

A comparison of selected courses in MAT 096 by teaching module (software) in the classroom, Spring 2014, Session I

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Abstract.

The department requested a comparison of MAT096 Spring I 2014 courses that used two different software platforms. The goal of the analysis was to evaluate if a new platform performs at the same rate or better than the current platform. A review of the matched comparison group determined that both packages result in similar course outcomes to similar students. Similar findings remain in place when comparing the group with all sections of the course for the same semester. Further implications are discussed.

Introduction.

In Spring 2014, MEC began testing a new software platform for students in MAT 096. The new platform (ALEKS) provides few teaching and testing features that the faculty hypothesized will be useful for student learning and progress. In addition, the faculty reported that it provides better student and faculty interaction experience as well as course data maintenance. The hypothesis above cannot be tested or verified by the office of institutional research and assessment (IR&A).

Current analysis.

The request from IR&A was to create a matched group for the same semester (Spring 2014, session I), and compare student outcomes in the same course. Student performances were evaluated for course passing rates in both groups.

Sample.

MEC reported the sections that were taught by full time faculty, using ALEKS. The eight sections provided were matched against nine similar sections of full time faculty using the current software. Sections were matched to similar sections of the course, taught by full time faculty, and meeting at similar times during the day and the week. In this stage, a total of 469 student level records were used. Out of those 469 student level records, 200 were taken from classes using ALEKS.

In the second stage of the analysis, all sections were used (taught by full time and by part time faculty) Overall, 64 sections were used for the analysis. Eight of the sections

used ALEKS, and the remaining sections have used the current software. Out of 1,805 students who began the course in both study groups, a total of 1,637 enrolled and completed the course during the follow up period.

Findings (Full Time Faculty Comparison only).

Table 1 reports the pass rate for students in ALEKS sections and in the current software, for all students who completed the course.

Section	Pass	% Pass	Not Pass	% Not Pass	Total
EDUCO	100	44.2%	126	55.8%	226
ALEKS	88	44.0%	112	56.0%	200
Total	188	44.1%	238	55.9%	446

sig.>0.05 (n/s gap)

Table 1. Course pass rate in MAT 096 for sections using ALEKS and sections using EDUCO, Full time faculty only.

Table 1 shows that the course passing rate was similar for sections using both software platforms. Any differences in the pass rates between the groups were insignificant ($p>0.05$). As such, the analysis did not reveal any significant differences in the course pass-rates between sections taught by similar faculty (full time, at similar times of the day) for similar students.

The course non-completion rates (students who withdraw officially from the course or never attended the course and received "W", "WA", or "WN" grades) had insignificant differences between the two groups. It was 7.8 percent for the EDUCO versus 10.7 percent for students in the ALEKS sections.

Since no significant differences were found using the matched group, a secondary analysis was conducted to match ALEKS to all existing sections (taught by full time and by part time faculty). It was assumed that such review will allow for an estimation of the software effect in the regular course setting of the college.

Findings (All sections, full time and part time faculty included).

Table 2 reports the pass rate for students in ALEKS sections and in the current software, for all students who completed the course.

Section	Pass	% Pass	Not Pass	% Not Pass	Total
EDUCO	601	41.8%	836	58.2%	1,437
ALEKS	88	44.0%	112	56.0%	200
Total	689	42.1%	948	57.9%	1,637

sig.>0.05 (n/s gap)

Table 2. Course pass rate in MAT 096 for sections using ALEKS and sections using EDUCO.

Table 2 shows that the course passing rate was similar for sections using both software platforms. Any differences in the pass rates between the groups were insignificant. As such, the analysis did not reveal any significant differences in the course pass-rates between sections taught by similar faculty (full time, at similar times of the day) for similar students.

The course non-completion rates (students who withdraw officially from the course or never attended the course and received "W", "WA", or "WN" grades) remains close, but differ between the groups: 14.5 of the students who registered to EDUCO sections received a "W" grade versus 10.7 percent of the students in the ALEKS section. It is possible that this gap is attributed also to the closer attention given by faculty to the settings of a new course, and is likely to take place in experimental settings. Therefore, one should use caution in determining that the new platform results in lower withdraw rate.

Implications.

The decision to employ a particular software or software setting is within the responsibility of the department. The analysis suggest that the new software environment results in similar course performances to the one of the existing software. As such, a decision to switch into a new software environment should not result in negative student outcomes. It is possible that the software carry additional advantages for both faculty and students in terms of course management and modular learning; those will need to be further explored in the course or department level.

Appendix:

At the request of the department and contact point, a list of sections in each group is provided.

SECTION	Software
1544	ALEKS
1303	ALEKS
1307	ALEKS
1531	ALEKS
1537	ALEKS
1554	ALEKS
1658	ALEKS
6148	ALEKS
1552	EDUCO
1547	EDUCO
6151	EDUCO
1302	EDUCO
1536	EDUCO
1529	EDUCO
1665	EDUCO
1304	EDUCO
1542	EDUCO