ASSESSING TECHNOLOGY SKILLS IN AN UNDERGRADUATE   BUSINESS COURSE

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ABSTRACT

This article focuses on how an undergraduate program at an Association to Advance Collegiate Schools of Business (AACSB), an accredited business school, incorporates assessment on the use of information technology in a computer business course. To meet the new AACSB standards regarding assessment and adequately determine "if and what students are learning?" this article presents the technology learning goals, the associated learning objectives and the specific technology-related behaviors and actions that are assessed. In addition, specific examples of student assignments are presented as well as how these assignments are designed and assessed in relation to the learning objectives for the course is discussed.

Keywords: Assurance of Learning, Technology Assessment, Pedagogy, Business computers skills

INTRODUCTION

Recent years have are witnessing a growing public dissatisfaction with the quality of college graduates. This has led accrediting bodies, such as AACSB, to call into question the traditional methods of assessment and begin to ask questions such as "how do you know if and what students are learning?"(AACSB 2005). In response, in 2003, AACSB approved a new set of standards that require evidence that business students are developing skills and knowledge base that the curriculum purports to teach. The new assessment standard has led faculty and administrators to search for ways to collect evidence that university students are, in fact, learning what they are taught. (Martell and Calderon (2005).

This focus on assessment differs from the traditional grading process. Traditional grading has focused on assessing students' classroom activities, effort, and performance. The assessment focus is producing tangible evidence of knowledge acquisition or skill development. (Mackenzie, 2004) There must be a direct link between program learning goals and concrete observable behaviors and actions that can be measured

(Nellen and Turner, 2006).

According to Martell and Calderon (2005), the AACSB requires learning goals to be defined for each program which incorporates student mastery of knowledge and skills. These general goals are used to establish learning objectives which are the concrete observable behaviors and actions that can be measured.

While AACSB-accredited schools are given latitude in their choice of learning goals, objectives, and assessment methodologies, all business programs will need, at some level, to assess technology skills, in particular those skills needed to solve problems in a real-world setting in a business environment. This article will be focusing on how learning goals and objectives are assessed in an undergraduate course in management information systems through assignments, tests, and case studies.

The undergraduate Business Course has two primary goals. The first goal is to provide all students with basic computer literacy in the Microsoft Office products, Word, PowerPoint, Excel, and Internet Access.   The second goal is, for students to be able to apply these computer skills to "real-world" problems in business environments.   Based

on these goals, a number of learning objectives are developed and are used for assessment. The remainder of this paper will be focusing on (1) format of the Computers in Business course, (2) learning goals and objectives, (3) technology assessment, and (4) conclusions/future directions.

1. Format of the Computers in Business Course

Introduction to Computers in Business (INFO273) is the required computer literacy course for the undergraduate program in the School of Business at Montclair State University, a regional institution in northern New Jersey. The Computers in Business course is divided into three modules as follows: Word2003, PowerPoint2003, Excel2003, and Access2003.

The INFO273 course is taught using a hybrid course model (Killmer Hollister and Koppel, 2003), in which the primary method of instruction is through the use of online course modules. Currently, the institution is using SAM2003, a computer based training program developed by Course Technology (www.course.com). The material in SAM2003 is divided into chapters that correspond to chapters in the course textbooks. Through SAM, students view a list of all skills assigned in each chapter. Students complete training for a specific task by reading a brief overview of the goals of that task, viewing a demonstration of the task with audio instructions, practicing the task with screen tips and corrective feedback, and finally completing the task with no assistance.

Assessment in the course has three main components: homework, case studies, and examinations. In developing appropriate assessment tools, the goals of the course which include providing students with basic computer literacy as well as the ability to apply these computer skills to solve "real-world" problems in business environments has to be considered.

Milestones in the form of homework assignments are provided to assist students in keeping pace in the course. In addition to homework assignments, students are required to complete in-class hands-on exams through SAM2003, and an applied case study for each section of the course. With the exception of two mandatory lectures, covering Excel and Access, all course meetings are optional for students. The instructor is present during each class and acts as an instructional resource for all questions relating to course material or requirements.

2. Learning Goals and Objectives

One element of the School of Business at Montclair State University's Strategic Charter is the goal of "graduating students who are immediately effective in cutting-edge business organizations." (Montclair, 2007). In today's business environment the degree candidates of Bachelors of Business Administration must be competent in the use of technology in order to meet this goal.

The first step in the development of an assessment tool for technology skills is the identification of objectives that each graduating students should posses. Four broad objectives relating to the use of technology for information retrieval, communication, analysis, and organization have been advocated in this school of Business.

Students will be able to use appropriate technology to…

1. *Search for and gather business information.*

   Measures student proficiency in using the Internet, business databases, and search engines to locate business information

2. *Communicate business information.*

   Measures student proficiency in using word processing software (Microsoft Word) and presentation software (Microsoft PowerPoint)

3. *Analyze business information.*

   Measures student proficiency in using spreadsheet software (Microsoft Excel) to analyze data

4. *Collect, organize, store, and retrieve data for business purposes.*

   Measures student proficiency in using database software (Microsoft Access) to manage and leverage data to improve business processes

Once the broad objectives for the technology assessment are identified, the next step in the process is the identification of specific technology-related behaviors and actions that will be assessed. The specific

skills targeted by the assessments within the course are presented below. They are organized by their relation to the four broad objectives identified above.

Learning outcome 1 - Students will be able to use appropriate technology to search for and gather business information.

- Use Internet Search Engines to locate business information
- Use Library Databases to locate business articles
- Transfer Electronic data into appropriate software applications
- Evaluate information resources

Learning outcome 2 - Students will be able to use appropriate technology to communicate business information.

- Use Word Processing Software to create business documents including, letters, memos, and reports
- Use Word Processing Software to create brochures and newsletters
- Properly cite references in documents and presentations
- Use Presentation Software to create slideshows to accompany oral presentations
- Integrate charts, graphs, and data from spreadsheet and database software into documents and presentations

Learning outcome 3 - Students will be able to use appropriate technology to analyze business information.

- Use Spreadsheet software to create business models
- Use Spreadsheet software as a tool for decision making.
- Use Spreadsheet software to perform what it analyses
- Use Spreadsheet software to analyze data
- Use Spreadsheet software to create graphical representations of data

Learning outcome 4 - Students will be able to use appropriate technology to collect, organize, store, and retrieve data for business purposes.

- Collect, organize, and update business information

using database software
- Present database information to users through the use of forms and reports
- Use database queries to answer questions about business performance
- Integrate data from databases into spreadsheet models and graphs

3. Technology Assessment

Students graduating with a degree in business must not only have the ability to perform skills or tasks in the application programs (i.e., Excel) but more importantly be able to apply skills to the solution of business problems. Assessment within the INFO273 course is comprised of three elements: homework, skills-based exams, and application-based case projects. Each of these assessment elements is discussed separately below.

As discussed earlier in the paper, INFO273 is offered as a "hybrid" course with students learning material at their own pace. To assist students in covering course material at a pace that allows time for completion of all course material, milestones in the form of homework, exams, and case projects are established. Students are required to submit bi-weekly homework assignments through the Blackboard course management system. Homework assignments are designed to reinforce material that students should be covering on their own; assignments are graded to give students feedback on topics that they should review prior before completing other assessments in the course. Grading of these assignments is to be done informative to students and not to be punitive in terms of reducing their final course grade; instructor feedback to students is provided through Blackboard.

The second component of assessment within the course focuses on the students' ability to complete skills in various software programs; exams on each of the three areas in the course are administered using a hands-on computer based-test (CBT) developed outside of Montclair State University. Currently, faculties in the Business schools are using SAM2003 which is developed by Course Technology. Each of the three skills-based exams is comprised of about 30 questions. All questions require

students to complete a skills-based task in Word, PowerPoint, Excel, or Access. Students are graded automatically by the CBT with no partial credit awarded. The CBT allows students to perform tasks in multiple ways (i.e., using shortcut keys, using menus, or using the mouse). A sample screen shot of a skills-based question can be viewed in Figure 1.
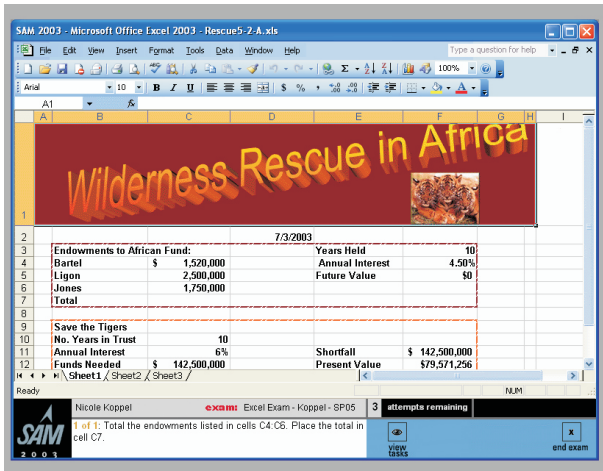

Figure 1. Screenshot of CBT used for Assessment

The third assessment component in the course focuses on assessing students' ability to apply various software programs to solve business problems. Students complete three instructor-developed case studies/projects one for each of the three main subject areas covered in the course. Students are required to make recommendations on each problem based upon data and information presented in the case study and to analyse the performance using the target software programs. Instructors use the technology learning goals and associated learning objectives identified in Section 2 to develop case studies that focus on the specific technology-related behaviors and actions identified in previous section. The goal is to cover all technology-related behaviors and actions in at least one case project. All cases and supporting materials are provided to students through Blackboard; in addition, students submit all works for grading through the Blackboard system. Detailed rubrics are developed to grade the assignments; these rubrics relate project requirements to overall course goals and objectives. Students are aware

Overall Learning Objective(s)	Specific Objectives	Project Description
Word/Power point	• search for and gather business information • communicate business information	• Research an Emerging Technology(e.g., Wilki, Pod Casting, Blogs), create a one page informational brochure describing the technology and its potential uses in business. •Create a five-slide powerpoint presentation that could be used to present this technology in a business meeting
Excel/Word	• search for and gather business information • communicate business information • analyse business information	• Choose two companies that compete in the same industry. Research their financial status. Reconstruct their income statement in Excel. Create common size income statements and graphical presentations of income/expense data for both companies and use this to evaluate their position of the industry. Write a business memo summarizing the findings. •Evaluate a proposed project for your company over a five-year time frame, base your recommendations on NPV, include graphical representations of data and perform, sensitivity analyse to assess model robustness. Write a business memo summarizing the findings. •Construct cost/volume/porfit model for an education company, data provided includes assumptions for costs, tuition, and number of students, etc. Based on the recommendations on your model and the sensitivity of the model to changes in model parameters. Write a business letter to the presidentof the company Summarizing your findings.
Access/ power point	• search for and gather business information • communicate business information • analyse business information • collect, organize, store, and retrive data for business purposes.	•A cleaning company has hired you to assess how they can increase sales to existing customers:create a database based upon information porvided. Populate the database from the company's records, create queries, reports, and forms to answer questions about the companies service record, make recommendations in the form of a power point presentation. •A preparing company has hired you to review their estimating system:they are concerned that actual job costs are greater than estimates-create a data base based upon information provided , populate the database from the company's records, create queries, reports, and forms to answer questions about the companies job cost history, make recommendations in the form of a powerpoint presentation.

Table 1. Examples of Case Project Assignments

of how partial credit will be awarded. Table 1 provides abbreviated examples of past case study assignments; case write-ups are typically 3-4 pages for each case study.

4. Conclusion and Future Directions

The assessment program discussed in this paper addresses both the need for computer literacy skills as well as the ability to apply these computer skills to "real-world" problems in business environments. Developing these assessment tools for the Computers in Business course is an important first step in developing an overall technology assessment program within the School of Business.

While assessing acquisition of knowledge or development of skills within a course is an important measure of student learning within the course, course-embedded assessments do not evaluate whether students are able to retain the knowledge and skills developed to use in future courses and in the workplace. Based on the assessment tools for the Computers in Business course discussed in this paper, we plan to develop a technology assessment program for the business administration program that will address the new 2003 AACSB assessment standards, requiring evidence that business students are developing and retaining the skills and knowledge base that the curriculum purports to teach (AACSB, 2005).

References

[1]. AACSB. 2005. Overview of Assessment. Assessment Resource Center. http://www.aacsb.edu/resource_centers/assessment/overview-expectations.asp. Last Accessed August 2005.

[2]. Killmer Hollister, Kimberly, and Koppel, Nicole B., (2003). A Hybrid Approach to Teaching Business Computer Applications, *Proceedings of the Northeast Business & Economics Association 30th Annual Conference*, Parsippany, NJ.

[3]. Mackenzie, Maureen L., (2004). Business Education: Learning Outcomes, Embedded Assessments and Student Feedback, Proceedings of the Northeast Business & Economics Association 31st Annual Conference, New York, NY.

[4]. Martell, Kathryn and Calderon, Thomas G., (2005), *Chapter 1: Assessment In Business Schools: What It Is, Where We Are, And Where We Need To Go Now*, Assessment of Student Learning in Business Schools: Best Practices Each Step of the Way. Tallahasee, FL: The Association for Institutional Research and AACSB International.

[5]. Montclair State University (2007), www.montclair.edu (accessed February 2007)

[6]. Nellen, Annette and Turner, Marlene t. (2006) Rising Expectations in Business Education, *The Tax Adviser*, 37(2) 116..

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