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MyLab IT educator study highlights impact of homework on exam scores and implementation of best practices at Oakland University

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Key Findings

- Students who scored above average on MyLab IT homework earned average exam scores 11 percentage points higher than students who scored below average on homework.
- As a long-time user of MyLab IT, the educator has developed many best practice assignments including a syllabus quiz, a midterm journal reflection assignment, and a "how-to" Grader Project assignment.

Study Specifics

School name: Oakland University, Rochester, MI
Course name: Business Problem Solving with Information Technology
Course formats: Face to face and online
Course materials: MyLab IT with *Exploring Office 2016 Volume 1* and *Exploring Office 2016 Excel Comprehensive*

Timeframe: Fall 2018
Educator: Amy Rutledge
Results reported by: Sara Kasper, Pearson Results Manager

Setting

Established in 1957, Oakland University is a public, doctoral research institution enrolling more than 20,500 graduate and undergraduate students in Eastern Michigan. The university offers 130 undergraduate majors. In Fall 2017, the School of Business enrolled just over 2,500 students, of which the average age was 20, the average High School GPA was 3.44, and 87% of students were enrolled full-time.

About the Course

Business Problem Solving with Information Technology (MIS 1000) introduces concepts, principles, tools and methods that those in business use to organize, manage, and present information with personal productivity applications. This information technology includes personal computers, internet browsers, word processors, spreadsheets, presentation and graphics tools, and database management systems. Students will learn the most important topics of Microsoft Office 2016/Office 365 within the context of business activities and problem solving, including how to use Word, Excel, Access, and PowerPoint and how to integrate the Office applications with each other. G Suite programs (i.e. Google Drive, Docs, etc.), will be covered, as well as how to use the web to facilitate collaboration and sharing.

Course enrollment in the Fall semester is approximately 500 students, of which Rutledge teaches three sections totalling around 140 students. She uses a coordinator course in MyLab™ IT to deploy her sections. Although the course is open to all, it is the first of the two required Management Information Systems (MIS) courses for students in the School of Business Administration. A minimum grade of C in MIS 1000 is required to proceed in the business program.

Rutledge has been using MyLab IT since its inception and piloted the technology when it first became available. She is the author of *Practical Computing* and is a contributing author to the *Exploring* series.

Challenges and Goals

Primary course goals include:
- Providing students with hands-on experience using application software packages (Microsoft Word, Excel, PowerPoint, and Access) to facilitate communication, decision support, and process support in typical business settings.
- Increasing students' technology literacy so they are able to see how information technology will affect their lives as students and future professionals.

Students enter the course with a range of skill levels and knowledge of Microsoft Office applications. In working through assigned simulations and homework in MyLab IT, students can customize their learning experience and build on their knowledge by utilizing multiple attempts, available learning aids, and detailed score reports.

Implementation

Class meets in a computer lab twice a week for 75 minutes each session. Students are instructed to first visit Moodle, the school's Learning Management System, for a complete checklist of the weekly required reading and assignments. Rutledge also uses Moodle's Questions and Answers forum.

As a recommended best practice, at the beginning of the semester, Rutledge assigns a syllabus quiz she created in MyLab IT. The quiz asks questions about the syllabus and other pertinent course details including awareness of the Mac versus PC requirement and understanding integrity violations and the consequences if one is incurred.

Readings and videos
Rutledge assigns readings from the text as well as readings and videos from other sources which relate to course topics. MyLab IT access includes an eText, however Rutledge informs students that they may purchase a print upgrade. While no points are earned for completing readings and watching videos, Rutledge communicates that these assignments are required to understand the course material which will be assessed by homework and exams.

In-class activities
Rutledge typically uses a modified version of the scripted lectures from the book. During most class sessions, students are given a file to work on. Rutledge and the students complete the file together, and students can ask questions at any step in the process. Students must upload the file as a record of class attendance.

MyLab IT Simulation Trainings
In the past, Rutledge experimented with a flipped-classroom approach where students completed simulations before lecture. Currently she has students work on MyLab Simulation Trainings after the in-class activity as homework. Although the activity is somewhat repetitive, she believes doing it in this way solidifies what is being learned. Any late submission beyond the 11:59 p.m. deadline on the date due results in a daily deduction of 20 percentage points. Students have an unlimited number of attempts to earn their best score. Rutledge recommends students give themselves enough time to ask questions and make additional attempts to improve their score prior to the due date. Throughout the course, students will complete 17 Simulation Trainings covering Access, Excel, PowerPoint, Word, and Windows.

MyLab IT Grader Projects
Grader Project assignments are designed to test what students have learned in the MyLab IT Simulation Trainings and reading assignments. Students have unlimited attempts at completion. Throughout the course,

students will complete 17 Grader Projects (5 Access, 9 Excel, 1 PPT, 2 Word) with three additional Grader Projects available for extra credit.

Exams
Three exams make up 40% of the final grade. Online practice exams are available to students for preparation before each exam. Exams are given in the classroom and students have one attempt. Exams 1 and 2 are the Capstone Grader Projects for Access chapters 1–4 and for Excel chapters 1–4. These Capstones require the skills learned from chapter Simulation Trainings and Grader Project homework activities.

For the third exam, since the Excel Volume 2 Capstone Grader Project includes chapter content outside of what is covered in the course, Rutledge developed her own multiple-choice exam in MyLab IT. Students download a Grader Project-type file and answer questions related to that file. To reduce an opportunity for cheating, Rutledge activates a pooling feature that gives one of three questions per topic, ensuring that students sitting next to each other in the computer lab will not have the exact same exam questions.

Best practices

Setting students up for success with a "How-to" Grader Project assignment
To help students learn how to use MyLab feedback appropriately in order to understand their errors and improve their performance, Rutledge created a special "how-to" Grader Project assignment. After completing the first Grader Project, students must go to "View Submissions" to see their Grader Project Report and the details of any incorrect steps they made. Students must take a screenshot of this report, as well as download their submitted file and Live Comments report.

Addressing student complaints regarding MyLab scoring
If students have an issue with the scoring of a Grader Project in MyLab IT, Rutledge uses this as a teachable moment. She asks students to email her the original submitted file, a screenshot of the summary report, the version of Office in use, and whether the student is using Windows or Mac. Finally, she has them list the specific steps getting marked as incorrect on the summary report that they believe should be marked as correct.

Assigning mid-semester journal reflection
Rutledge's mid-semester journal assignment encourages students to reflect on their current course performance and goals. Students are asked to include their mid-semester score and GPA and then think about their performance in the course so far — whether it meets their expectations, and if it does not, what their plan is to improve their performance. Students must indicate the ideal course GPA they'd like to get and what is their plan to achieve that. As part of the assignment, Rutledge also has students provide any feedback or questions they have in general about the course, regarding the lectures, the pacing, the exams, the material covered, etc. She asks students what they think is working well with the course and want to see more of, or what they think needs to be improved. Rutledge takes the feedback to heart and makes changes to the course based on what students say. Says Rutledge, "Students feel like they've made an impact by contributing their feedback."

Assessments

Face-to-face sections:

- 40%   Exams (3)
- 36%   Homework (MyLab IT Grader Projects and other assignments)
- 10%   Group project
- 7%   In-class activities
- 7%   MyLab IT Simulation Trainings

Online sections:

- 45%   Homework (MyLab IT Grader Projects and other assignments)
- 40%   Exams (2)
- 10%   MyLab IT Simulation Trainings
- 5%   Moodle video lessons

Results and Data

Final course data from two Fall 2018 face-to-face sections were analyzed. Students were divided into two groups — those scoring above and those scoring below the average MyLab Simulation Training score of 95.6%. Students have unlimited attempts on simulations to have their highest score counted, and Rutledge believes, "the more practice students have, the better they will become." For each group, the overall Grader Project score was then calculated by averaging the scores of 17 Grader Projects assigned throughout the semester. Data suggest that successful completion of Simulation Trainings has an impact on Grader Project achievement.

- Figure 1 shows that students who scored above average on MyLab Simulation Trainings earned an average Grader Project score 18 percentage points higher than students who scored below average on Simulation Trainings.

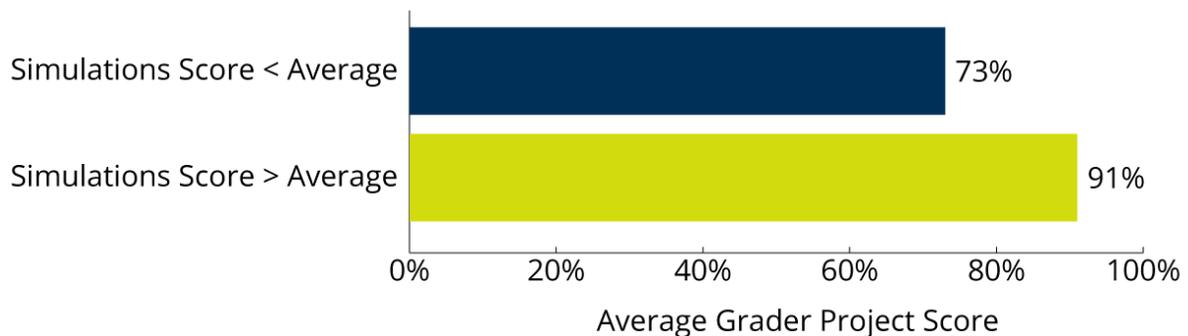**Average Grader Project score based on MyLab Simulation Trainings score**

Figure 1. Relationship between Simulations Score and Average Grader Project Score, Fall 2018 (*N*=79); Students with Simulation Score Below Average (*n*=22); Students with Simulation Score Above Average (*n*=57)

Similar to the data analysis conducted in figure 1, students were divided into two groups based on their average MyLab homework score of 85%, identifying the following (figure 2):

- Students who scored above average on MyLab IT homework earned average exam scores 11 percentage points higher than students who scored below average on homework.

Results suggest that performance on MyLab homework impacts success on exams and subsequently overall achievement in the course.
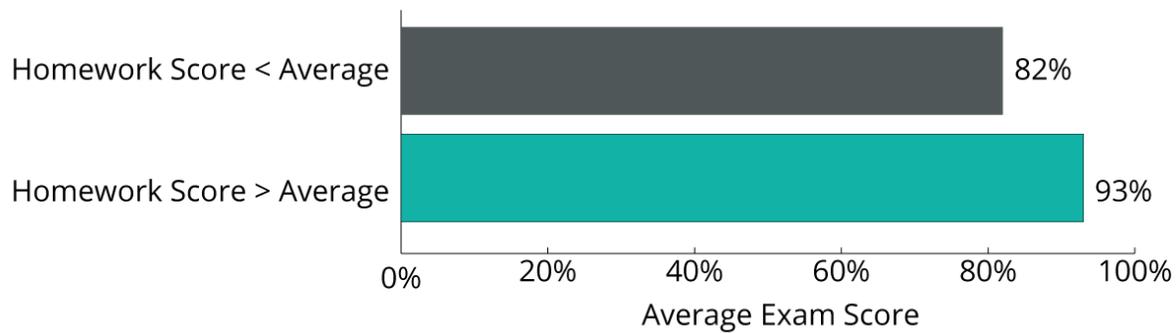
Average exam score based on MyLab homework score

Figure 2. Relationship between Homework Score and Average Exam Scores, Fall 2018 (*N*=79); Students with Homework Score Below Average (*n*=28); Student with Homework Score Above Average (*n*=51)

The Student Experience

An optional survey was deployed to students at the end of the Fall 2018 semester. Although the response rate was too low to include summary responses, open-ended student responses to the question, "What are the benefits of MyLab IT?" included the following:

- *"It is a good way to practice because it is very hands on."*
- *"You get direct examples and lots of practice."*
- *"Immediate feedback on grades."*
- *"Helps you really understand what is going on in the class and is a good warm up for the assignments while it's fresh in your brain."*

Conclusion

As a long-time user of MyLab IT, Rutledge has developed many best practices and continues to refine her implementation in order to improve the teaching and learning experience. She relies on MyLab IT to cover the basics of some applications, allowing her to spend class time highlighting new features or emphasizing course material that will be most relevant to her students' college and career goals.

Rutledge's students all come to the course with a different level of knowledge of Microsoft Office applications. Regarding these varying skill levels, Rutledge notes, "If a student is lacking in a skill, MyLab IT shows them how use the program and it gets that skill covered. Some students can quickly move through the simulations because they know the material already, while others may need to take more time and utilize all of the learning aids." Concludes Rutledge, "I continue to use MyLab IT because it gives a customized approach to every student."