)	2016–17 to 2018–19; 2017–18 to 2018–19	Course section
8	University of Southern Mississippi	Fall 2015 to spring 2020	Student

Note. The numeric value in parentheses that succeeds some college names indicates the number of evaluations conducted with the school.

Table 2

Overview of Included Evaluations

Index (1)	Evaluation (2)	Effect Time (3)	Unstandardized Effect Size (4)	Unadjusted SD in Baseline Year (5)	Effect Size (SMD) (6)	Upper CI (7)	Lower CI (8)	SD of Unstandardized Effect Size (9)	Variance of Effect Size (SMD) (10)	Regression Type (11)	Outcome (12)
1	TWU 2020	During	0.08	1.24	0.06	-	-	0.06	0.002	OLS	Grades (4.0)
1	TWU 2020	Post	0.10	1.24	0.08	-	-	0.06	0.002	OLS	Grades (4.0)
1	TWU 2020	During	1.80	0.19	0.32	3.26	0.99	0.30	0.028	Logit (OR)	Completion
1	TWU 2020	Post	1.17	0.19	0.09	2.32	0.59	0.35	0.037	Logit (OR)	Completion
1	TWU 2020	During	1.20	0.31	0.10	1.74	0.83	0.19	0.011	Logit (OR)	Passing
1	TWU 2020	Post	1.00	0.31	0.00	1.52	0.66	0.21	0.014	Logit (OR)	Passing
2	PNW Cohort B	During	0.01	0.08	0.15	-	-	0.01	0.021	OLS	Completion
2	PNW Cohort B	Post	-0.01	0.08	-0.07	-	-	0.01	0.020	OLS	Completion
2	PNW Cohort B	During	0.01	0.11	0.13	-	-	0.01	0.016	OLS	Passing
2	PNW Cohort B	Post	0.00	0.11	0.03	-	-	0.01	0.016	OLS	Passing
2	PNW Cohort B	During	0.03	0.14	0.23	-	-	0.02	0.015	OLS	Success
2	PNW Cohort B	Post	0.02	0.14	0.11	-	-	0.02	0.014	OLS	Success
2	PNW Cohort B	During	0.12	0.58	0.20	-	-	0.07	0.013	OLS	Grades (4.0)
2	PNW Cohort B	Post	0.16	0.58	0.27	-	-	0.07	0.013	OLS	Grades (4.0)
3	Broward A&B	During	1.00	0.30	0.00	1.10	0.91	0.05	0.001	Logit (OR)	Completion
3	Broward A&B	Post	1.21	0.30	0.11	1.32	1.11	0.04	0.001	Logit (OR)	Completion
3	Broward A&B	During	1.01	0.42	0.01	1.08	0.94	0.04	0.000	Logit (OR)	Passing
3	Broward A&B	Post	1.13	0.42	0.07	1.20	1.06	0.03	0.000	Logit (OR)	Passing
4	Broward C,D&E	During	1.07	-	0.04	1.15	1.00	0.04	0.000	Logit (OR)	Completion
4	Broward C,D&E	Post	1.05	-	0.03	1.13	0.97	0.04	0.000	Logit (OR)	Completion
4	Broward C,D&E	During	1.08	-	0.04	1.14	1.03	0.03	0.000	Logit (OR)	Passing
4	Broward C,D&E	Post	1.10	-	0.05	1.15	1.04	0.03	0.000	Logit (OR)	Passing
4	Broward C,D&E	Post	0.92	-	-0.05	0.97	0.88	0.02	0.000	Logit (OR)	DFW
4	Broward C,D&E	Post	0.05	1.37	0.04	-	-	0.01	0.000	OLS	Grades (4.0)
5	CCSF	During	0.01	0.09	0.08	-	-	0.01	0.017	OLS	Completion
5	CCSF	During	0.03	0.17	0.18	-	-	0.02	0.015	OLS	Passing
5	CCSF	During	0.18	0.57	0.32	-	-	0.07	0.016	OLS	Grades (4.0)
6	UNR C&D	During	1.46	2.72	0.54	-	-	0.85	0.099	OLS	Completion
6	UNR C&D	Post	-0.06	2.72	-0.02	-	-	0.89	0.107	OLS	Completion
6	UNR C&D	During	2.25	4.98	0.45	-	-	1.42	0.081	OLS	Passing
6	UNR C&D	Post	-0.04	4.98	-0.01	-	-	1.62	0.105	OLS	Passing
6	UNR C&D	During	2.41	8.46	0.29	-	-	2.35	0.077	OLS	Success
6	UNR C&D	Post	1.91	8.46	0.23	-	-	2.54	0.090	OLS	Success
6	UNR C&D	During	0.12	0.58	0.20	-	-	0.18	0.099	OLS	Grades (4.0)
6	UNR C&D	Post	0.38	0.58	0.64	-	-	0.18	0.099	OLS	Grades (4.0)
7	UNR G&H	During	-0.87	5.29	-0.16	-	-	1.00	0.035	OLS	Completion
7	UNR G&H	During	-0.35	9.23	-0.04	-	-	1.61	0.031	OLS	Passing
7	UNR G&H	During	0.26	11.84	0.02	-	-	2.05	0.030	OLS	Success
7	UNR G&H	During	-0.26	11.84	-0.02	-	-	2.05	0.030	OLS	DFW
7	UNR G&H	During	0.17	0.55	0.31	-	-	0.10	0.034	OLS	Grades (4.0)
8	MDC 2019	During	0.75	5.72	0.13	-	-	1.15	0.040	OLS	Completion
8	MDC 2019	During	0.82	13.12	0.06	-	-	2.21	0.029	OLS	Passing
8	MDC 2019	During	0.10	10.74	0.01	-	-	1.79	0.028	OLS	Success
8	MDC 2019	During	0.16	0.53	0.30	-	-	0.08	0.025	OLS	Grades (4.0)

Table 2 *(continued)*
Overview of Included Evaluations

Index (1)	Evaluation (2)	Effect Time (3)	Unstandardized Effect Size (4)	Unadjusted SD in Baseline Year (5)	Effect Size (SMD) (6)	Upper CI (7)	Lower CI (8)	SD of Unstandardized Effect Size (9)	Variance of Effect Size (SMD) (10)	Regression Type (11)	Outcome (12)
9	UA-PTC (cohort A)	During	1.03	-	0.02	1.27	0.83	0.11	0.004	Logit (OR)	Completion
9	UA-PTC (cohort A)	Post	1.17	-	0.09	1.41	0.97	0.10	0.003	Logit (OR)	Completion
9	UA-PTC (cohort A)	During	0.97	-	-0.02	1.21	0.79	0.11	0.004	Logit (OR)	Passing
9	UA-PTC (cohort A)	Post	1.25	-	0.12	1.48	1.06	0.09	0.002	Logit (OR)	Passing
9	UA-PTC (cohort A)	During	1.03	-	0.02	1.21	0.88	0.08	0.002	Logit (OR)	DFW
9	UA-PTC (cohort A)	Post	0.85	-	-0.09	0.97	0.75	0.07	0.001	Logit (OR)	DFW
9	UA-PTC (cohort A)	During	0.05	1.26	0.04	-	-	0.05	0.002	OLS	Grades (4.0)
9	UA-PTC (cohort A)	Post	0.06	1.26	0.05	-	-	0.04	0.001	OLS	Grades (4.0)
10	UA-PTC (cohort B)	During	1.17	-	0.09	1.45	0.94	0.11	0.004	Logit (OR)	Completion
10	UA-PTC (cohort B)	Post	1.14	-	0.07	1.42	0.91	0.11	0.004	Logit (OR)	Completion
10	UA-PTC (cohort B)	During	1.15	-	0.08	1.37	0.96	0.09	0.003	Logit (OR)	Passing
10	UA-PTC (cohort B)	Post	1.07	-	0.04	1.29	0.88	0.10	0.003	Logit (OR)	Passing
10	UA-PTC (cohort B)	During	0.76	-	-0.15	0.87	0.66	0.07	0.002	Logit (OR)	DFW
10	UA-PTC (cohort B)	Post	0.76	-	-0.15	0.89	0.66	0.08	0.002	Logit (OR)	DFW
10	UA-PTC (cohort B)	During	0.14	1.36	0.10	-	-	0.05	0.001	OLS	Grades (4.0)
10	UA-PTC (cohort B)	Post	0.18	1.36	0.13	-	-	0.05	0.001	OLS	Grades (4.0)
11	USM	During	0.00	0.27	0.00	-	-	0.01	0.001	OLS	Completion
11	USM	Post	0.01	0.27	0.04	-	-	0.01	0.001	OLS	Completion
11	USM	During	0.04	0.42	0.09	-	-	0.01	0.001	OLS	Passing
11	USM	Post	0.04	0.42	0.09	-	-	0.01	0.001	OLS	Passing
11	USM	During	-0.04	0.47	-0.09	-	-	0.01	0.000	OLS	DFW
11	USM	Post	-0.03	0.47	-0.06	-	-	0.01	0.000	OLS	DFW
11	USM	During	0.12	1.39	0.09	-	-	0.03	0.000	OLS	Grades (4.0)
11	USM	Post	0.00	1.39	0.00	-	-	0.04	0.001	OLS	Grades (4.0)

Table 3

Example of Results From Section Level Matching

ACUE Sections		Match Sections	
Instructor	Section	Instructor	Section
John Doe	BIO 101:03	Jane Smith	BIO 101:02
John Doe	BIO 305:01	Joe Schmo	BIO 305:03
John Doe	BIO 410:01	Jane Smith	BIO 435:01

Table 4

Meta-Regression Results

	Overall Academic Outcomes
Average Effect	0.0627***
	(0.0111)
N (evaluations)	11
N (effect sizes)	68
τ	0.0068
95% PI	[0.00, 0.13]

** p < .1, ** p < .05, *** p < .01*

Table 5

Meta-Regression With Moderators

	Overall Academic Outcomes (1)	Overall Academic Outcomes (2)
Intercept	0.0550***	0.0607***
	(0.0119)	(0.0128)
Grades	0.0202	
	(0.0141)	
Post Period		0.0044
		(0.0104)
N (evaluations)	11	11
N (effect sizes)	68	68
τ	0.0000	0.0088

Note. The intercept in the meta-regression reported in column 1 represents the average effect size for all outcomes excluding grades. The intercept in the meta-regression reported in column 2 represents the average effect size for all outcomes in the during period.

** p < .1, ** p < .05, *** p < .01*

Figure 1

Effect Sizes by Evaluation