RESEARCH INSIGHTS:

Three Key Components to Empowering Student Success with Microsoft® Office Skills and on the MOS Exams
Research Insights: Three Key Components to Empowering Student Success with Microsoft® Office Skills and on the MOS Exams

SAM (Skills Assessment Manager) is an online tool that teaches, trains, and tests essential Microsoft Office and computer concepts skills. SAM engages students as they watch, listen, and practice in a hands-on environment and then apply their skills to real world applications. With efficient course setup, auto-graded assignments, and flexible reporting tools, SAM saves instructors valuable time and energy so they can focus on instruction.

“When you look at the MOS skills measured and all of the learning objectives that the students have to meet, the New Perspectives text and using SAM to do those case tutorials . . . it’s really the best preparation.”

Erin Dischler
Instructor, Milwaukee Area Technical College

Proficiency with the use of computer applications is a new essential literacy for employability in the global, information-intensive economy. Whereas employers used to prefer candidates with demonstrated technological skills, today’s job opportunities increasingly mandate fluency in the use of various computer applications, most notably the Microsoft® Office® suite of tools and products. Colleges, and even high schools, are stepping up to meet these needs by offering classes on the Microsoft applications, often with explicit preparation for students to earn the Microsoft Office Specialist (MOS) certifications to demonstrate proficiencies with these tools. With 86% of hiring managers saying IT certifications are part of their hiring criteria, students are also realizing the importance of preparation and success on the MOS exams.

ABOUT THE STUDY

To understand how to support higher education institutions in grooming students for future job and career achievements, Cengage Learning collaborated with Project Tomorrow®, a not-for-profit, education research organization, on a research study to evaluate how instructors and students are using digital support tools to prepare for success on the certification exams. The mixed methods study conducted in fall 2015 included the participation of 30 college instructors and over 1,600 of their students from a geographically and demographically diverse set of two-year and four-year institutions and trade or vocational colleges. The common denominator was a requirement or strong recommendation that the students in computer applications or business accounting courses would take at least one MOS exam in Word®, Excel®, PowerPoint®, or Access®. The study focused on the efficacy of various digital support tools in preparing students for MOS certification exam success. Eighteen (18) instructors used Cengage Learning’s SAM digital support product for Microsoft application skill development in addition to their course textbook. Twelve (12) instructors used digital support products from other vendors. The students represented a cross section of today’s college population, including a significant percentage of non-traditional college students. The learning environments studied included online classes, blended models, and traditional classroom instruction.
Research Insights: Three Key Components to Empowering Student Success with Microsoft® Office Skills and on the MOS Exams

About the students participating in the study:
- Approximately two-thirds were in their first or second year of college
- Gender breakdown was 1/3 male, 2/3 female
- 53% of the students using SAM and 65% of those using other digital products were 23 years of age or younger (traditionally aged college students)
- 66% considered their technology skills to be average compared to their peers
- Over 75% had never taken a MOS exam

THREE COMPONENTS FOR MOS SUCCESS

The study yielded insights on how a digital support tool such as SAM can improve students’ skill development with the Microsoft suite of products and ultimately, their MOS certification achievement. A particularly insightful finding was the identification of the three key components — engagement, preparation, and confidence — required to empower student success on the MOS exams.

1. Student Engagement in Course Content

Educators often debate the meaning and value of student engagement as it pertains to student achievement and/or preparation for academic success. In general, there is widespread agreement that “student engagement” refers to the level of attentiveness, curiosity, and interest students display when involved in a learning activity, and how that translates into a self-initiated motivation for learning in the classroom or extending learning beyond the formalized lecture hall. Research has shown that when students are interested or inspired in learning, their learning outcomes improve. Correspondingly, learning suffers when students are bored, dispassionate, or otherwise “disengaged.”

The study results reveal that increasing student interest and engagement in the course content and materials is an essential component of empowering student success on the MOS exams. Among students who attributed the use of a digital tool to their success on the exam, 75% said that they were more engaged in their course content because of the use of SAM. Eight of ten of those students also noted that their interest in the course content increased throughout the semester, with 62% labelling their interest level as high or very high just prior to the end of the term. Additionally, 89% of the instructors using SAM believe that its use increased student engagement in course content and learning.

The increased student engagement in learning in SAM classes can be attributed to the use of the SAM online projects. Two-thirds of the students agreed that doing the online projects were important to their success in the course; 35%
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Two-thirds of the students using SAM agreed that doing the online projects were important to their success in the course; 35% strongly agreed. Only one-quarter of the students in the classes using other digital support tools attributed the same high level of efficacy to their product. When students had the opportunity to do two or more online SAM projects per week, their level of engagement in the course content increased by 45% or more. Central to the connection between engagement and the use of SAM was the high valuation that students’ placed on SAM’s instant grading and feedback feature. Almost 8 of 10 students agreed that the ability to know about their proficiency level upon completion of an application task at the moment of learning was a significant benefit of using SAM.

“I like that SAM helps students complete their work while providing instant feedback. It also allows students multiple attempts for hands-on practice. An instructor cannot do that. And, I like that it helps with my grading!”

Teresa Worthy
Instructor, Gaston College

Another key factor driving increased engagement was how SAM changed student learning behaviors and attitudes about the course value. Figure 1 shows how SAM usage resulted in new student learning behaviors that can be linked to increased MOS success.

“Figure 1. Changes in learning behaviors for students who attribute SAM to their MOS preparation success.

Learning Behaviors and Attitudes: As a result of using SAM, I am…

Some instructors assume that the mere presence of digital tools or products increases student engagement in learning. According to the students, however, the real value of digital tools rests with how the tools tangibly affect student learning
and success. Case in point: 89% of students in this study said that the use of SAM provided them with better comprehension of course content; 76% ascribed SAM usage to improving their ability to understand abstract concepts. The MOS certification exam measures student proficiency with the Office application tools and their abilities to perform certain tasks. Comprehension of course content (an outcome that students link to their use of SAM) is key to such proficiency. Second, among students who used SAM and passed their MOS exams, the average number of online projects completed was 4.22. Not surprisingly, 80% of the students attributed their use of the SAM projects to their overall course success and their preparation for passing the MOS exams.

Engagement in learning remains a pillar of educational practices. However, when focusing on achievement measured by MOS certification pass rates, the purposeful use of digital tools and resulting changes in learning behaviors and outcomes trump engagement alone as a key component for empowering student success. As demonstrated by these study results, SAM’s features, functionality, and results engage students in learning and enable MOS certification success.

2. Effective Preparation with Skills and Real-World Experiences

A critical marker for students’ potential success with the MOS certification exams is their ability to translate content knowledge into practical application. Effective preparation for the MOS exams therefore includes an ability to connect the mechanics of the Office products to the successful completion of tasks in real-world situations. The study results revealed two interesting findings to support effective preparation as a key component for MOS success.

Universally, students in the study agreed that Excel and Access were the most challenging Office application products to learn. It is also increasingly evident that knowledge of how to use those products, among other digital applications, is most likely to open doors in the workplace. A recent Wall Street Journal blog posting noted that 78% of new jobs require fluency with technology, and that the most commonly requested digital skills are familiarity with spreadsheets and word processing tools. Therefore, the efficacy of digital support tools in preparing students for demonstrated proficiency with the Office applications is critical for both MOS certification and job security.

Instructors in the study ranked their digital support tools based upon the strength of the tools to address key Office functions that are tested on the MOS exams. The 5-part scale ranged from very weak to very strong in preparation value for MOS exam success. Across all four applications included in this study (Word, Excel, PowerPoint, and Access), a higher number of SAM-using instructors
A higher number of SAM-using instructors identified SAM as providing very strong preparation compared to instructors who were using digital tools such as Microsoft’s IT Academy, Pearson’s MyIT Lab, and Paradigm’s SNAP program (Figure 2).

**Figure 2.** How instructors perceived the strength of their digital tools in preparing students for MOS exams.

![Bar chart showing the percentage of instructors who rated the strength of their digital tools in preparing students for MOS exams.]

- **Access:** SAM instructors: very strong ranking, 50%; Instructors using other digital tools (not SAM): very strong ranking, 29%.
- **PowerPoint:** SAM instructors: very strong ranking, 50%; Instructors using other digital tools (not SAM): very strong ranking, 30%.
- **Excel:** SAM instructors: very strong ranking, 50%; Instructors using other digital tools (not SAM): very strong ranking, 22%.
- **Word:** SAM instructors: very strong ranking, 50%; Instructors using other digital tools (not SAM): very strong ranking, 25%.

“The model of the SAM Paths is very powerful in reinforcing learning.”

**Cy Keiffer**
Instructor, Owens Community College

Further examination yields a more significant finding on the value of SAM for MOS certification preparation. According to data isolated from instructors teaching Excel and Access, computer applications instructors gave higher marks to SAM on four out of five tasks per application for overall preparation value. Using the 5-part scale with 1 = very weak preparation value and 5 = very strong preparation value, SAM earned a 4.4 rating, compared to a 3.9 ranking from instructors using other digital products. Figure 3 provides the detailed findings and rankings.
Research Insights: Three Key Components to Empowering Student Success with Microsoft® Office Skills and on the MOS Exams

Figure 3. Instructors’ views on the strength of their digital tools to prepare students for MOS exam success. (5-part scale with 1 = very weak preparation value and 5 = very strong preparation value.)

### Excel

<table>
<thead>
<tr>
<th>Task</th>
<th>SAM Instructor</th>
<th>Instructors using other digital tools (not SAM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create and manage worksheets and workbooks</td>
<td>4.55</td>
<td>4.0</td>
</tr>
<tr>
<td>Create cells and ranges</td>
<td>4.45</td>
<td>4.3</td>
</tr>
<tr>
<td>Create tables</td>
<td>4.27</td>
<td>4.1</td>
</tr>
<tr>
<td>Apply formulas and functions</td>
<td>4.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Create charts and objects</td>
<td>4.1</td>
<td>4.1</td>
</tr>
</tbody>
</table>

### Access

<table>
<thead>
<tr>
<th>Task</th>
<th>SAM Instructor</th>
<th>Instructors using other digital tools (not SAM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create and manage a database</td>
<td>4.17</td>
<td>4.25</td>
</tr>
<tr>
<td>Build tables</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Create queries</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Create forms</td>
<td>3.3</td>
<td>3.75</td>
</tr>
<tr>
<td>Create reports</td>
<td>3.75</td>
<td>3.75</td>
</tr>
</tbody>
</table>

100% of the SAM instructors agreed that SAM and SAM projects in particular support students’ use of the tools in real-world applications; 74% strongly agreed.

“SAM has helped me to master or refresh/better my skills and understanding of Excel. I can now use Excel for a real-world situation when it comes to finances, marketing, payroll, and management in my personal life as well as business.”

**Student**
Liberty University
Two-thirds (68%) of the students noted that they were more confident in their abilities due to their use of SAM. Among those students, 83% connected the use of SAM with their preparation to do well on the certification test, and 72% said using SAM helped to reduce their anxiety for the MOS exams.

From the instructors' point of view, SAM provides a stronger foundation for preparing students with the skills they need to be successful on the MOS exam. Beyond skill knowledge however, it is also critical for the students to be able to connect academic concepts to real world applications and thus, be able to translate their skills into practice.

The instructors using SAM see a direct connection between the use of SAM and students' capabilities to apply what they have learned to real-world practice. When asked to evaluate this connection, 100% of the SAM instructors agreed that SAM and SAM projects in particular support students’ use of the tools in real-world applications; 74% strongly agreed. Only 67% of the non-SAM instructors believe that their digital tools accomplish that same goal, with only 27% strongly agreeing (Figure 4). The students’ valuations are similar. Among students who highly valued SAM for its impact on their MOS preparation, 84% said that the use of SAM projects helped them develop the ability to translate their Office application skills into real-world practices.

Based upon the results from this study, SAM prepares students to be successful on the MOS exams by ensuring that they have the right skills to complete the exam tasks, and have the ability to translate those skills into real-world applications — important assets for exam success and workplace effectiveness.
NEARLY 70%

“SAM helped me understand how to apply course content and concepts to real-world situations by being able to remember things I had learned through SAM, and applying them to things I was doing at work. I do a lot of work at my job with Excel, Word, and Access, so SAM helped me with that a lot.”

Student
Owens Community College

3. Creating Confidence and Reducing Exam Anxiety

Test-taking anxiety is common among college students, and particularly among non-traditional students such as those represented in this study. Students who have been away from formal education for a period of years often must re-learn how to prepare for tests and manage the stress of a timed test-taking environment. According to the study participants, the high stakes of employment potential associated with the MOS certification exams exacerbate this type of anxiety. Therefore, a third key component of empowering student success on the MOS exam is supporting students’ confidence and self-efficacy to be successful. To develop confidence in test-taking, especially in a high stakes environment, anxiety experts note the value of students’ acknowledging their strengths and visualizing in advance what will be on the exam. The use of SAM, and in particular the online SAM projects, accomplishes that goal for many students. By working through the cases and tutorials, the students develop a stronger sense of what will be on the MOS exam and gain greater confidence in their abilities to be successful doing similar tasks. Students especially valued how SAM provided them with a representation of the end product, which helped them visualize success. Two-thirds (68%) of the students noted that they were more confident in their abilities due to their use of SAM. Among those students, 83% connected the use of SAM with their preparation to do well on the certification test, and 72% said using SAM helped to reduce their anxiety for the MOS exams.

“I consider myself a visual learner. In turn, seeing each concept presented step-by-step helped me understand it properly and without any confusion. If somehow I missed something then I could always go back and review it. That was definitely a great help.”

Student
Ivy Tech Community College

Nearly 70% of the SAM instructors agreed that the use of SAM in their course reduced student anxiety. Peers using other digital products to support MOS preparation were less likely to make that connection.
86% of students felt that using SAM made the learning process more efficient; 78% said they were more interested in the course material when SAM was included.

Instructors also appreciate the value of SAM in reducing students’ anxieties about the MOS exams. Nearly 70% of the SAM instructors agreed that the use of SAM in their course reduced student anxiety. Peers using other digital products to support MOS preparation were less likely to make that connection; only 40% of those instructors said their digital tools reduced student anxiety and increased student confidence. The difference may be explained by the purposes that SAM instructors ascribe to the use of SAM within their instructional practice. Quite explicitly, 80% of SAM instructors say that their goal with using SAM is to help their students develop greater confidence in their abilities with the Microsoft applications, and 84% want SAM to help their students take greater ownership of their own learning. Both of these goals support what the experts say are optimum ways to reduce student test anxiety — acknowledge strengths and develop self-efficacy as a learner.

Increased confidence in using the Microsoft applications and the development of a strong self-image as a successful exam taker resulted in other learning benefits for the students in the SAM courses. As Figure 5 depicts, the more confident students were likely to see learning as personalized, efficient, and engaging. These students were also more likely to attend class and were more motivated to learn. Overall, using SAM to increase students’ confidence in their abilities reduced anxiety about the upcoming MOS exams, but it also transformed the way they felt about the learning experience in their course, an affect that may be sustainable throughout the students’ college career.

“SAM allowed me to work at my own pace and it helped me know step-by-step what actions I needed to take to correct my errors.”

Student
Morehead State University
CONCLUSION

Employers, instructors, and students agree — learning the Microsoft Office suite of applications is an important workplace skill. The Microsoft Office Specialist exams and certifications provide confidence to employers that their new hires are well trained and have the tested skills to do the digital tasks required for the job. Reflecting this reality, higher education institutions are adding more Microsoft application courses and requiring their students, especially in business, accounting, and technology fields, to take the MOS exam as a course requirement or to fulfill a major.

How can colleges and trade schools ensure that their students develop the capacities and attitudes to be successful on the MOS exams, and that they are well prepared to utilize those skills in the workplace? This study identifies the three key components that can drive student success on the MOS exams: engagement in learning course content, effective preparation with skill development and real-world applicability, and student confidence and self-efficacy in their abilities. As revealed by the study findings, the SAM digital support tool from Cengage Learning provides an optimum environment for supporting instructors as they develop learning environments to engage, enable, and empower their students to become MOS certified.

i CompTIA, Employer Perceptions of IT Training and Certification, January 2011
ii http://edglossary.org/student-engagement/
iii http://blogs.wsj.com/atwork/2015/03/05/microsoft-excel-skills-the-key-to-middle-class-earnings/
iv http://blog.cengage.com/mitigating-test-anxiety/
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