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MyLab IT

Efficacy Research Report



Pearson

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Product Summary

MyLab IT™ is an online tutorial and assessment tool for teaching and learning digital literacy concepts and Microsoft Office applications. Currently used by more than 400,000 higher-education students per year spanning multiple academic domains, MyLab IT has helped more than 3.5 million learners in 30 countries since 2007. Key features include ebooks, high-fidelity simulations, and auto-graded Microsoft Office projects.

MyLab IT includes content based on robust pedagogy, developed by practicing author-educators, in the form of eText and instructional resources such as videos and presentations. Automatically-graded assessments in MyLab IT provide both immediate feedback to the learner and performance diagnostics for the educator. Assessment content is specific to each textbook series in order to ensure effective instructional alignment to learning objectives and course outcomes.

MyLab IT includes accessible, high-fidelity simulations of the Microsoft Office products that offer training and assessment modes. In addition, live-in-the-application, auto-graded projects, called Grader projects, provide homework and assessment options using live Microsoft applications. The simulations and graders are built from the content of 4 application series and 3 computer concepts books. This approach is a key hallmark of MyLab IT and is described as 1:1 Content. Unlike other providers in the market who simply offer "generic" simulation skills, MyLab IT uses the *exact* skills from the lessons students are learning so there is a direct correlation with the instruction and simulation training. This approach ensures that the instructional content aligns with the homework and assessment work done in MyLab IT so that students are following the approach of instruction, practice, and assessment with consistent learning objectives and outcomes.

MyLab IT's combination of book-specific content, the breadth of content, and the ability to customize and create content with the Project Creation Tool allows instructors to personalize and teach the Office applications and/or digital literacy course they want.

- August 2007 - MyLab IT for Office 2007 launched with simulation-based training and assessment;
- August 2009 - ["Industry First"] Live-in-the-Office-application, auto-graded projects added to MyLab IT for Office 2007;
- August 2010 - MyLab IT for Office 2010 launched;
- August 2013 - MyLab IT for Office 2013 launched with the first-ever HTML5 simulation for Microsoft Office training and assessment, as well as the ability for educators to create their own auto-graded projects;
- June 2016 - MyLab IT for Office 2016 launched with all content and features complete in less than half of the amount of time compared to previous product versions;
- Releases have been on a 3-year cycle and will continue as such based on Microsoft's development cycle for Office.

Intended Outcomes

The following are learner outcomes that have been agreed for the product based on internal research and validation with customers. Our efficacy impact evaluation work (outlined in "Product Research" below) aims to evidence MyLab IT's impact on these outcomes.

MyLab IT is designed to provide students with an engaging, integrated learning experience that provides automatic feedback for a continuously positive learning environment as they learn the Office productivity and computer concepts skills needed for academic and professional success. This is achieved through an accessible environment that provides multiple modes of instruction, practice, and assessment, including eTexts, simulations, and Grader projects. These features aim to help learners study effectively on their own by continuously assessing performance and providing feedback in real time.

Intended Outcome 1: All learners can access digital learning assets from personal or lab computer

MyLab IT functions with standard operating systems and hardware, so that students are able to access from their home or lab computer successfully.

Intended Outcome 2: Learners can successfully use MyLab IT with little or no tech support

MyLab IT is available and operational consistently, additionally the training and assessment tools, including Simulations and Grader projects, function as intended with the aim of providing students with an uninterrupted learning experience.

Intended Outcome 3: Learners are engaged and have a positive learning experience

MyLab IT provides a variety of learning opportunities including eTexts, videos, and audio PowerPoints, and multiple auto-graded projects with immediate feedback, aiming to allow students to feedback allowing students to stay engaged with learning without waiting for an instructor to grade and provide feedback. In addition, the simulations include learning aids that provide multi-modal assistance when a student doesn't understand a step: they can Read, Watch, or Practice. Learners have the opportunity to earn badges on capstone Grader projects with a score of 90% or better. These badges can be shared on social media sites such as LinkedIn, and they provide real-time data about available jobs and salary ranges in their location.

Intended Outcome 4: Learners are satisfied with MyLab IT

Learners have the opportunity to provide feedback through Pearson sponsored surveys on the MyLab platforms. Using this data, their satisfaction is measured by NPS scores and other metrics. In addition, customer technical support data is used to measure decreases in tech support questions and issues from students.

Intended Outcome 5: MyLab IT learners are getting good value for money

Market survey data, registration data, NPS scores and regular student feedback indicate positive student perception of the value of MyLab IT.

Intended Outcome 6: Learner completes assignments

MyLab IT tracks assignment submissions and grades, indicating the number of completed assignments vs. students enrolled. MyLab IT Graders and simulations provide reports that tell students what they did incorrectly. These assignments also allow for multiple attempts so that learners can fix their mistakes and resubmit for completion. In a Grader project, students can submit at any point in the project to get feedback and see details on what they may be doing wrong, allowing them to fix and move on to completion. There are also learning aids in the simulations that assist students if they are struggling with a specific step in a simulation.

Intended Outcome 7: Learner completes assignments on time

MyLab IT has a student view of the assignment calendar that details assignments due, complete, and past due. They can also view assignments by To Do/Completed. In addition, instructors can run reports to see who has completed assignments, who has not logged into MyLab IT, etc., in order to intervene and contact students directly. Platform reporting indicates the level to which students complete assignments vs. the due dates set.

Intended Outcome 8: Learner completes the course

All of the resources in MyLab IT are intended to support students to persist to completion: multiple attempts; automatic, instant feedback and guidance on errors, and resources to guide learners to correct errors and resubmit; assignment calendar views; instructor reports to allow for early intervention with students who are falling behind, as well as item analysis to show which assignments/questions students may be struggling with.

Intended Outcome 9: Learner reaches defined level for mastery of each application tool

Capstone Grader projects are offered for the 4 main applications: Word, Excel, Powerpoint, and Access. These projects are based on the content of the coverage in the text, which is based on course learning outcomes and industry certifications for Microsoft Office Specialists (MOS). If students achieve a score of 90% or better, they earn a badge that indicates they have mastered a specific level of competency with specific skills as detailed in the badge metadata based on the skills in the capstone project. In addition, instructors can run a new Skill Mastery Report at the end of the semester.

Intended Outcome 10: Learner develops the ability to apply tools in other coursework

Learners are taught “skills” in the context of real world projects related to tasks they need to do in other course work (i.e., research papers, presentations, spreadsheet calculations, etc.), as well as projects they have to do on the job (budgeting, presentations, creating marketing materials, tracking customers in a database, etc.). Based on surveys, customer feedback, and anecdotal information, learners are able to rate the level to which they have applied what they learned with MyLab IT into other courses and their work.

Intended Outcome 11: Learner passes the course

All of the resources in MyLab IT are intended to support students to persist to successful course completion, including multiple attempts allowed on Grader projects and simulations; automatic, instant feedback and guidance on errors, and resources to guide learner to correct errors and resubmit; assignment calendar views; and instructor reports that inform them of students falling behind to allow for early intervention. Data from institutions regarding passing rates is used to measure this outcome.

Intended Outcome 12: Learner advances to the next course

Often, an IT course is a general education requirement, so learners progress to a variety of other courses. Using system IDs, we are able to see learners who have progressed on to other Pearson Systems (MyLab for Econ, Accounting, Finance, Computer Science, Mastering for Physics, Chemistry, Engineering).

Intended Outcome 13: Learner passes certification exam

The instructional content, practice materials, and assessments in MyLab IT cover all of the objectives for MOS and IC3 certifications, in the applicable courses. Learners can demonstrate mastery for MOS certification objectives by receiving a 90% or better on Application Capstone projects, for which they receive a shareable badge, and a discount voucher for a MOS exam. Additional MOS practice exam material is also provided in the courses, ensuring that learners are exposed to the exam objectives. The badge issuance is used as an internal judge and likely indicator of success on MOS and IC3 exams.

Intended Outcome 14: Learner gains employment

The badges in MyLab IT demonstrate skill level mastery for Office applications and are shareable via LinkedIn and other social media. The real-world projects the students create are also shareable to potential employers, as learners can present the projects in a digital portfolio.

Foundational Research

MyLab IT aims to deliver learner outcomes through the use of simulations and grading exercises. Both of these approaches are predicated on giving students highly-structured authentic tasks to complete in real or simulated environments that match the target environment (i.e., Microsoft Office software).

The design of MyLab IT is aligned with several areas of educational research in the learning sciences - diverse, transdisciplinary fields that seek to understand how humans learn. Using insights distilled from the learning sciences, a number of learning design principles have been developed that guide the creation of our products. MyLab IT demonstrates a number of these learning design principles:

Practice in Authentic Contexts

The use of simulations as a learning tool has been shown to help learners build up proficiency (de Jong, 2010). Research has demonstrated that simulated practice environments that align closely with authentic, real-world applications can afford deep levels of learning and engagement. One key element this research shows is that it is important to balance realism and functionality, such that the simulation provides adequate development of the skill, while not overloading novice learners' working memory.

By enabling students to practice realistic tasks in environments that closely mirror the applications they'll be using in the workplace (such as the Microsoft Office suite), Pearson MyLab IT provides powerful tools for learning.

- **Simulations** offer opportunities to practice targeted skills, offering assistance as needed and guiding students to focus only on key actions needed to complete the given task.
- **Grader Projects** provide an even more high-fidelity practice experience within the Microsoft Office suite itself. These projects give students a chance to apply what they've learned in an authentic context, helping to make transfer to real-world practices even more likely.
- Pearson MyLab IT's functionality **matches the learner's level of competence** throughout the learning process.

When used in tandem, simulations and Grader Projects aim to promote practice of the skills needed to progress from novice to advanced.

Relevance

Students tend to be more motivated and learn better when they feel like there is value in learning the content. By tying the learning materials to real-world activities and specific job roles, the utility of the skills and knowledge being covered is clearly demonstrated to learners. This kind of increased relevance has been found to be associated with greater interest and achievement (Hulleman et al., 2010).

Scaffolding and Feedback

Another important element of using simulations as a learning activity is the use of various kinds of instructional support, or scaffolding. Research on simulations and other forms of "learning-by-doing" almost universally find a benefit for some amount of scaffolding. MyLab IT provides a high level of scaffolding, helping students attend to key features. MyLab IT simulations provide immediate feedback, which is one of the most effective means for building long-term retention and increasing student confidence and motivation (Hattie 2009). The feedback provided in MyLab IT simulations is clear, concise, and timely. In addition, students have access to hints and guidance when they request it, which has been found to help facilitate skill acquisition (Koedinger & Aleven, 2007).

Intended Product Implementation

The alignment of MyLab IT content to learning objectives and professional standards helps students transfer what they learn in the classroom into the workplace, promoting career readiness. Simply put, Pearson MyLab IT is designed with the learner in mind, to help learners learn and foster college and career success.

Educators are encouraged to leverage MyLab IT's simulation and automatically-scored "Grader" projects in one of six implementation models. Authentic learning or learning through practice and assessments that closely align with real world applications is what students experience when using Simulation and Grader activities in MyLab IT.

- Enabling focused activities that assess students in a simulated Office environment;
 - MyLab IT's realistic Simulation activities assess the student's ability on individual skills.
- Outcomes-focused activities that assess students in the actual Office applications;
 - MyLab IT's project-based Grader activities assess the student's ability to complete real-world projects.

How this is positioned in courses depends on the way faculty intend for students to practice and prove mastery. This chart represents the different models to implement Simulation and Grader activities by pedagogical focus:



	Skills/Enabling Focus	Project/Outcomes Focus	Skills/Enabling Focus Homework & Project/Outcomes Focus Assessment	Project/Outcomes Focus Homework & Skills/Enabling Focus Assessment	Skills/Enabling Focus & Project/Outcomes Focus & Assessment
Homework	Simulation Activities	Grader Activities	Simulation Activities	Grader Activities	Simulation &/or Grader Activities
Assessment	Simulation Activities	Grader Activities	Grader Activities	Simulation Activities	Simulation &/or Grader Activities

Skills / Enabling Focus

Enables learners to practice and prove mastery on individual skills:

- **Homework = Simulation Activities**
- **Assessment = Simulation Activities**

Projects / Outcomes Focus

Enables learners to practice and prove mastery in project-based assignments:

- **Homework = Grader Activities**
- **Assessment = Grader Activities**

Mixed Focus: Skills / Enabling & Projects / Outcomes

Many educators choose to use a combination of Simulation and Grader activities for homework and assessment to provide students with an authentic learning environment where they can practice realistic tasks in a simulated environment that closely mirrors applications they will use in the workplace (Simulations) as well as practice these skills right in the live application (Graders).

The following are examples of mixed focus paradigms that use assignments together:

Combined: Skills Focus for Homework & Project Focus for Assessment

Enables learners to practice on individual skills and prove mastery in project-based assignments:

- **Homework = Simulation Activities**
- **Assessment = Grader Activities**

Combined: Project Focus for Homework & Skills Focus for Assessment

Enables learners to practice in project-based assignments and prove mastery on individual skills:

- **Homework = Grader Activities**
- **Assessment = Simulation Activities**

Skills Focus & Project Focus for Homework & Assessment

Enables learners to be exposed to both skills-based and project-based assignments for homework and/or assessment:

- **Homework = Grader Activities &/or Simulation Activities**
- **Assessment = Grader Activities &/or Simulation Activities**

Based on platform data of the assessments submitted, it can reasonably be concluded that majority of educators implement the models above with slight deviations, because educators are empowered with the ability to select assessment resources for their specific course goals.

Product Research

In 2016, Pearson researchers, in collaboration with faculty at a mid-sized four-year university in the Midwest, conducted the first rigorous study to date on MyLab IT. The primary aim of this study was to explore how students' usage of and performance on MyLab IT activities were related to learner outcomes in an introductory information technology course.

This study found that both MyLab IT usage and performance were positively related to learner outcomes. In terms of usage, students who completed more MyLab IT activities earned higher scores on course exams. In terms of performance, students' scores on MyLab IT practice tests were a significant predictor of scores on course exams.

Further research is planned to assess whether MyLab IT usage and performance are causally related to learner outcomes across a variety of educational contexts (e.g., different types of institutions; in introductory vs. higher level courses) and for students from different educational backgrounds. Future studies will also explore how differences in the implementation of MyLab IT impact both student usage and performance.

Research Studies

A Correlational Study of MyLab IT in an Introductory Information Technology Course

Study Citation A Correlational Study of MyLab IT in an Introductory Information Technology Course (2016), Pearson Education, Impact Evaluation - Higher Education Courseware, Efficacy and Research.

Research Study Contributors Amy Rutledge, Kodi Weatherholtz, Christine Leow, Yun Jin Rho

Type of Study Correlational

Sample Size Full sample = 315
Analytic sample (with available data for all control variables) = 226

Description of Sample The sample comprised all students ($n = 315$) enrolled in 7 Information Technology courses during the 2015-16 academic year.



Outcomes Measured Intended Outcome 6: Learner completes assignments
Intended Outcome 8: Learner completes the course
Intended Outcome 11: Learner passes the course

Introduction

This study assessed the relationship between students' MyLab IT usage and performance and students' achievement in their Office 2013: Exploring Series + Visualizing Technology, 4e course. This study also analyzed the MyLab IT usage and performance data to determine learners' engagement and course completions and pass rates.

Method

Students at a mid-sized university in the Midwest who were enrolled during the 2015-16 academic year were included in the study. Students from seven sections of Business Problem Solving with IT, an introductory information technology course were included in the study. All course sections used *MyLab IT for Office 2013: Exploring Series + Visualizing Technology, 4e*.

This study used a correlational design, where students' MyLab IT usage and performance were correlated to their academic achievement in the course, while taking into account student-level factors that affect achievement, including prior content knowledge. Throughout the course, students completed MyLab IT pre-test activities before starting new content areas. Students' average score on these MyLab IT pre-tests was included in the analysis to statistically control for prior content knowledge.

The three MyLab IT usage variables used in the analyses were: (i) total number of unique MyLab IT activities attempted by each student; (ii) each student's total number of MyLab IT activity repetitions; and (iii) the total time (in hours) spent on MyLab IT activities.

A total of 315 students were enrolled in one of the seven sections of the Business Problem Solving with IT courses involved in this study. Of these enrolled students, 226 students provided all data sources necessary for calculating the outcome and predictor variables of interest. For the remaining students ($n = 89$), one or more of these critical data sources was unavailable; hence, these students could not be included in the analysis.

Results

The majority of learners that enrolled in the course completed the course.

In this course, the instructor assigned individual activities within MyLab IT as practice and homework exercises and also combined MyLab IT resources to generate course exams designed to assess students' programming skills. Using information about the number of assignments completed by students we were able to derive a proxy measure of course completion from the available data. This derived measure was whether students completed all course exams. That is, for the purposes of this study, we considered students to have completed the course if they completed all course exams. Of the 315 students that enrolled in the course, 12% (39) dropped out of the course before the first exam, 16% (49) did not complete all course exams, 227 or (72%) completed all course exams and are designated as having completed the course.

A majority of the students that remained enrolled in the course completed course assignments.
From among the 227 students that completed the course, a total of 85% of them completed at least 65% of all non-extra-credit course assignments

For those students who completed the course, 78% successfully earned passing scores.

We derived a proxy measure of whether students passed the course based on the students' scores on course exams. Specifically, students were counted as having passed the course if they completed all course exams and averaged a score of 60% or higher across all exams. Using these criteria, out of the original 315 students that enrolled in the course, 12% (39) dropped out of the course before the first exam, 16% (49) did not complete all course exams, 57% (178) earned a passing grade in the course and 15% (49) failed the course. Focusing only on those students who remained enrolled and completed the course (227 students), the pass rate was calculated as 78%.

Relationship between students' MyLab IT usage and performance and learner outcomes

The primary aim of this study was to assess the relationship between students' usage of and performance on MyLab IT assignments and their achievement in the course. To address this question, students' average course exam scores were analyzed using a multi-level linear regression model with the following MyLab IT usage and performance variables as predictors: (i) the student's average score on MyLab IT assignments; (ii) the total number of unique MyLab IT activities attempted by each student; (iii) each student's total number of MyLab IT activity repetitions; and (iv) the total time (in hours) spent on MyLab IT activities. Additionally, students' average score on MyLab IT pre-tests was included as a covariate to control for students' prior content knowledge. Course section was included as a random effect to account for variability in learner outcomes across course sections. This analysis revealed that:

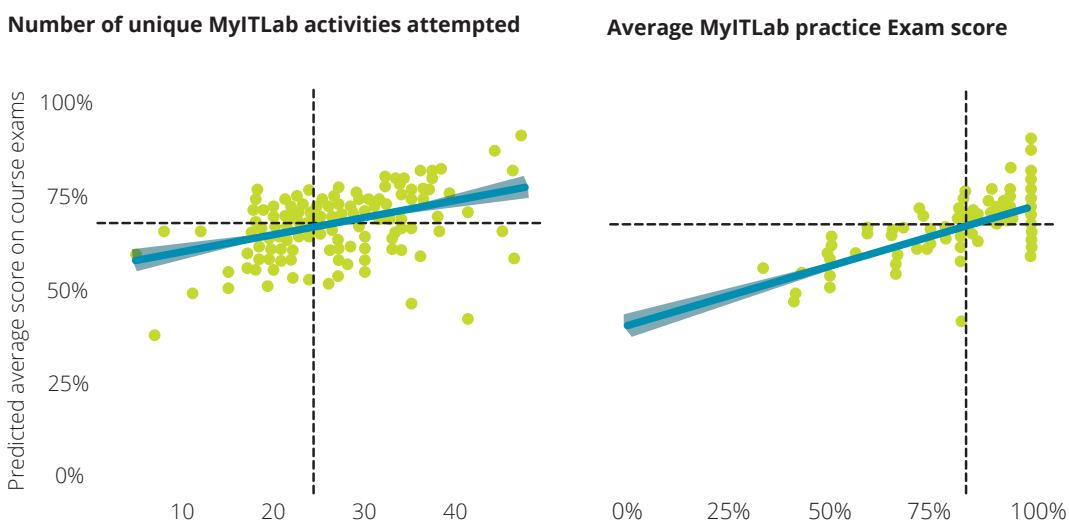
The number of unique MyLab IT activities that a student attempted was predictive of their achievement in the course (measured as their average course exam score).

The more MyLab IT activities attempted, the higher the students' average course exam score ($b = 0.77$, $t = 5.91$, $p < .001$). Specifically, for every seven additional MyLab IT assignments attempted, average course exam grades increased by about 5% (or half a letter grade). To put this into perspective, a typical student in this study completed 23 unique MyLab IT assignments during the semester and averaged a score of 67% across course exams. A student who completed just seven additional MyLab IT assignments (or 30 total during the semester) was found to have an average course exam score of 72% (see Figure 1, left panel).

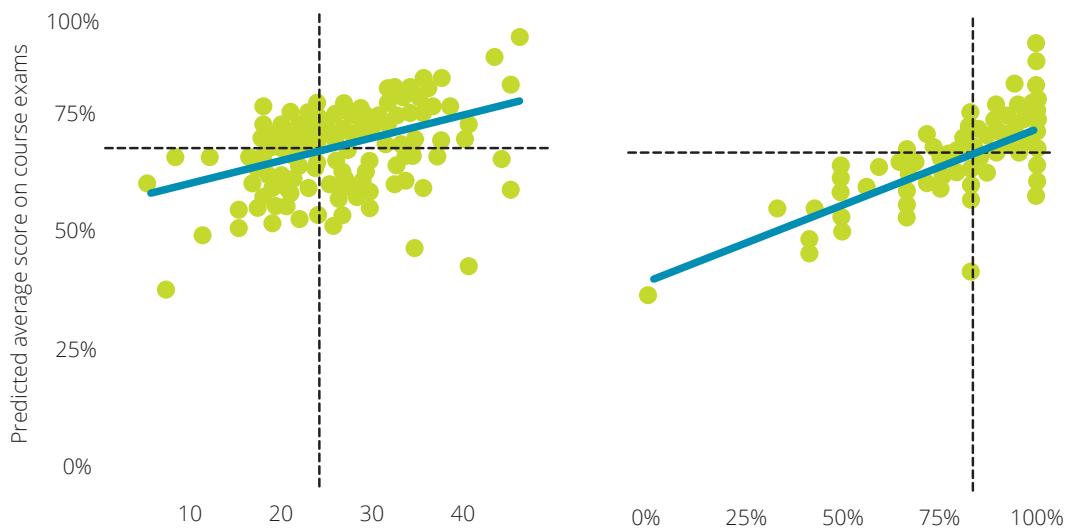
Students' average score on MyLab IT Practice Exams was predictive of their achievement in the courses (measured by their average score on course exams).

Students with higher average scores on MyLab IT Practice Exams averaged significantly higher scores on course exams ($b = 0.22$, $t = 5.35$, $p < .001$). Specifically, when students improved their average score on MyLab IT Practice Exams by 4%, they tended to improve their average course exam grade by about 1% (see Figure 1, right panel).

Figure 1. Relationship between students' average course exam scores and their MyLab IT usage (left panel) and their MyLab IT performance (right panel), after controlling for prior content knowledge



Number of unique MyITLab activities attempted



Discussion

There are a few caveats associated with the study:

Limited statistical controls.

The first caveat is that we were unable to obtain student-level data about factors that are known to affect learner outcomes, such as prior achievement and demographic characteristics. Obtaining student-level data on these factors via university transcripts and student/instructor surveys would have allowed a more robust analysis.

Correlational study design does not afford causal conclusions.

The second caveat is that due to data limitations, this study used a correlational rather than a quasi-experimental design, and therefore the results do not afford causal conclusions.

Subset of students in analysis.

The third caveat is that data for only a subset of students out of all students enrolled in the course could be analyzed because the full set of predictor and statistical control variables was not available for all enrolled students.

In conclusion, we can make a relational statement with this study about MyLab IT: namely that both MyLab IT usage and performance are positively correlated with course exam scores. A more rigorous study design is needed to assess how MyLab IT performance and usage behavior causes changes in learner outcomes.

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