

Product Name MyStatLab
 Course Name Introduction to Statistics
 Course Format Face-to-face

Key Results Analysis shows that even after controlling for homework scores, percent of homework completed makes a significant contribution to explaining the variance in the average combined test and final exam scores. Based in this simple regression model, for each percent of homework completed, there is a 0.25 increase in the average test and exam scores.

Submitted by
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Course materials
 MyStatLab and *Elementary Statistics: Picturing the World*, Larson and Farber

Setting
 Camden County College (CCC) is one of the largest, most comprehensive community colleges in New Jersey and the surrounding region and is a vital resource for transfer education, workforce training, and cultural events. Its three campuses share the common mission of providing accessible, affordable higher education and occupational study. Camden ranks among the top 100 community colleges for associate's degrees completed by African- and Asian-American students.

The statistics course provides a basic introduction to statistical concepts and methods and is comprised mostly of nursing students plus many business, criminal justice, and liberal arts majors. Some students are attempting the course for the second time and there are some non-traditional students. The course is taught face-to-face, meeting two to three times per week, depending on the class day.

Challenges and Goals
 Having taught statistics for several years, Joseph Diaco found that his students needed more accountability. Although students were required to complete homework problems and turn them in, due to limited resources their papers were not graded but instead spot-checked for completion. This practice led to students not taking their homework assignments seriously. In order to help students see homework as important, even vital, to their success, and to improve their understanding of course-level learning outcomes, Diaco began to require students to complete homework in MyStatLab. He hypothesized that doing so would increase student success.

Implementation
 Diaco uses MyStatLab primarily for homework and quizzes to be completed outside of class. He allows three attempts at each homework question, and one attempt at each question on timed quizzes. Students are given extra credit for points earned in the MyStatLab Study Plan. In the MyStatLab course Diaco uses, there are 160 target points available in the Study Plan, so he gives one point of extra credit for every 16 points earned. These points are added to the student's lowest test score.

Assessments
 70 percent Tests (paper and pencil)
 20 percent Cumulative departmental final
 10 percent MyStatLab homework

Results and Data
 Based on an analysis of all of Diaco's course sections, 88 students total, students completed an average of 70.6 percent of the homework assignments, with the percent ranging from 0 to 83.3 (Table 1). Diaco drops the four lowest homework scores and two lowest quiz scores; nobody completed 100 percent of the homework. The average homework score was 85 out of 100 points, and the average test score was 76 out of a maximum of 105.2 points.

	Mean	Standard Deviation
Percent of homework completed	71	20.60
Average homework score	85	16.40
Average test score*	76	17.29
Overall course score	67	27.44

Table 1. Student Performance Averages, Fall 2013 (n = 88)
 *Test score was missing for one student.

Variable	Average of the test and final exam scores			
	MODEL 1		MODEL 2	
	B	SE B	B	SE B
Intercept	39.00**	9.15	37.04**	8.94
Average Homework Score	0.43**	0.11	0.25	0.13
Percent of Homework Completed			0.25*	0.10
R^2	.17**		.22	
F	16.82**		11.80**	
ΔR^2			.05	

Table 3. Results of Regression Analysis by First Considering Homework Score as a Predictor and then Percent of Homework Completed as a Predictor, Fall 2013 ($n = 88$)

Note: The average homework score for each student is calculated after dropping the four lowest homework scores, according to the instructor.

* $p < .05$. ** $p < .01$.

Analysts constructed two regression models, first by having average homework score as the only predictor and then adding the percent of homework completed to the regression model to determine the increase in variance accounted for by percent of homework completed after controlling for average homework score (Table 2).

Model 1 in Table 2 shows that when only average homework score was entered into the regression model, the results suggest that the average homework score is a significant contributor to the average of the test and final exam scores, $F(1, 85) = 16.82$, $p < .01$, with the amount of variance explained by the average homework score given by $R^2 = .17$.

Next, the percent of homework completed was added using a stepwise regression model after controlling for average homework score (Model 2 in Table 2). Average homework score is now found to make a non-significant contribution to the average of the test and final exam scores while percent of homework completed is a significant predictor, $p < .05$. Thus, even after controlling for homework scores, percent of homework completed still makes a significant contribution to explaining the variance in the average of the test and final exam scores. Specifically, based in this simple regression model, for each percent of homework completed, there is a 0.25 increase in the average test and exam scores.

The Student Experience

Diacio distributed a survey to his fall 2013 students; 83 of 88 students completed the survey. Responders reported positive experiences with and thoughts about MyStatLab. Table 3 shows the features that students found most helpful.

When asked if they would prefer that instructors use either MyMathLab or MyStatLab in future classes, 71 students, or 85.5 percent of those surveyed, answered "Yes."

Feature	Percentage of Students
Help Me Solve This	96.4
Ease of Use	94.0
View an Example	92.8
eText	74.7

Table 3. Percentage of Students Who Found Certain Features Helpful in MyStatLab, Fall 2013 ($n = 83$)

Conclusion

Based on the results of this analysis, Diacio has added "concept question" homework assignments for each section. These questions were not available during the implementation phase of this study. Students are also now assigned StatTalk video questions with the associated media set as a prerequisite.

Diacio is pleased with the results he has seen since requiring MyStatLab in his course and plans to continue using it for the foreseeable future.

Implementation and results case studies share actual implementation practices and evaluate possible relationships between program implementation and student performance. The findings are not meant to imply causality or generalizability within or beyond these instances. Rather, they can begin to provide informed considerations for implementation and adaptation decisions in other user contexts. For this case study, mixed-methods designs were applied, and the data collected included qualitative data from interviews, quantitative program usage analytics, and performance data. Open-ended interviews were used to guide data collection.