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MyLab Accounting educator study evaluates retention rates and Dynamic Study Module scores at Walla Walla Community College

School Name Walla Walla Community College, Walla Walla, WA **Course name** Principles of Accounting I **Course formats** Face to face, hybrid, online **Course materials** MyLab Accounting with *Horngren's Accounting* by Miller-Nobles, Mattison, and Matsumura	**Timeframe** Fall 2015–Fall 2016 **Submitted by** Joe Cooke, Professor **Results reported by** Candace Cooney, Pearson Customer Outcomes Analytics Manager

Key Findings

- The correlation between Dynamic Study Module scores and average MyLab homework scores is very strong.
- The student completion rate for both the hybrid and online sections of this course increased substantially after the implementation of the Dynamic Study Modules.
- 100 percent of responding students on an end-of-semester survey strongly agreed or agreed that the test-review-retest pattern of the Dynamic Study Modules helped them learn and remember chapter content.
- Student scores on identified learning outcomes met or exceed the instructor-identified course expectations.

Setting

- Locale: two-year, small city, public institution in southeast Washington
- Enrollment: over 12,000 students
- Full-time retention rate: 67 percent
- Three-year graduation rate: 37 percent (based on 2010 cohort)
- First time, full-time undergraduates: 57 percent

- Student faculty ratio: 18:1
- Gender: 57 percent male
- Age: 51 percent of students age 25 and over
- Diversity: 30 percent total minority
- Financial aid: 81 percent of first time, full-time students receive aid

About the Course

Joe Cooke has been teaching for approximately 30 years as an adjunct, including the last six years at Walla Walla where he has been teaching Principles of Accounting I. The majority of his experience has been working and practicing in the field of accounting, while also teaching and supervising accountants. This five-credit course is the first semester of a three-semester sequence, and enrolls approximately 120 students each year. Most students taking the course are seeking business management and bookkeeping degrees, along with accounting direct transfer students. Accounting I students study the definitions of and relationships between assets, liabilities, capital, revenues and expenses in order to:

- prepare and interpret journal entries that accurately reflect the economic effects of financial transactions;
- post journal entries to a ledger and trace the postings back to the journals;
- prepare general purpose financial statements;
- understand and describe revenue and expense recognition in relation to an accounting period; and
- demonstrate a systems perspective in analyzing business events and transactions.

Challenges and Goals

In Summer 2015, Cooke was tasked with creating an online course for Principles of Accounting I. Summer session offered a low stakes environment to test out a new online course, leaving time to make adjustments prior to rolling out the program to larger sections of students in the Fall. Recognizing that Canvas, the school Learning Management System, did not have sufficient tools to create the desired assignments and assessments, Cooke sought publisher content that was currently crafted and available. His teaching philosophy mirrors corporate practicality – students are responsible for mastery in their own work and collaboration is encouraged, just as it is in the corporate world. He hoped to find an interactive, dynamic, responsive and targeted program with assignments and assessments that students could work on repeatedly, and at their own pace, that would lead to greater understanding of the course material and an improvement in course completion rates. He spoke with both colleagues and students about their experiences with publisher digital programs before choosing MyLab™ Accounting for his Summer 2015 course, which was rolled out to all sections in Fall 2015.

Additionally, Cooke believed that the Dynamic Study Modules, with their pattern of test-remediate-retest, would be an optimal fit for his teaching and learning style—practice leads to understanding and understanding results in success. The low stakes practice with unlimited, hands-on learning of the material could be tied to course learning outcomes, an area that Cooke is beginning to heavily invest his time into measuring. His course design is outcomes based, where outcomes are measurable and all assignments are aligned to one or more outcomes. He anticipates that use of the Dynamic Study Modules will help produce course outcome measurements that meet or exceed his targeted goals.

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Implementation

Lecture
Lecture is practical, and driven by student questions as well as deficiencies identified by the MyLab gradebook. Cooke focuses his time with students on learning outcomes where he sees that his students are struggling. Students learn and practice collaboratively with group projects, experiential activities and real-world applications at the core. Students follow a real company, reviewing the corporate financial statements that align with the learning outcomes being covered in class, helping students see the application of their homework assignments in a real-world setting.

MyLab Accounting homework
MyLab Accounting is required; the program is used primarily by students working at home on a personal computer. Students use the MyLab for understanding chapter content and completing homework assignments. Cooke's goal in assigning work in the MyLab is to introduce new concepts, provide homework and practice opportunities, help students assess their own understanding of the course material and track their progress. As the course instructor, his role is to assign content and homework in MyLab Accounting and provide support and remote monitoring to students using the program at home.

Cooke anticipates that students will spend at least five hours per week working in the MyLab, equating to one hour of homework for each hour in class. His students confirmed this on a voluntary, end-of-semester Fall 2016 survey (65 percent response rate)—62 percent of students said they spent more than five hours per week working in MyLab Accounting, with an additional 19 percent spending at least 3-4 hours working in the program.
Cooke's course syllabus is organized by learning outcomes. He creates MyLab homework assignments by reviewing the end-of-chapter problems in the textbook and choosing those most closely aligned with specific learning outcomes. Students practice each learning outcome in three ways:

- MyLab Try It, a static launching pad to discuss and begin to understand the topic;
- MyLab homework problem, a multi-part exercise requiring students to work through an assignment; and
- In-class explanation of a similar worked out example.

Cooke believes the repetition of multiple views and attempts at understanding each learning outcome is important for students to achieve success. MyLab homework assignments are low stakes as students have unlimited attempts at completing the problems, but this is where Cooke sees the hands-on learning taking place. He expects them to earn 100 percent on homework assignments because they have all the necessary tools available to them. On the end-of-semester student survey, 81 percent of students said they took advantage of the unlimited attempts on the MyLab homework because they found that redoing the question repeatedly helped them understand the concept more clearly. All learning aids are turned on for homework assignments, and 92 percent of students on the survey reported that when unable to start or complete a homework problem, they 'always' or 'usually' utilize the learning aids.

Assignments have flexible due dates; all homework is due at the end of the semester, but Cooke does urge his students to stay current with their work. He runs his classroom like the business environment his students will one day be working in, where projects have a due date, but the work

completion schedule is up to the individual. On the end-of-semester survey, 62 percent of students said they preferred the flexible due date for homework assignments, as it allowed them to work at their own pace. Only four percent of students agreed that having more frequent due dates would have encouraged them to keep current with assignments, further evidence that this approach is working for Cooke. As one student commented: "I love the flexible due dates because if I ever fall behind, it's very easy for me to catch up. And if I have extra time to get ahead, I like having that ability as well." However, Cooke does employ Pearson best-practice intervention techniques using the MyLab gradebook to identify at-risk students and the 'Email by Criteria' function to connect with students to drive home his message that there are consequences to falling behind.

MyLab Accounting Dynamic Study Modules

Cooke also assigns the Dynamic Study Modules (DSM), which are questions that continuously assess student performance and activity, using data and analytics to provide personalized content in real-time to reinforce concepts that target the individual student's strengths and weaknesses. In his course, the DSM take the place of tests and give his students additional practice in the areas where they struggle the most. As one student stated on the end-of-semester survey, "The DSM helped me understand the material by showing me what areas I struggled in and allowed me to relearn the information until I got it right." The DSM are mastery-based and also follow Cooke's teaching philosophy that 'if you do something wrong, keep practicing it until you get it correct'. On the student survey:

- 100 percent of students strongly agreed or agreed that the test-review-retest pattern of the Dynamic Study Modules helped them to learn and remember chapter content.
- 88 percent of students strongly agreed or agreed that the use of confidence levels when answering questions in the DSM ('I am sure', 'I am partially sure', 'I don't know yet') helped them identify the chapter content they specifically needed to focus on.

Student comments about the DSM from the survey validate Cooke's philosophy that they should have agency over their own learning:

- "The DSM allowed me to focus on learning the material rather than trying to know it all before doing an assignment."
- "I really liked the fact that once I got a question wrong on the DSM, it would later give the same question, and once I got it right, it would ask the question one more time. They helped me understand what I was doing."
- "Repetition and reinforcement – it [DSM] showed me which parts to go back and study."

Exams/projects

In Fall 2016, a final exam was administered. However, Cooke is not a proponent of high-stakes testing and has been experimenting the past few semesters with different options to assess overall competency and learning outcome achievement. A final exam is appropriate for assessing mastery of learning outcomes, but his preference is a semester-long comprehensive project that is worked on all term, with the final component being a complete set of working papers and financial statements. In order to reduce test anxiety and to increase student learning, retention and outcomes, Cooke has adopted a Process Portfolio method of teaching and assessment, which focuses more on the journey of learning rather than the final destination or end product of the learning process. The final comprehensive project fits better in this system and Cooke intends to return to using this method of assessment as the final exam the next term he teaches.

Assessments

- 59% MyLab homework assignments
- 14% MyLab Dynamic Study Modules
- 14% Canvas assignments
- 8% Final exam
- 5% Additional assignments

Results and Data

Figure 1 examines completion rates for all sections and formats of Accounting 201 in Fall 2015 and Fall 2016, one year after the complete integration of MyLab Accounting into the curriculum. Students in the face to face section historically performed well and the completion rate remained static, but for students in the hybrid and online sections, completion rates accelerated after addition of the Dynamic Study Modules to the course assignments.

Completion rates for face to face, hybrid, and online sections

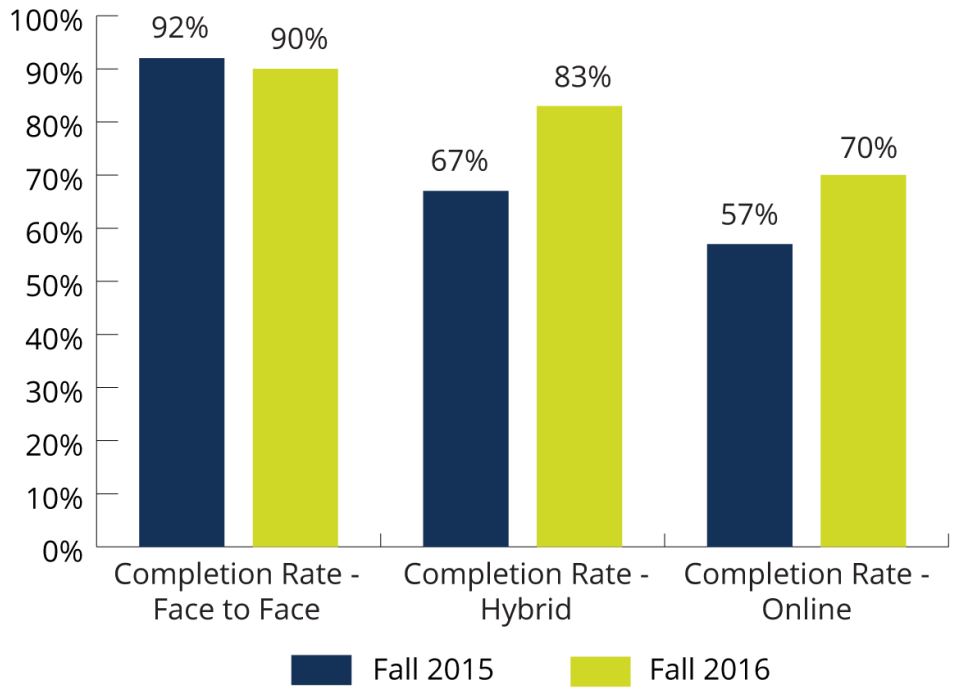

Figure 1. Completion Rates for Face to Face, Hybrid, and Online Sections, Fall 2015 (*n*=44) and Fall 2016 (*n*=43)

Similarly, final exam and final course grades were analyzed for both Fall 2015 and Fall 2016. While the final exam average decreased four percentage points, possibly associated with a change in final exam format from a comprehensive project to a more traditional, higher-stakes test, final course grades improved six percentage points in Fall 2016 (figure 2).

Average final exam score and final course score after integration of Dynamic Study Modules

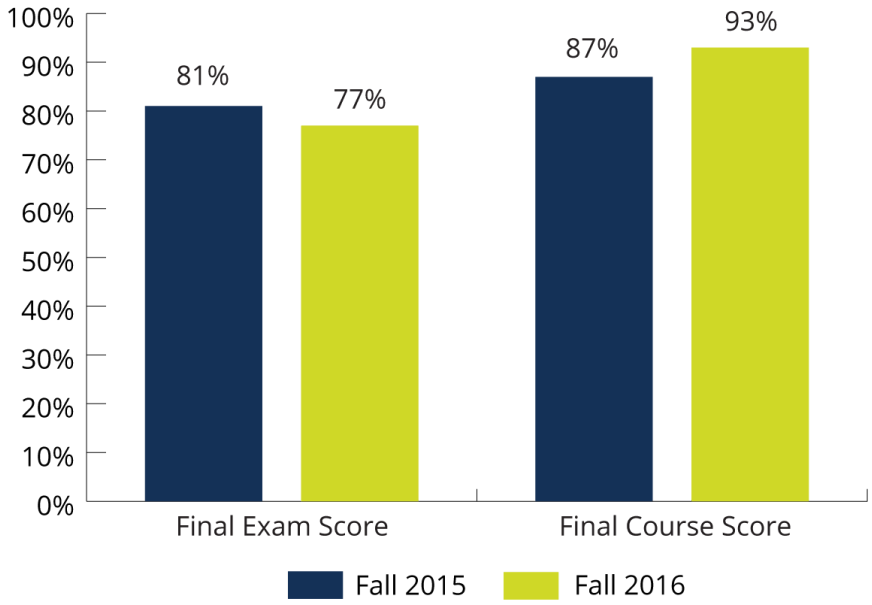

Figure 2. Average Final Exam Score and Final Course Score After Integration of Dynamic Study Modules, Fall 2015 (*n*=44) and Fall 2016 (*n*=43)

Figures 3 and 4 are correlation graphs; 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 positive *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 Dynamic Study Module scores and average MyLab Accounting homework scores where r=.95 and p<.05.
- A strong positive correlation exists between average Dynamic Study Module scores and final exam scores where r=.58 and p<.05.

For students, the formative MyLab Accounting homework is intended to help them identify where they are in terms of successfully completing the summative course assessments. Cooke asserts that the MyLab assignments have been the difference in helping his students take agency for their own learning and be successful in the course.

Correlation between average Dynamic Study Module score and average MyLab homework score

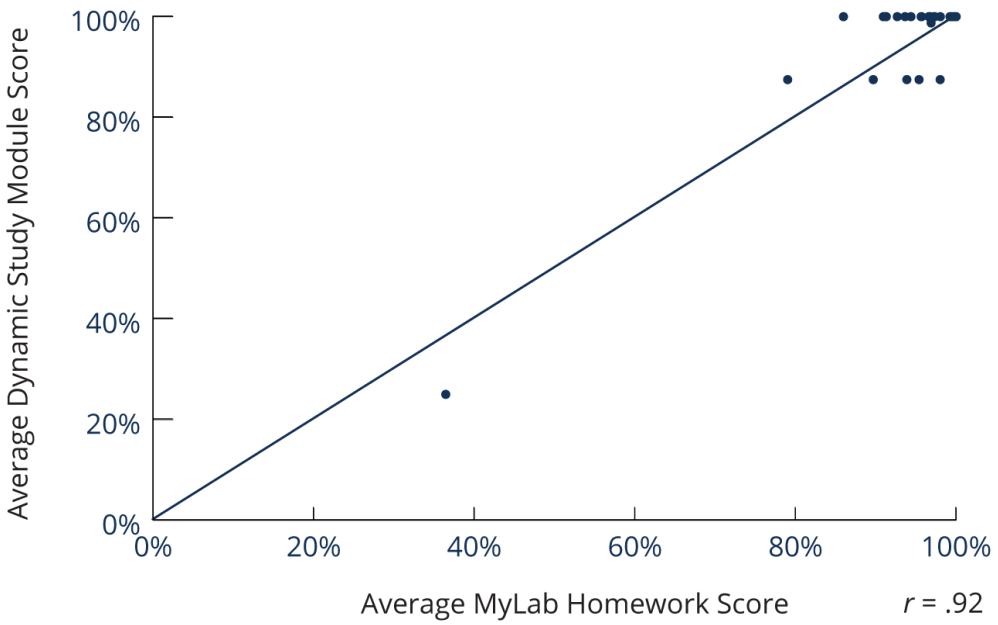

Figure 3. Correlation Between Average Dynamic Study Module Score and Average MyLab Homework Score, Fall 2016 (*n*=43)

Correlation between average Dynamic Study Module score and final exam score

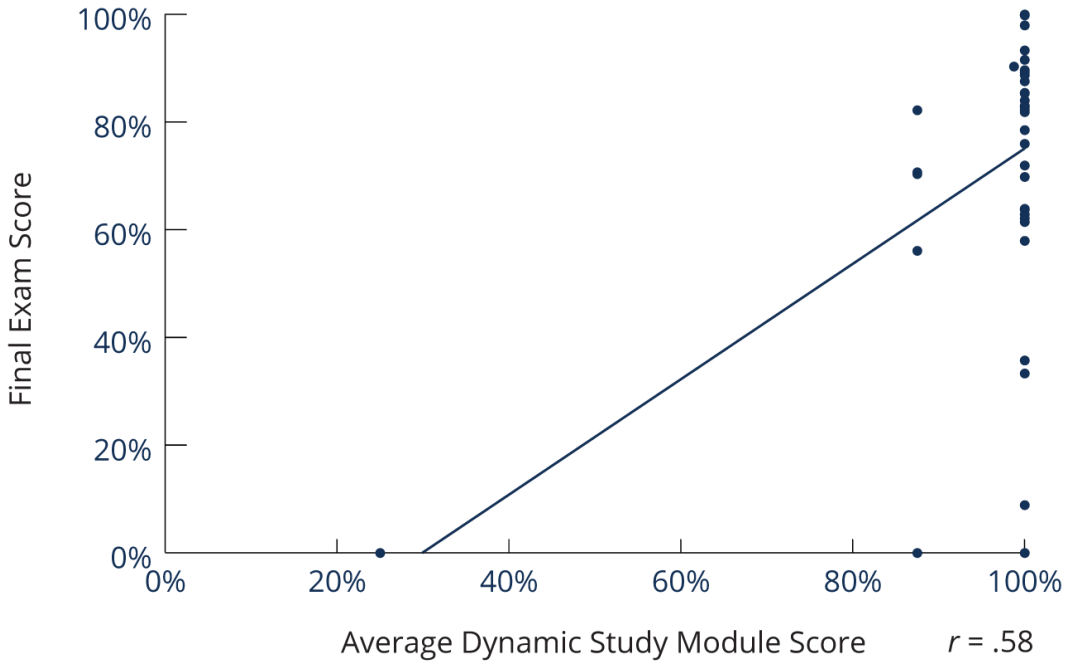

Figure 4. Correlation Between Average Dynamic Study Module Score and Final Exam Score, Fall 2016 (*n*=43)

As part of the outcome-mapping process at Walla Walla, the college is attempting to implement systems to gather evidence about the course identified learning outcomes, which come from a master course outline created by a faculty process that includes stakeholder input. This is not a graded assignment, it is an assessment of the course design, tools used and Cooke's pedagogy. This is his assessment of how he is doing against the outcomes promised to his students. Exhibit 1 outlines the rubric as currently crafted for the six core course outcomes in Accounting 201; the rubric is being modified for future terms to include more detail, including a rating scale that allows for more precise grading:

- 0 points: No data/Not attempted
- 1 points: Not mastered
- 2 points: Not yet mastered
- 3 points: Approaching mastery
- 4 points: Outcome mastered
- 5 points: Exceeds mastery

Cooke has also created summaries that show how he is aligning his assignments and other course work to the learning outcomes, along with how he tracks them. He collects the results of all assignments into one portfolio that demonstrates the level of outcome mastery, assigns an assessment of mastery to each student using the outcome rubric and a grade for the students based on work turned in as part of their portfolio. Cooke checks student progress against his workload assessment at least weekly, and can tell where each student should be and where they actually are in the curriculum. Students in a designated 'danger zone' receive immediate intervention from Cooke, as he sends advice, encouragement and other feedback as needed. Generally, students move off the danger list rather than on to it as the semester progresses.

Empirically, Cooke saw very strong improvements in student outcomes from terms prior to using the MyLab and Dynamic Study Modules, but since they are just beginning to track them, it's too early to make substantiated claims. Exhibit 2 provides a snapshot of one outcome and the positive student results associated with that outcome for students in Accounting 201 in Fall 2016.

Course outcomes rubric

Course Outcomes

You've already rated students with this rubric. Any major changes could affect their assessment results.

Criteria	Ratings			Pts
Accounting Cycle view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
Cash, Inventory, A/R view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
Financial Statements view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
Journalizing and Posting view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
Revenue Recognition and the Matching Principle view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
Vocabulary view longer description threshold: 3.0 pts	Exceeds Expectations 5.0 pts	Meets Expectations 3.0 pts	Does Not Meet Expectations 0.0 pts	--
				Total Points: 0.0

Exhibit 1. Course Outcomes Rubric, Accounting 201, Fall 2016

Individual learning outcome and associated scores using rubric scoring

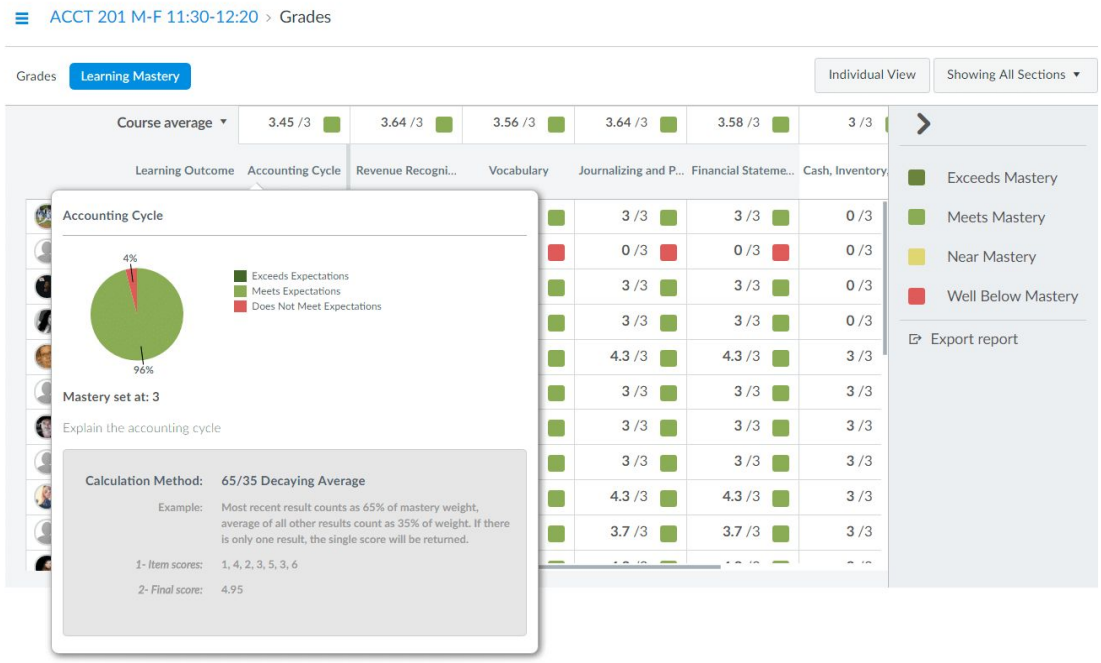

Exhibit 2. Individual Learning Outcome and Associated Scores Using Rubric Scoring, Accounting 201, Fall 2016

The Student Experience

Responses from the Fall 2016 end-of-semester, voluntary survey of Cooke's students indicate that the majority of responding students believe in the value MyLab Accounting offers:

- 100 percent of students strongly agree or agree that their understanding of the course material increased as a result of using MyLab Accounting.
- 100 percent of students strongly agree or agree that MyLab Accounting provided additional resources that helped them learn more than they would have from traditional paper-and-pencil homework.
- 100 percent of students strongly agree (77 percent) or agree (23 percent) that they would recommend MyLab Accounting to another student.
- 100 percent of students strongly agree or agree that use of MyLab Accounting positively impacted their test scores.

Students offered the following comments about using MyLab Accounting:

- *"I appreciated the various help sources that were available. I also appreciated the ability to repeat an assignment again to gain a better understanding of the material."*
- *"I liked the fact that I could get ahead of my teacher. Then when he would demonstrate the homework in class that we were doing, it would make total sense since I had already done it."*
- *"I liked how the homework would show you what you did wrong, what the correct answer is, and at the bottom of the screen it gave step-by-step instructions on how to do the problem. I think that was pretty awesome!"*
- *"I liked the use MyLab in conjunction with the classroom lectures. Different presentations of the same material helped in understanding."*

Conclusion

When Cooke started out looking for a publisher-created digital course companion for his new online Principles of Accounting I course, he hoped to find an interactive and responsive program with assignments and assessments that students could work on repeatedly, and at their own pace, that would lead to greater understanding of the course material and an improvement in course completion rates. He clearly feels he has found that in MyLab Accounting: "The difference is significant since we started using MyLab". Completion rates for online and hybrid courses have soared and students are reporting that the MyLab work has increased their understanding of the course content as well as had a positive impact on their test scores. Additionally, the Dynamic Study Modules have allowed Cooke to closely align his course assignments to measurable learning outcomes, which he expects to continue to track and quantify each term.