MyLab Accounting in MyLabsPlus educator study explores centralized enrollment and MyLab homework and exam scores at Colorado Community Colleges Online

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<td>• Data show a very strong positive correlation between MyLab assignment grades and exam grades. &lt;br&gt; • Students earning an average exam grade of A, B, or C had MyLab homework scores 20 percentage points higher than students who earned a D or F as their average exam grade. &lt;br&gt; • MyLabsPlus, integrated with the CCCOnline learning management system, enabled the instructors and administrators to centrally manage and enroll hundreds of students easily and quickly across multiple MyLab sections.</td>
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**Setting**
Colorado Community Colleges Online (CCCOnline) is not a college in and of itself. Rather, it is an extension of and a service to each of the home colleges it serves. CCCOnline offers students another learning option to complement their on-campus experience. By offering courses through CCCOnline, the home colleges are able to offer their students courses and programs that each may not be able to offer individually.

CCCOnline began as a consortium of the Colorado community colleges, offering students a virtual education option and greater access to college and its opportunities. CCCOnline matriculates students from each of the colleges into its courses, increasing the likelihood that courses will not
cancel due to low enrollment, as well as establishing class enrollment at an optimum level for learning.

Students who live in rural areas, or who need to balance busy work and personal lives, benefit from CCCOnline's broad selection of general education and gateway courses that will apply to their degree or certification programs at their home colleges. Students' courses are transcripted by their home college allowing the students seamless application of grades, financial aid, and advising.

Colorado Community College System statistics:

- Partner colleges: 13 Colorado community colleges
- Undergraduates served: more than 144,000 through the 13 partner colleges
- Full-time equivalent enrollment: more than 53,000
- Age: 56 percent under 25 years
- Gender: 55 percent female
- Ethnicity/race: 35 percent minority

About the Course

Instructor Lisa Wulf has been teaching full-time for approximately 10 years, including the last five years at CCCOnline, teaching the Fundamentals of Accounting course there for the past five years. Fundamentals of Accounting is a one-semester, three-credit course enrolling approximately 175 accounting, business, and bookkeeping students per year. The course presents the basic elements and concepts of accounting, with an emphasis on the procedures used for maintaining journals, ledgers, and other related records, and for the completion of end-of-period reports. Major topics include the accounting cycle for service and merchandising companies, accounting for cash, sales and purchases, and payroll.

Student outcomes include:

- defining and identifying assets, liabilities, owner's equity, revenue, expenses, debit, credit, and the accrual basis of accounting;
- analyzing business transactions in relationship to the accounting equation;
- recording transactions for service businesses in an accounting system; and
- applying ethical standards to accounting situations to determine appropriate responses.

Challenges and Goals

CCCOnline first offered the Fundamentals of Accounting course about five years ago, utilizing a different online platform for course management. After experiencing trouble with the platform, they adopted MyLab™ in MyLabsPlus™ approximately three years ago; one of their partner campuses had been using MyLab successfully with positive results. In addition, CCCOnline was looking for a program that would not require their students to manage multiple passwords, and the MyPlus option for MyLab provided the single sign-on opportunity they desired. An added benefit of MyLabsPlus was student cost savings.
Implementation

MyLabsPlus is an enterprise solution that offers a simple way to deliver the Pearson MyLab programs across an entire institution. It can be connected to a school’s information system and learning management system (LMS), enabling instructors and administrators to centrally manage, enroll, and report on student progress across same course sections as well as multiple courses. Single sign-on from a customized course portal or the campus-hosted LMS enables easy, convenient access to MyLab learning resources on a campus-wide scale. CCCOnline adopted MyLabsPlus to help their students manage the course content and to allow students to begin working on course assignments from the first day of class. Student survey data indicates that MyLabsPlus is helping CCCOnline accomplish their goal. On a Spring 2016 voluntary, end-of-semester survey (58 percent response rate):

- 92 percent of students strongly agreed or agreed that the log-in and registration process for MyLabsPlus was simple and fast.
- 96 percent of students strongly agreed or agreed that they were able to start working on assignments in MyLabsPlus on the first day of the semester.

MyLab Accounting is required; the program is used by students working at home on a personal computer. Students use MyLab for understanding content, applying principles to the real-world, and homework assignments. Wulf’s goals for assigning work in MyLab are to teach new concepts, provide homework and practice opportunities, help students assess their own understanding of the course material and track their progress, and identify at-risk students. As the course instructor, Wulf’s role is to assign content, homework, and assessments in MyLabsPlus and provide support and remote monitoring to students using MyLab. While students are working remotely, the course is not self-paced, as defined due dates must be adhered to.

Wulf anticipates that students will spend at least 2.5 hours per week working in MyLabsPlus, not including time spent reading the e-Text. Wulf’s students confirmed this on the end-of-semester survey: 23 percent of students said they spent 2–3 hours per week working in MyLabsPlus, 38 percent of students said they spent 3–4 hours in MyLabsPlus, and an additional 38 percent of students said they spent four or more hours working in the program.

Wulf creates a coordinator course in MyLabsPlus that is shared with each individual instructor, and she is also responsible for MyLabsPlus training and support for new instructors. She provides a student how-to guide and MyLab documentation in MyLabsPlus to help students quickly familiarize themselves with the program. MyLabsPlus is used to communicate all course news items as well. Course content is delivered through lecture notes called Explorations created by Wulf; students review the lecture notes, read the e-Text, and have the option to also view the MyLab multimedia lecture content. The first week of class, students are required to complete the MyLab orientation exercise for a score, which is designed to have students interact with the program before starting homework assignments; 78 percent of students completed this orientation exercise. Students also create an introductory discussion post the first week of class.

Two required multi-part graded problems per chapter are assigned in MyLabsPlus each week, with mandatory due dates. Wulf uses the time suggestion in MyLab when choosing the problems that create each homework assignment. Students are given two attempts at completion, and learning
aids are turned on. On the end of semester survey, 80 percent of students said they ‘always’ or ‘usually’ used the second attempt if they were unhappy with their initial score on the homework problems, and 70 percent of students always or usually employed the learning aids if they were unable to start or complete a homework problem.

Dynamic Study Modules (DSM) are optional. These questions continuously assess student performance and activity, using data and analytics to provide personalized feedback in real-time to reinforce concepts that target the individual student’s strengths and weaknesses. Students complete a set of questions with a unique answer format that also requires them to indicate their confidence level, and the questions repeat until the student can answer them all correctly and confidently. Although Wulf makes the DSM optional, 92 percent of students responding to the end-of-semester survey said they used the DSM when practicing or studying for exams.

- 87 percent of students agreed or strongly agreed that the Dynamic Study Modules pattern of test-learn-retest helped them retain information about important course concepts.
- 88 percent of students agreed or strongly agreed that when completing the Dynamic Study Modules, the use of confidence levels when answering questions (‘I am sure’, ‘I am partially sure’, ‘I don’t know yet’) helped them identify chapter content they needed to focus on.

For additional information on how to assign Dynamic Study Modules, visit Dynamic Study Module Implementation.

Discussion posts are a required course component that take the place of class discussions and are an opportunity for students to explore accounting concepts, sharing ideas and conclusions with others. Wulf provides specific instructions and a rubric for each post; these discussions provide an opportunity for student interactivity and the application of course content.

Five module exams are administered in MyLabsPlus, each consisting of 50 multiple-choice, pooled questions chosen from the Pearson test bank. Students have just one attempt and 90 minutes to complete each exam once it has been opened. Exams are available several days before the due date and can be completed any time during the open period, but must be completed on schedule. Students can earn extra credit (up to 10 points) by submitting exam corrections; for incorrect questions, they must explain why the right answer is correct by using the textbook as a reference. Most students take advantage of this opportunity to learn from their mistakes!

Assessments
- 50% Exams (five)
- 24% MyLabsPlus homework assignments
- 20% Discussion posts
- 5% MyLabsPlus mini-practice set
- 1% Introductory assignment and discussion post

Results and Data
Figure 1 is a correlation graph; correlations do not imply causation but instead measure the strength of a relationship between two variables, where \( r \) is the correlation coefficient. The closer the \( r \) value is to 1.0, the stronger the correlation. The corresponding \( p \)-value measures the statistical
significance/strength of this evidence (the correlation), where a \( p \)-value <.05 shows the existence of a positive correlation between these two variables.

- A very strong positive correlation exists between average MyLab homework grades and average exam grades, where \( r = .78 \) and \( p < .05 \).

For students, the formative MyLab homework assignments are intended to help them identify where they are in terms of successfully completing the summative exams; it appears that performance on these assignments could be a leading indicator of course success (additional research is needed to develop and test this concept further). As a best practice, MyLab homework grades are intended to help Wulf identify students early on who are struggling and might be at risk of poor overall course performance.

**Correlation between MyLab homework grade and exam grade**

![Graph showing the correlation between MyLab homework grade and exam grade, with a Pearson's correlation coefficient of \( r = .78 \).](image)

Figure 1. Correlation between Average MyLab Homework Grade and Average Exam Grade, Spring 2016 (\( n = 35 \))

Grade distribution data in terms of course success (students earning an A, B, or C) show that students who earned higher MyLab homework scores also earned higher average exam scores (Figure 2).

- Students who earned A, B, or C average exam grades had average MyLab homework grades 20 percentage points higher than students who earned D or F exam averages.
- Students earning an average exam grade of A earned an average MyLab homework score of 100 percent.
Students were placed into two groups based on the average number of MyLab homework assignments they completed. Students who completed more than the average number of skipped assignments earned higher average exam and final course grades than students who skipped more than the average number of assignments (figure 3).

- Average number of MyLab homework assignments skipped: <1
- Students who completed all MyLab homework assignments had average exam grades 19 percentage points higher than students who skipped one or more assignments.
- Students who completed all MyLab homework assignments had final course grades 25 percentage points higher than students who skipped one or more homework assignments.
- 51 percent of students completed all MyLab homework assignments.
Relationship between MyLab homework completion and exam and final course grades

Figure 3. Relationship between MyLab Homework Completion and Average Exam Grade and Final Course Grade, Spring 2016 (n=35)

Figure 4 compares average MyLab scores based on completion of the first-week orientation exercise. Students who completed the assignment earned homework scores 14 percentage points higher than students who did not complete the orientation exercise.

Average homework score based on completion of MyLab orientation exercise

Figure 4. Average MyLab Homework Score Based on Completion of MyLab Orientation Exercise, Spring 2016 (n=35)
The Student Experience

Responses from the Spring 2016 end-of-semester, voluntary survey of Wulf’s students (58 percent response rate) indicate that the majority of responding students recognize the value of MyAccountingLab in MyLabsPlus.

- 96 percent of students agree or strongly agree that their understanding of the course material increased as a result of using MyAccountingLab in MyLabsPlus.
- 85 percent of students agree or strongly agree that the use of MyAccountingLab in MyLabsPlus positively impacted their exam scores.
- 100 percent of students agree or strongly agree that they would recommend MyAccountingLab in MyLabsPlus to another student taking this course.

Student survey responses to the question, “What did you like most about the Dynamic Study Modules?” include:

- “If you got a question wrong, it didn't just give you the right answer but explained why it is the right answer.”
- “I liked how the questions kept going over the material I had a hard time understanding.”
- “The content was relatable to the exams.”
- “They helped me learn the material more effectively.”

Student survey responses to the question, “What did you like most about MyAccountingLab in MyLabsPlus?” include:

- “The chance to do homework a second time. It helped me if I made a mistake, I had a second chance to correct it.”
- “I liked the supporting material and the very logical step by step process, plus the coaching tips.”
- “It was very easy to navigate through the site. I liked the practice exams and practice homework assignments, they really help you get focused on what is on the tests.”
- “It gave you practice actually doing what the course is meant to teach us how to do!”
- “I liked everything about MyLabsPlus, it has helped me a lot!”

Conclusion

Data for Wulf’s course suggests that higher MyLab scores and higher exam and final course grades are related. According to student survey responses and comments, the repetitive approach of the Dynamic Study Modules in particular helped them learn the material they did not understand until they grasped the concepts fully. Additionally, the use of MyLabsPlus helped Wulf achieve her goals of providing students with a single password and sign-on, while saving them money—something she was unable to fully accomplish without the program. Students confirmed this in the end-of-semester survey, as a significant majority agreed that they appreciated having just one sign-on for MyLabsPlus and were able to quickly log in and get started on course assignments.