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The purpose of this journal is to assemble researched and documented ideas that help drive successful learning and motivate business students to learn. The intention is to draw ideas from across both methods and disciplines and to create a refereed body of knowledge on innovation in business education. As a result, the primary audience includes business education faculty, curriculum directors, and practitioners who are dedicated to providing effective and exciting education.

We invite you to read about innovations published and apply in your classroom. We also encourage you to develop your original creative ideas, prepare an article, and submit for review.

This particular issue includes a number of interesting classroom innovations in diverse areas.

Peter J. Billington
Editor

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Purposeful Assessment Design: Aligning Course-Embedded Assessment with Program-Level Learning Goals

Rita Kumar, California State Polytechnic University Pomona, California, USA
Jun Myers, California State Polytechnic University Pomona, California, USA
Zeynep G. Aytug, California State Polytechnic University Pomona, California, USA
Larisa Preiser-Houy, California State Polytechnic University Pomona, California, USA

ABSTRACT

This paper describes the development and testing of two course-embedded instruments to assess written communication skills of undergraduate business majors at a large public university. This assessment was an integral part of a college-wide Assurance of Learning (AOL) system to ensure that students possess the desired level of competency upon the completion of business core courses.

Based on Gerretson and Golson's (2004) model for course-embedded assessments, two different assignments adaptive to the specific course contents in marketing and management were developed and tested in two different courses, using a common scoring rubric with specific criteria and standards of performance. A total of 143 students participated in the assessment. Based on the results, faculty identified areas of improvement and made changes to the curriculum to strengthen students' writing competencies. The insights from the design and implementation of the course-embedded assessment will benefit future innovative outcomes-based assessment practices in higher education.

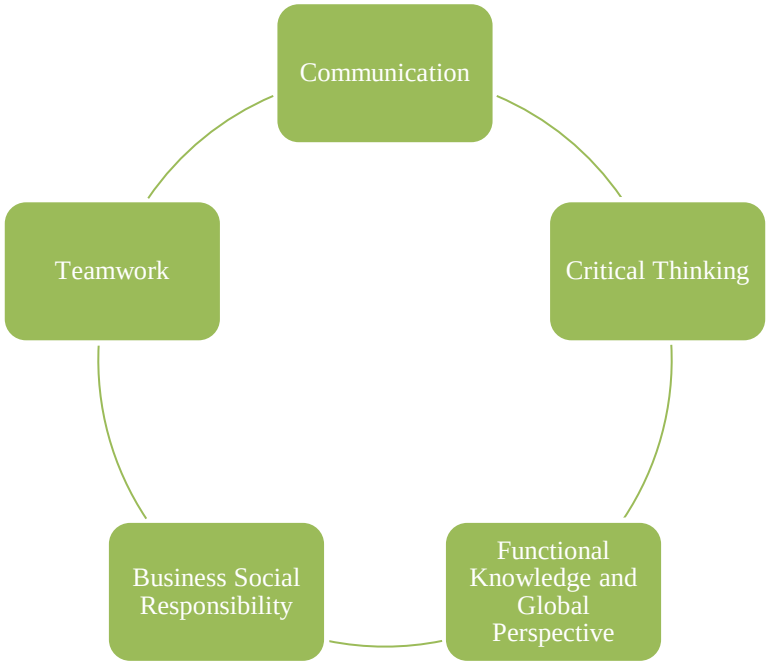
Keywords: Business Education, Course-Embedded Assessment, Written Communication Skills, AACSB

INTRODUCTION

Assurance of learning is an important aspect of the educational experience, especially as it relates to satisfying accreditation requirements such as for AACSB – The Association to Advance Collegiate Schools of Business (AACSB, 2017). One of the challenges is developing assessment instruments for program-level learning goals that can be effectively embedded into undergraduate business core courses while aligning the assessment with the course learning objectives (Hutchings, 2016). Such embedded approaches not only offer a systematic methodology of assessment, but also are nonintrusive (Gerretson and Golson, 2004) and can help mitigate faculty resistance to program-level assessment initiatives which they may lack necessary knowledge of, and perceive as demanding significant time commitment (Kelley et al, 2010).

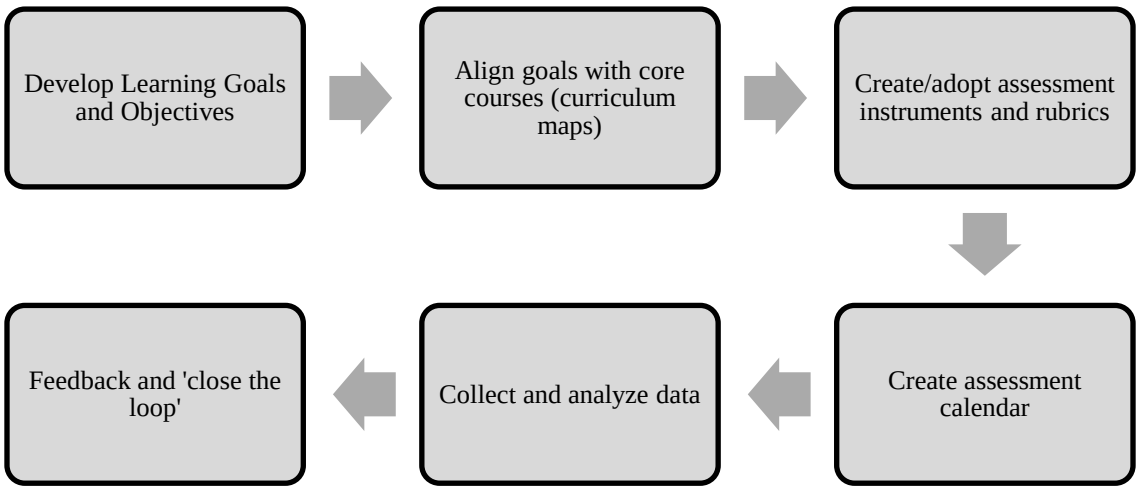
This paper describes the development and testing of two course-embedded instruments to assess written communication skills of undergraduate business majors at a large public university. Communications skills is one of five learning goals for the Bachelor of Science in Business Administration (BSBA) degree program offered in the College of Business Administration. Figure 1 shows the program-level learning goals for the BSBA. Communication skills include both written and oral communication.

Figure 1: Program-Level Learning Goals for the BSBA



The assessment described in this paper was an integral part of a college-wide Assurance of Learning (AOL) system to ensure that students possess the desired level of competency upon the completion of business core courses. The faculty-driven process is overseen by a committee comprising of faculty representatives from each department in the College, and an Associate Dean. A faculty coordinator for undergraduate assessment has responsibility for facilitating the process and preparing assessment reports. Figure 2 shows the AOL process.

Figure 2: Assurance of Learning Process



ASSESSMENT OF WRITTEN COMMUNICATION SKILLS IN HIGHER EDUCATION

Communication competence is one of the most important factors necessary for professional and managerial success (Brink and Costigan, 2015); and it is a crucial skill for business graduates, as evidenced by surveys of employers as well as academics (cf. Brown, 2015; Hult Labs, 2014; National Association of Colleges and Employers, 2015). There is widespread agreement on the critical need to include them in the business curriculum (Conrad and Newberry, 2012). It is also one of the most popular program-level learning goals adopted by AACSB accredited business schools (AACSB white paper, 2013). This is reinforced by the fact that a recent survey of Deans at AACSB accredited business schools found that communication was the most assessed skill in business schools' Assurance of Learning (AOL) process (Wheeling et al, 2015). In light of the ubiquity of assessing communication skills for assurance of business program learning goals, a course-embedded approach is adopted in an attempt to develop and test a set of adaptive assessment instruments for written communication competency of undergraduate business majors at a large public university.

Course-embedded assessment practices aligned to program-level objectives allow for flexibility in course content and delivery while ensuring consistency in evaluating student learning across the program's curriculum (Gerretson and Golson, 2005). Course-embedded assessment (CEA) is defined as ".. a classroom-based process that uses instructor grading to answer questions about student learning outcomes in a non-intrusive, systematic manner." (p. 4, Gerretson and Golson, 2004). In addition to being more meaningful, less intrusive and less time consuming, CEA can promote well-informed conversations among faculty on expectations for student learning, standards of performance at the program level and best practices for enhancing student learning across the curriculum. Ammons and Mills (2005) also posit that assurance of learning results at the course level can be used to support program level assessment and can provide evidence regarding the contribution made by a course to a related learning goal and a measurable objective of the program. Furthermore, AACSB specifically identifies course-embedded measures as one of the approaches available for assessment (AACSB white paper, 2013). Steps involved in implementing course-embedded assessments are detailed in the literature (e.g., Ingols and Shapiro 2014, McConnell et al, 2008, and Gerretson and Golson, 2004). In general, the CEA process engages faculty in defining learning objectives for the course, developing a rubric to measure the degree to which the objective is being met by the student, using the rubric to grade student work, record and analyze data, and determine future changes to the curriculum, pedagogy, or assessment methods (Gerretson and Golson, 2004).Various studies have reported on experiences with course-embedded measures, for example, with multiple choice questions to assess quantitative skills in a finance course (Santos et al, 2014) and for evaluating cross-functional integration in an accounting course (Ammons and Mills, 2005).

With respect to written communication competency, different approaches have been used to incorporate written communication in the curriculum and course content. Writing-across-the-curriculum programs have met with mixed success (Plutsky and Wilson, 2001). The use of writing workshops as an additional resource to enhance written communication skills is described in Docherty et al (2010). In a similar vein, communication modules designed to be taken concurrently with the core courses is described in Young and Murphy (2003).

METHODOLOGY

In this research, we followed Gerretson and Golson's (2004) model for the development and evaluation of course-embedded assessment. Aligning both program-level learning goals and course-level learning objectives, two different written communication assignments were designed and implemented in two required undergraduate business core courses – a Principles of Management course, and a Principles of Marketing Management course. Both courses include written communication in the context of the subject areas in business, which provides strong rationale for them to be identified as the courses to assess written communication competency. Both classes follow the University and the College's "meaningful writing requirement". Under this requirement, students complete writing assignments for the course during the term (which counts for at least 10% of the course learning components) and receive feedback before the term is over. The format of such writing assignments can range from exams, quizzes, reflection papers, research papers, or essays. Faculty have the authority to select the most appropriate writing assignments for the course to meet the "meaningful writing requirement" as well as specific

course objectives.

Students enrolled in these courses were not required to take any prerequisites. However, in general, students with sophomore and junior standing make up the majority of these classes; and they tend to have various experiences in writing in both general and discipline specific areas.

Principles of Management course-embedded assignment

Principles of Management is an introductory-level management course for all BSBA students in the College. It provides students with an overview of the major concepts, models, and theories in the field of management. The course covers significant management literature, practical applications of management theories to problems in planning, organizing and controlling business activities, analysis of external and internal organizational environments, organizational culture and structure, and managerial decision making and control activities.

The Principles of Management course has five course Student Learning Outcomes (SLOs): 1) students will become familiar with the fundamental management concepts and the main principles of effective management; 2) students will demonstrate practical applications of management theories in a variety of organizational settings; 3) students will describe the mechanisms via which the managers can affect the level of organizational performance; 4) students will practice analyzing the internal and external environment of an organization and describe their effects on the performance of the organization; and 5) students will apply problem solving methodology and the standards of ethical behavior to real-life organizational issues, and will produce practical managerial recommendations to address them.

In line with these course SLOs, class coverage and discussions focus on developing students' managerial skills, particularly their communication competence, as it is a vital aspect of managerial success (cf. Bambakas and Patrickson, 2009). Consequently, Principles of Management class is an appropriate context to measure the program learning outcomes in written communication. Also, throughout this course, students are exposed to models and examples of managerial traits, skills, and behaviors. In relation to these concepts, a writing assignment titled "Manager who Rocks!" was designed with two objectives:

1. To stimulate individual reflection and critical thinking about effective managerial characteristics, behaviors, and activities, as a basis for the upcoming class coverage on management functions.
2. To assess students' current level of written communication skills, determine their competency level with respect to written communication competency criteria specified at the program level, and identify potential areas for improvement.

Students were required to write a 2-page essay about individual characteristics, behaviors, and activities of an outstanding manager. They were asked to support their arguments using examples from real life, individual experience, or other published sources.

Principles of Marketing Management course-embedded assignment

Principles of Marketing Management is an introductory course in marketing management for all BSBA students in the College. It introduces students to basic principles, concepts, and institutions involved in facilitating the exchange of goods and services. The course also introduces students to the process and skills in analyzing the markets, the marketing environment, and the "marketing mix" variables, to facilitate strategic marketing planning and implementation and control of marketing strategies to gain competitive advantage.

Principles of Marketing Management course has six course SLOs: 1) students will recognize the nature, scope and role of marketing and apply the marketing concepts in the context of modern day businesses; 2) students will recognize the nature and importance of marketing research, and apply basic marketing research skills in developing and evaluating marketing problems, 3) students will identify and examine marketing mix strategies within the context of controllable and uncontrollable (specifically, legal, competitive, and demographic) environments, 4) students will identify the major growth areas in marketing, 5) students will analyze and evaluate the ethical issues involved in developing and implementing marketing strategies, 6) students will research and write critical marketing problem paper on some aspects of marketing.

In line with the course SLOs, writing in the context of marketing offers a good fit to measure the program learning outcomes in written communication. Among the course topics, "strategic planning in marketing" is one of the early modules in this course to offer students an overview of the structure and the key components of strategic marketing planning, such as the organization's strategic mission, goals, core values and situation analysis. In order to select a topic in the "strategic marketing planning" module that is relatable to all students in the class for this writing assignment, the University's "core values" was selected as a prompt for the development of the assignment. All students enrolled, regardless of their academic standing should have some personal experience with the University's "core values" and how those were experienced from their day-to-day life on campus. The university's core values include "polytechnic identity", "academic quality", "learn by doing", "teacher-scholars", "environmental sustainability", and "celebration of diversity". The resultant assignment in the Principles of Management course involves two objectives:

1. To have students reflect on their educational experience at the university and how it relates to the university's core values. This would influence the discussion of strategic planning in marketing.
2. To assess students' written communication skills and identify potential areas for improvement (identical to the second objective for the Principles of Management assignment identified above).

Students were asked to review the university's core values and write a two page narrative discussing how their educational experience (e.g., in a class or through an extra-curricular activity on campus or in the community) reflects one or more core values of the university. More specifically, they had to describe the context of their university experience and provide rationale as to how this experience exemplifies the university's core values.

Scoring of student outputs

For both courses, a common rubric was used to score the submissions on three criteria – basic grammar, structure, and content. Each criterion was scored on a scale from 1 (poor) to 4 (excellent). A score of at least 3 was required to demonstrate competency in each criterion, and an overall score (average of the scores for the three criteria) of at least 3 was required to demonstrate competency in the written communications learning goal. This rubric (presented in Appendix 1) had been previously adopted at the college level, and was provided to the students in advance. The assessment assignments were implemented as Blackboard assignments, where students could upload their essays directly to Blackboard, and get graded for course credit. Each essay was scored by two raters – the course instructor, and a second rater.

An analysis of rater agreement was undertaken to check for consistency in ratings across the two raters. The rater agreement is expressed as a percentage, showing the extent to which the two raters agreed on the classification of each essay along each criterion as well as overall (the classification being whether the student had demonstrated competency, i.e., whether the score was at least 3). Table 1 exhibits the rater agreement percentages for both courses. As seen in the table, there was more than 80% agreement on the overall score, indicating a high level of consistency between the raters. The two raters' scores were averaged to determine the final score for each essay.

Table 1: Rater Agreement Summary

	Basic Grammar	Structure	Content	Overall Score
Principles of Management	78.67%	94.67%	90.67%	86.67%
Principles of Marketing Management	73.53%	79.41%	85.29%	80.88%

RESULTS

A total of 143 students participated in the assessment. The college's benchmark is that at least 70% of students should receive a score of at least 3 (on a 4 point scale), using the established rubric. The results for each course, as well as the overall results are presented below.

Principles of Management writing assignment:
Seventy-five students were assessed in the Principles of Management course. Table 2 shows the summary of results based on the average scores (across both raters) for each essay. The mean and median scores across all students are reported, along with the percentage of students meeting or exceeding a score of 3.

Table 2: Summary of Results – Principles of Management Course-Embedded Assessment

Average ratings: # of students = 75

	Basic Grammar	Structure	Content	Overall score
Mean score (across students)	3.37	3.65	3.41	3.48
Median score (across students)	3.5	3.5	3.5	3.5
% of students scoring '3' or higher	82.7%	97.3%	89.3%	94.7%

Table 2 shows that the mean and median scores for each criterion, as well as the overall mean and median scores were at least 3. Further, at least 70% of the students received a score of 3 or higher. Students scored highest on structure and lowest on basic grammar.

Principles of Marketing Management writing assignment:
Sixty-eight students were assessed in the Principles of Marketing Management course. Table 3 shows the summary of results based on the average scores (across both raters) for each essay.

Table 3: Summary of Results – Principles of Marketing Management Course-Embedded Assessment

Average ratings: # of students = 68

	Basic Grammar	Structure	Content	Overall score
Mean score (across students)	3.03	3.17	3.33	3.18
Median score (across students)	3	3	3.5	3.17
% of students scoring '3' or higher	69.1%	73.5%	86.8%	73.5%

Table 3 shows that the mean and median scores for each criterion, as well as the overall mean and median scores were at least 3. However, while at least 70% of the students met the college's threshold for structure and content, the benchmark was not met for basic grammar.

Finally, Table 4 shows the aggregate results for both courses.

Table 4: Summary of Results – Aggregate Data

Average ratings: # of students = 143

	Basic Grammar	Structure	Content	Overall score
Mean score (across students)	3.21	3.42	3.37	3.33
Median score (across students)	3.25	3.5	3.5	3.33
% of students scoring '3' or higher	76.2%	86.0%	88.1%	84.6%

Table 4 shows that when considered at the program level across both courses, the college's benchmark of at least 70% of students earning a score of at least 3, is met for each criterion, as well as overall.

CONCLUSIONS

Both instruments implemented in the study appear to be well received by the instructors and students. Neither the instructors nor students expressed any concerns about the assessment instruments being a hindrance or distraction to the learning activities in their respective courses. On the contrary, these assignments that were designed in relation to the course SLOs became beneficial tools not only to measure written communication skills, but also to enhance the student learning and understanding of the related course concepts and to provide an opportunity for the students to practice self reflection and critical thinking as well. The assessment results appear to reflect students' writing competency based on the pre-established rubrics, and hold promise to be further implemented in the subsequent AOL cycles in core business courses. However, an interesting observation is that scores were higher in the Principles of Management course. This may be due to the fact that the assignment was directly related to the course content and students were allowed to use external sources. On the other hand, in the Principles of Marketing Management course, students were required to reflect on their own experiences and couldn't rely on external sources. In addition, several students were new to the university (transfer students), and may not have had enough experience with the university to frame it in the context of the university's core values. These factors may have made the assignment more challenging.

As mentioned above, one of the objectives of this assessment procedure was to identify potential areas for improvement. As part of the college's efforts in continuous improvement and 'closing the loop', a new core course, "Applied Business Communication" has been introduced in the curriculum, and will be offered for the first time in Fall 2018. In addition to ongoing assessment in existing core courses, this new course will further facilitate program-level assessment of written communication skills. Another 'closing the loop' action resultant from the study was to include an English Composition class from either English or Integrated General Education areas as a prerequisite to Principles of Marketing Management, to ensure that all students receive systematic training in writing prior to taking this course.

Additional insights can be gleaned from the development and implementation of the course-embedded assessment process to evaluate written communication competency across the business curriculum. The insights may be

categorized along the following dimensions, as depicted in Table 5: course design, assignment design, faculty, students, technology, and the culture of assessment.

Table 5: Summary of Insights

Dimension	Insight
Course design	• Aligning program-level objectives with course-level student learning outcomes
Assignment design	• Adapting the mechanics of the assignment design to students' expected competency level in the program
Faculty	• Leveraging the course-embedded assessment process to balance faculty time spent on assessment with usefulness and relevance of assessment evidence to inform teaching and learning practices at the course and program levels
Students	• Sharing the assessment rubric with students prior to assigning the assignment; this ensures common understanding of expectations on how student work will be evaluated and at what levels of performance
Technology	• Leveraging Learning Management System (e.g., Blackboard) to embed assignment and rubrics in student course experience
Culture of Assessment	• Utilizing course-embedded assessment to turn intermittent assessment efforts into a continuous and systematic process • Promoting course-embedded assessment as an innovative pedagogy that demonstrates program quality and integrity • Framing course-embedded assessment as a strategy for quality assurance, organizational learning and improvement • Utilizing evidence from course-embedded assessment in annual assessment reports to the university and in discipline-based accreditation reports for external accreditors • Developing a culture of assessment through broad faculty participation and communication of assessment results to internal and external stakeholders on a regular basis

These insights may contribute to peer AACSB member schools' further explorations toward a more innovative, intentional, adaptive, and sustainable assurance of learning (AOL) practice in assessing program-level learning goals.

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Appendix 1: Written Communication Skills Rubric

Scoring Base	Rating = 4	Rating = 3	Rating = 2	Rating = 1
Basic Grammar	The writing has no major errors in word selection and use, sentence structure, spelling, punctuation, and capitalization	The writing is adequately free of errors in word selection and use, sentence structure, spelling, punctuation, and capitalization	The writing has several major errors in word selection and use, sentence structure, spelling, punctuation, and capitalization.	The writing has serious and persistent errors in word selection and use, sentence structure, spelling, punctuation, and capitalization.
Structure	The writing has clear and appropriate beginning, development, and conclusion. Paragraphing and transitions are also clear and appropriate.	The writing has adequate beginning, development, and conclusion. Paragraphing and transitions are also adequate.	The writing has weak beginning, development, and conclusion. Paragraphing and transitions are also deficient.	The organizational structure and paragraphing of the writing have serious and persistent errors.
Content	The writing provides in-depth coverage of the assigned topic, and assertions are clearly supported by evidence.	The writing provides sufficient coverage of the assigned topic, and assertions are supported by evidence.	The writing provides weak coverage of the assigned topic, and assertions are weakly supported by evidence.	The writing provides very poor coverage of the assigned topic, and assertions are very poorly supported by evidence.

Rita Kumar is a Professor of Technology and Operations Management at the College of Business Administration at California State Polytechnic University, Pomona. She received her Ph.D. and M.S. from Carnegie Mellon University. She serves as the Undergraduate Assessment Coordinator for the College of Business Administration. Her research interests include business analytics, service operations management, and assurance of learning.

Jun Myers is an Associate Professor of Marketing at California State Polytechnic University, Pomona. She currently serves as the Graduate Assessment Coordinator for the Graduate Programs in the College of Business Administration. She holds a Ph.D. in Mass Communication from the University of Minnesota, Twin Cities. She can be reached at jrmyers@cpp.edu.

Zeynep G. Aytug is an Assistant Professor of Management at the College of Business Administration at California State Polytechnic University, Pomona. She earned her Ph.D. in Business - Management from Baruch College, City University of New York, and her MS in Human Resources Management and Development from Marmara University. Her research focuses on gender, diversity and creativity in negotiations, and effective assessment practices to enhance student learning.

Larisa Preiser-Houy is an interim Associate Vice President for Academic Programs, an Accreditation Liaison Officer with WSCUC, and a Professor of Computer Information Systems at California State Polytechnic University, Pomona. She holds a Ph.D. and MS in Management Information Systems and an M.B.A with a concentration in Strategic Management from Claremont Graduate University. Dr. Preiser-Houy oversees undergraduate/graduate programs, educational effectiveness, high-impact educational practices, and accreditation. Her research interests include assurance of student learning, service-learning in higher education, and individual/organizational impacts of information technology implementations.

A Strategic Approach to the Implementation of the 2013 AACSB International Standards

Barry H Williams, King's College, Pennsylvania, United States
Amy L. Parsons, King's College, Pennsylvania, United States
Christopher Alexander, King's College, Pennsylvania, United States

ABSTRACT

Colleges and universities have taken many approaches to handling the 2013 AACSB International standards and the update to the standards in 2017. Smaller colleges and universities are challenged by the limited faculty resources that are available to meet the expectations of the standards as well as the other responsibilities they have in their organizations. The strategic approach that was taken by King's College was to group innovation, engagement, and impact with the stakeholder groups of the College to utilize micro tasks amongst multiple groups within the stakeholder groups to meet the expectations.

Key Words: strategic management, 2013 AACSB international, standards, assurance of learning, student development, accreditation

INTRODUCTION

The process of designing and implementing a strategic approach to the management of a School of Business is a central tenant to the 2013 Eligibility Procedures and Accreditation Standards for Business Accreditation ("2013 Standards"). The focus on strategic planning is a requirement that must be demonstrated for the continued maintenance of accreditation or to secure initial accreditation by AACSB International - The Association to Advance Collegiate Schools of Business (AACSB) and is also a best practice of colleges and universities as they chart the waters of uncertain economic times surrounding higher education. (AACSB 2017)

Strategic management for a School of Business is more than a checklist of requirements or set of rules provided by the 2013 Standards and requires an intersection of themes, standards, mission, values, and vision with a strategic plan. Academic leadership of the School of Business should think strategically in organizing the processes to be followed in the design and operational implementation of the 2013 Standards through curriculum design, faculty and staffing considerations, students, administration, and other stakeholders. It is the intersection of the strategy and operational design of programs where a school sets forth the relationship of the Colleges and School of Business missions, visions, and values to goals, objectives, and outcome expectations. This approach is consistent with the themes and requirements of the 2013 Standards requirements. (Miles, Franklin, Grimmer, and Heriot, 2015)

The 2013 Standards are organized around a preamble with three vital areas of continuous quality improvement and two sections which incorporate core values, guiding principles and fifteen standards. It is expected that a School of Business will show compliance with these areas and provide an atmosphere of sustainability in meeting the expectations of accreditation. The guiding principles proceed from the changing climate in which higher education finds itself including financial challenges and stakeholder expectations (Abdelsamad, Farmer, McNeil, and Stevens, 2015). The continuous quality improvement in the preamble consists of three areas:

- Engagement;
- Innovation; and
- Impact.

The first section of the 2013 Standards includes the expectations for the eligibility criteria of a School of Business for accreditation. Included in these expectations are:

- Encourage ethical behavior by students, faculty, administrators, and professional staff;
- Maintain a collegial environment where stakeholders interact and collaborate;
- Demonstrate a commitment to corporate social responsibility; and
- Establish accreditation scope within the overall College or University.

The second section of the 2013 Standards deals with the specific fifteen standards that a School of Business must demonstrate compliance with. These standards are divided into four categories:

- Strategic Management and Innovation;
- Students, Faculty, and Professional Staff;
- Learning and Teaching; and
- Academic and Professional Engagement. (AACSB 2017)

The elements of the preamble and both sections of the standards cannot be achieved by the School of Business addressing one in isolation from the others. The intersection of these three areas of the 2013 Standards is where the strategic planning process and the operationalization of the strategic plan meet. The success occurs when multiple elements from each group are designed to accomplish a combination of tasks in the operational plans to demonstrate fulfillment of the 2013 Standards.

STATEMENT OF PURPOSE

This paper explores the approach to and the implementation of the 2013 Standards in the William G. McGowan School of Business ("McGowan") at King's College. It further explores the literature that has been written on the implementation of the 2013 Standards to Schools of Business and compares the approach taken by McGowan. The principles of strategic management and the literature on applying these processes to not for profit organizations will be examined to determine comparisons to the 2013 Standards and the planning and operationalization of the strategic management approach to McGowan. With the 2013 standards and the revision in 2017 there are expanded expectations for scholarship in the area of quality and impact. There is also an enhanced focus on the mission driven impact that McGowan must show in impact upon the outcomes of students and Assurance of Learning (AoL). To ask a small faculty to do this in addition to everything else that is expected in a small school may not be realistic but nevertheless is expected. The way to do achieve it is through the strategic management of the stakeholder groups and the use of single tasks to accomplish multiple purposes.

LITERATURE REVIEW

A review of the literature in the field of strategic management and the application to the 2013 Standards implementation in schools of business was conducted to provide insights and strategies of in-practice implementation. The literature is also consistent with the general scope of strategic management processes for the broader community of organizations as well as other schools of business. This research also provides a theoretical base to the application of the 2013 Standards to practice which provides insight into the sustainability of the process as AACSB International adapts to the ever-changing landscape of higher education.

Given the requirements of ensuring that a School of Business adheres to the new 2013 standards, there has been an attempt in the business and higher education literature to further explain the new standards and to demonstrate how Schools of Business can meet the demands to become or remain AACSB accredited. The standards were developed in response to a changing business environment and a desire for business schools to remain relevant and accountable by demonstrating continuous improvement related to innovation, impact and engagement (Abdelsamad et. al., 2015). The implications of the 2013 Standards pose many challenges for deans who need to work with students, faculty, alumni and other stakeholders to create a mission that is linked with society, their region and their university and then acquire and deploy resources to support the mission (Miles. et. al., 2014).

In the business education literature, there are a few examples of how to address various specific aspects of the 2013 Standards. Zhu and Fleming (2017) focus on how to align assurance of learning activities with the 2013 standards and share a three-stage process that requires Schools of Business "to identify program learning goals, learning objectives for each program learning goal and to map program learning goals and objectives into the business curricula" (p. 51). Following these three stages will help Schools of Business effectively address the assurance of learning requirements. Marques and Garret (2012) also provide insights to the assurance of learning aspect of the 2013 Standards and describe a five-step process that involves defining outcomes at the program level, developing a shared progressive curriculum for the program, identifying and gathering work in key courses using standardized rubrics, creating a few externally validated assessments and creating an Assessment Committee to monitor and assess the assessment program.

In addressing issues related to the Participants component of the Standards which includes students, faculty and professional staff, Kindu and Bairi (2016a) describe how to develop a process model using a systematic approach to address the standards. In assessing the relationship between a School's mission and its faculty, Geaney (2017) discusses the importance of understanding the circular relationship between the portfolio of a faculty's intellectual contributions, the impact of that portfolio, management and support processes, teaching and learning and academic and professional engagement.

On a broader level, strategic management has been adapted from the business world to the higher education context. Strategic management for higher education is longer term in focus and relies more on shared governance and consensus than top down approaches often utilized in business (Hunter, 2013). Schools that have successfully utilized strategic management tools have a vision developed in consultation with relevant constituencies, make decisions informed by data and involve planning that is both aspirational and feasible (Pierce, 2017). One approach to strategic management involves using focus groups to develop a checklist of extensive questions that are then used to help the School of Business assess the key dimensions of the 2013 Standards (Kundu and Bairi (2016b). Alstete (2013) discusses the development of business core curricula using strategic management tools such as strategic group maps and weighted competitive growth assessment and suggests that these tools can help institutions to identify opportunities for improvement and provide theoretical frameworks for making decisions.

Key to the strategic management approach is the model of strategic management utilized in this paper. Although strategies are altered for an institution of higher learning, the premises of the model remain the same. As with for-profit organizations, a non-profit must start with an informed definition of it mission and vision. From there, both utilize the industrial-organizational and resource-based models to analyze the external and internal environments in which they conduct business. Based on this analysis, both types of organizations formulate their strategies (business-level, corporate level, international and cooperative). It is here where the application of several of the strategies differs. For higher education, the business-level strategies remain the same (cost leadership, differentiation, and integrated cost leadership/differentiation). However, the corporate, international, and cooperative strategies are applied in a somewhat different manner. For the corporate level, adding new programs rather than businesses would account for the level of diversification. For the international strategy, offering programs internationally would substitute for global, multi-domestic or transnational strategies. Lastly, cooperative strategies might include partnering with other institutions to offer programs rather than vertical or horizontal strategic alliances to share value chain activities. It is in the strategy implementation phase of the process that the process varies very little between for-profit and educational institutions. Governance, structure and control, strategic leadership and entrepreneurship are as relevant for colleges and universities as they are for corporations.

It is important to emphasize that primarily because they are related to how a firm interacts with its stakeholders (students, faculty, staff, administration, alumni, and the local community to name a few); most strategic management process decisions have ethical implications. (Luo, 2008; Reynolds, Schultz and Hekman, 2006; Trevino and Weaver, 2003). As the goal of strategic management is to identify capabilities, core competencies, and competitive advantages, decision makers failing to recognize that the implications of failing to meet the needs of the salient stakeholder groups (including accrediting bodies) during the process runs the risk of placing their organization at a competitive disadvantage (Heineman, 2007).

DISCUSSION

Integration of 2013 Standards and Strategic Initiatives

McGowan was first accredited by AACSB International in 2004 and has undergone successful maintenance of accreditation in 2009 and 2014. Throughout these accreditation efforts McGowan has utilized a strategic management approach to the accreditation and the management of McGowan, its programs and academic majors. The McGowan enrollment has been approximately five hundred (500) undergraduate students in its Bachelor of Science in Business Administration (BSBA) degree program and sixty (60) graduate students in its Master of Science in Health Care Administration (HCA) degree program. The organizational structure consists of a Dean, Director of the HCA program and two department chairs. The processes which inform, guide, and management the strategic planning processes, the curriculum continuous improvement, and structural changes begin with the Deans leadership group that consists of the Director and Chairs with input from faculty, administration, a business advisory council, and a student advisory group (stakeholders).

The challenges facing many small schools of business come from a relatively flat administrative structure, small faculty size and the demands placed upon these groups for achieving the requirements set forth by the College, School of Business, and the 2013 Standards. The successful implementation of continuous improvements activities in a small school of business can be achieved by the fundamental concept of mission centric strategies that recognize who the school of business is and adapting the strategic management approaches to achieving the mission though the delivery of quality programs. Ultimately, achieving measurable mission alignment impact under the 2013 Standards will proceed from a mission alignment and developing strategic initiatives and alliances with stakeholders that further that purpose. McGowan's mission (See Figure 2) proceeds from the College's mission (See Figure 1 and the fundamental educational tenants of the Congregation of Holy Cross which is the sponsor of the College.

Figure 1 - King's College Mission Statement

King's College is a Catholic institution of higher education animated and guided by the Congregation of Holy Cross. King's pursues excellence in teaching, learning, and scholarship through a rigorous core curriculum, major programs across the liberal arts and sciences, nationally-accredited professional programs at the undergraduate and graduate levels, and personal attention to student formation in a nurturing community.

Figure 2 - William G. McGowan School of Business Mission Statement

The William G. McGowan School of Business seeks to develop in its students the professional knowledge and skills needed to function successfully in the dynamic environments of business with a commitment to exercising their professional responsibilities in an ethical and socially responsible manner in a global marketplace.

To achieve its Mission, the William G. McGowan School of Business:

- Draws primarily traditional undergraduate students from the Mid-Atlantic region and students for the specialized certificate and master's degree in Health Care Administration regionally, nationally and globally and supports the educational tradition of the Congregation of Holy Cross in educating both the hearts and mind of students.
- Faculty provides a vital component in achieving our career focused and lifelong learning oriented student-centered learning goals through mentorship, teaching, scholarship, and service activities.
- Faculty maintains proficiency in their fields and teaching through pedagogical and applied research and by sharing their business expertise in private, public, and philanthropic endeavors.

Impact Measures and Mission Alignment

The Congregation of Holy Cross sponsorship and the Catholic intellectual tradition are important components of and inform the King's College and McGowan School of Business education. Blessed Fr. Basil Moreau, C. S. C., founder of the Congregation of Holy Cross, expressed his vision of educating the whole person, both mind and heart, as the essential philosophy of all Holy Cross schools. As a school of business within a Catholic College sponsored by the Congregation of Holy Cross, McGowan's Vision Statement, Values Statement, Mission Statement, Learning Goals, Curriculum, and Strategic Planning are guided by and informed by the educational vision of Blessed Fr. Basil Moreau. In the development of engagement of students, faculty and stakeholders; the determination of impact of scholarship, learning outcomes, and student success; and, innovation in program development, evaluation, and revision, the pillars of success are built upon the educational traditions of the Congregation of Holy Cross and the vision of the Blessed Fr. Basil Moreau. McGowan is committed to the fulfilling Blesses Fr. Moreau's vision in achieving successful outcomes for students through the educational tenants of Holy Cross and recognizing these elements as determining the alignment of mission and impact. Blessed Fr. Moreau's educational vision included: 1. Academic excellence; 2. Creative pedagogy; 3. Engaged mentorship; 4. Co-curricular participation; 5. A collaborative spirit; and 6. Intellectual, moral, spiritual, and personal growth in each student.

Proceeding from the alignment of the College and McGowan mission statements with Blessed Fr. Moreau's educational vision is the task of identifying impact in the areas of scholarship, academics, instruction, education, and community and making certain all areas are in alignment. In making these decisions the involvement of stakeholders in the process is central to the selection of the factors and in determining the success in achieving them,

and in providing continuous improvement recommendations. The measures of impact that McGowan has determined proceed from the mission and vision alignment are the following elements: 1. Academic excellence; 2. Creative pedagogy, 3. Engaged mentorship, 4. Co-curricular participation, 5. A collaborative spirit, 6. Intellectual, moral, spiritual, and personal growth in each student, 7. Professionalism, integrity, civility, and service; 8. Global spirit and understanding; 9. Professional knowledge for career readiness; 10. Communication skills; 11. Lifelong learning preparation; and 12. Intellectual curiosity.

The following measures of impact can then be aligned with the specific areas addressed in the 2013 Standards areas of mission alignment impact, academic impact, teaching impact and educational level impact. Mission related impact measures related to research, scholarship, presentations, etc. was identified by McGowan as: 1. Pedagogical scholarship; 2. Applied scholarship; 3. Ethics, spiritual and/or moral development scholarship; 4. Philanthropic organization and service learning scholarship; 5. Student-faculty joint scholarship; 6. Global business scholarship; 7. Engaged mentorship; 8. Co-curricular participation; and 9. Lifelong learning preparation.

Strategic Initiatives

McGowan has undertaken a number of initiatives designed to maintain a quality business education for the students which are meant to further the mission driven areas of impact. The initiatives that are undertaken follow the strategic planning process as it relates to engagement, innovation, and impact follows: 1. Engagement of Stakeholders to Foster/Review Innovation; 2. Innovation of curriculum and/or Programs; 3. Engagement of Stakeholders to Review Innovations; 4. Implementation of Innovations; 5. Impact Analysis of Innovations; and 6. Return to Beginning of Cycle.

Engagement of stakeholders occurs at more than one point in the process including development of innovative programs, engagement in the implementation of initiatives, and evaluation of initiatives. Utilizing this strategic approach to the themes of the 2013 Standards can best be displayed through examples of implemented programs that have been through one or more accreditation cycles. While innovation in education in education is encouraged in the 2013 Standards, it is critical to the success of the school of business that it occur in the same time frame as industry to avoid falling behind the pace of change needed to meet the expectations of all stakeholders. Creating sustainable models for innovation, engagement, and implementation creates what can be associated with a new paradigm in business education. The discussion that follows will demonstrate how the achievement of the 2013 Standards can be done while committing resources to student success and the pace of change needed for maintaining currency in business education. (Maxfield, 2014). An example of one important strategic initiative related to student success is described below.

Student Professional Development Program

The original innovation for what is now the Student Professional Development Program (the "SPDP") had its beginnings with the Office of Career Planning and Placements "Career Development Across the Curriculum Project" and the Department of Accounting in 2001. This linkage was the culmination of the McGowan faculty, Career Planning office, business advisory council, students, and recruiters to increase career awareness and preparation and led to the inclusion of a course titled CARP 412 – Career Planning II being included as a required course across the undergraduate majors in the McGowan (Williams, 2002). This innovation was the beginning of a mission centric approach to the strategic planning for long term student career development that evolved over time and to becoming sustainable in scope and financially.

The SPDP that was created included the application of the strategic vision aligned with the 2013 Standards that could be adapted rapidly through the process previously discussed to improve curriculum through a mission driven assurance of learning process. To achieve a continuous quality improvement culture, there must be an understanding that the process has a value and that the efforts have a meaningful impact on the curriculum. Central to developing this culture of lasting and sustainable quality improvement processes is meeting the expectations of stakeholders, meeting strategic plan objectives, adhering to the 2013 Standards, and being financially sustainable. With a small faculty the expectations for teaching, scholarship, service, and assurance of learning expectations demand the building of faculty involvement and buy-in to the system and success will not be achieved without them.

In doing such one must be mindful of opportunities for cross campus collaborations as well as single tasks fulfilling multiple requirements for success.

In designing the SPDP, the strategic plan called for the meeting of the objectives through the involvement of two areas that many times are kept in separate silos: Academic courses and Professional Development activities. To accomplish the objectives that needed to be achieved to bring about a culture of continuous quality improvements were as follows:

- Stakeholder involvement activities,
- Impact that draws upon the mission, vision, and values of the College and McGowan,
- Strategic Plan initiatives,
- 2013 Standards Achievement, and
- Financial sustainability.

The strategy was to utilize required academic courses for the program and to involve the College Career Planning Office, alumni, employers, faculty, and administration in tasks related to achieving the overall plan. By involving many stakeholders in a strategic initiative, no one group was asked to do so much that they would resist involvement and jeopardize the overall strategic initiative (Marques and Garret, 2013). Table I demonstrates how the parts of the plan work together for the singular goal of "Student Success". Table 2 is the portions of the McGowan strategic plan that are partially or fully accomplished though the SPDP.

An element of the plan that describes how the elements came together and works together toward a common goal is the William G. McGowan School of Business Forum (the "Forum"). Started in 2005 as a means of engaged mentorship for the students by alumni and friends of the College in a professional setting in New York City. The Forum has become an annual event rotating between Wilkes-Barre, PA (King's location), New York City, and Philadelphia, PA. The success of this partnership of stakeholders and objectives was demonstrated by the suggestion from data collection and analysis that the mission driven elements of business ethics, ethical decision making, values based education and self-efficacy were enhanced by this event. This then demonstrates the improvement in quality outcomes for the students, achievement in areas of the McGowan strategic plan, and attainment of AACSB International Standards (Blewitt, Blewitt, and Ryan, 2016).

CONCLUSION AND IMPLICATIONS FOR FUTURE RESEARCH

The implications of the 2013 Standards upon schools of business can be concerning for schools looking for a means to meet the requirements as outlined. The application of the strategic approach of combining stakeholders and expectations to create what could be called micro tasks leading to strategic success in the long term are based upon continued application of the engagement – innovation – impact cycle. To manage this cycle, deans will have to become more versed in strategic alignment of financial and human resources along task lines and away from silos. It will be these linkages that create a system that adapts to change at or close to the pace demanded by employers, donors, students, and all stakeholder groups.

Future research may examine different ways in which deans and their faculty can utilize the fullness of the strategic management approach to not only maintain their scope of educational offerings but also expand to include new capabilities, core competencies, and competitive advantages. A college or university may choose to redefine its business-level strategy to hone its differentiating features, or look for ways to cut costs without sacrificing quality. They may seek ways to develop new programs which enhance their current programs. They may seek to transfer their competencies to programs abroad. They may seek ways to partner with other institutions to explore programs that neither could offer alone. Most importantly, using AACSB guidelines and standards, future research may focus on ways to strengthen an institution's governance mechanisms, streamline its structure, utilize more appropriate controls, and strengthen its strategic leadership.

Table 1 – Student Professional Development Program
Undergraduate Areas of Innovation, Impact, and Engagement

Innovation Elements/Stages	Stakeholder Engagement	Impact	Strategic Plan Objective (Table 2)	Assurance of Learning Goal	AACSB 2013 Standard	Financial Sustainability
Academic Courses						
MSB 100 – Introduction to Business	• CP • EIR	• Career Orientation • Mission Awareness • Self-Efficacy	• 1d • 4c	• DM - ET - BEN • DM - IL – BEN • DM - OR – BEN	• 3 • 7 • 8	• EIR Endow-ment
MSB 250 – Business Communications and Mentoring	• EIR • FA	• Significant Measurable Increases in WR skills	• 1d • 4c	• DM - OR – DEV • DM - WR – ASM	• 8	• MSB Budget
CARP 412 – Career Planning II	• CP	• Career Development	• 1d • 4c	• DM - OR - ASM	• 7 • 8	• College Budget
MSB 400 – Professional Seminar	• CP • FA	• Career Development • Lifelong Learning	• 1d • 4c	• DM - PK - ASM	• 7 • 8	• MSB Budget
Developmental Activities						
William G. McGowan School of Business Forum	• AD • BAC • BU • DV • EIR • ST	• Engaged Mentorship • Self-Efficacy	• 2b • 4c • 5c • 5d		• CV-B • 3 • 7 • 10	• Targeted Fund Raising
Business Advisory Council Meeting	• AD • BAC • EIR • FA • ST	• Program Review and Revision • Engaged Mentorship	• 4c • 5a • 5c		• CV-B • 1 • 8 • 10	• MSB Budget
Business Competitions	• BU • CP • EIR • FA • ST	• Engaged Mentorship • PwC Top 5 Finish Nationally	• 1d • 5a		• CV-B • 7 • 10 • 13	• MSB Budget • Business Support
Internships	• BU • CP • FA • ST	• Career Readiness	• 1d • 5b	• IM – SUPERVISOR ASM	• 7 • 8 • 13	• College Budget
Interview Opportunities	• BU • CP • FA • ST	• Increasing Opportunity	• 1d • 5b		• 7	• College Budget

Table 2 – Student Professional Development Program **Undergraduate** **Legend**	
ADM – Administration;	ASM – Capstone Assessment;
BAC – Business Advisory Council;	BEN – Benchmark;
BU – Business community members;	CP _ Career Planning Staff;
DM – Direct measure;	DV – Development Office;
EIR – Angelo P. DeCesaris Executive in Residence;	ET – Ethics and Socially Responsible Behavior;
FA – MSB Faculty;	IL – Information Literacy;
IM – Indirect measure;	MSB – McGowan School of Business
OC – Oral Communications	PK – Professional Knowledge;
ST – Students;	WR – Written Communications

Table 3 **William G. McGowan School of Business** **Strategic Plan – Student Professional Development Plan Initiatives**
Strategic Goal 1: Academic Excellence. The William G. McGowan School of Business strives for excellence in its Bachelor of Science in Business Administration *Objective 1d.* To encourage the students, many undergraduates whom are first generation college students, to grow personally and professionally through internships, service learning and study abroad experiences.
Strategic Goal 2: Business Ethics and Social Responsibility. The William G. McGowan School of Business strives to become a regional leader in best practices for the development and assessment of moral leadership and social responsibility in its students. *Objective 2b.* To promote lecture and conference themes in areas related to business ethics and social responsibility.
Strategic Goal 4: Student Centeredness**.** The William G. McGowan School of Business strives to provide students with personal and professional development in a diverse and changing society while educating the whole person in the tradition of the Congregation of Holy Cross. *Objective 4c.* To provide individual academic and career advisement, including building upon the Executive in Residence initiative through career development and mentoring across the Business curriculum.
Strategic Goal 5: External Relationships**.** The William G. McGowan School of Business strives to strengthen its external relations, recognition and supporting resources from alumni, recruiters and the regional community. *Objective 5a.* To strengthen and enhance Business Advisory Council activities and its relationship with the students and faculty of the School of Business. *Objective 5b.* To strengthen and enhance the working relationship with the Office of Career Planning in building internship and placement opportunities for students. *Objective 5c.* To maintain and enhance student mentoring opportunities including the William G. McGowan School of Business Forum and King's Washington Alumni Connection. *Objective 5d.* To maintain and enhance the infrastructure and financial resources that supports the strategic goals of the Business School.

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Barry H. Williams, JD, CPA, is the Dean of the William G. McGowan School of Business and a Professor of Accounting. Dean Williams is active as an active volunteer with AACSB International having served on site visit teams. Dean Williams' research interests are in the area of taxation, assessment, and program development.

Amy L. Parsons, Ph.D., is a professor of marketing and the Chairperson of the Business and Management Department and holds the honor of being the PNC Bank Distinguished Service Professor. Dr. Parsons's research interest is in the area of social media, pedagogy, advertising, and consumer behavior. She is a member of the Deans leadership team responsible for oversight of AACSB International accreditation.

Christopher S. Alexander, Ph.D., is a professor of business and management. Dr. Alexander's research interest is in the area of strategic management and his teaching is in the areas of management, leadership, and strategic management.

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The Amazing Race: London
An Innovative Active Learning Experience for Study Abroad

Dori Danko, Grand Valley State University - Grand Rapids, Michigan, USA,
Stephen R. Goldberg, Grand Valley State University - Grand Rapids, Michigan, USA, and
Allyse Bachelder, Grand Valley State University - Grand Rapids, Michigan, USA

ABSTRACT

Study abroad programs are increasingly recognized as important for global business education. Faculty face challenges in designing study abroad curricula and implementing creative active learning experiences. This article outlines an experiential learning activity, known as The Amazing Race of London, which was implemented in a short term study abroad program to London, United Kingdom. It is a variation of a scavenger hunt designed for a first day activity. We discuss its objectives, basic structure, benefits, suggestions for implementation, and student comments.

Keywords: Study abroad, experiential learning, internationalization of curriculum

INTRODUCTION

Students benefit from active global learning experiences in study abroad programs. The programs broaden students' cultural outlook and help prepare for global business. Study abroad programs vary significantly based on several factors including: university and background of its students, academic objectives, and duration. They can be led by faculty, partner universities, or conducted by students on their own (Womble, De'Armond, & Babb, 2014). Short term study abroad consists of trips ranging from one to eight weeks in length, while long-term study abroad programs can range from a semester to an academic year. Short term study abroad are the fastest growing format. Due to their short length, design and implementation are of critical importance (Mills, 2010; Womble et al., 2014). The focus of this article is on an introductory activity to a short-term, 2-week, faculty-led study abroad program to London, United Kingdom.

LEARNING OBJECTIVES AND PREVIOUS RESEARCH

The Amazing Race of London (hereinafter, Race) is an introductory, first full day after arrival experience for a short-term, faculty-led, study abroad program. It is an experiential learning activity designed to foster team building, quickly acclimate students to a foreign environment, and develop a deeper understanding of the local culture by reinforcing knowledge introduced before the activity. Experiential, or immersion learning activities are effective methods to introduce students to international business and culture. They are hands-on approaches to actively involving participants in learning. The Race allows for greater interaction, application of learning, and development of skills to be used in future careers and life. Experiential learning allows students to observe, interact, and become familiar with a new environment. Activities such as the Race are best exercised in small groups. However, these activities include many formats such as projects, tours, interviews, and scavenger or treasure hunts. The Race is an experiential learning activity which is a variant of a scavenger hunt (Doyle, Helms, & Westrup, 2004).

The benefits of study abroad experiences are noted in a number of studies. Table 1 lists Learning and Other Objectives of an Initial Study Abroad Activity. Benefits include developing cultural awareness, fostering personal and intellectual growth, understanding biases and ethnocentrism, and understanding global issues (Eckert, Luqmani, Quraeshi, & Wagner, 2013). Short term study abroad programs are usually cost effective options for students and often more practical (Duke, 2000) than longer courses. Due to economies of scale, large groups can often travel for less than if a student embarked on a study abroad trip as an individual (Babb, Womble, & De'Armond., 2013; Womble et al., 2014). This design also offers opportunity for intense and focused experiences (Mills, DeViney, & Ball, 2010). Faculty led trips allow instructors to focus more deeply on course objectives and to control course content. (Womble et al., 2014). Courses could closely align to one taught at the home university (Babb et al., 2013).

Table 1: Learning & Other Objectives of an Initial Study Abroad Activity

1. Safety of students
2. Enjoyable cross-cultural experience
3. Foster team building through friendly team competition
4. Develop deeper cross-cultural knowledge
5. Foster personal and intellectual growth
6. Quickly acclimate students to a foreign environment
7. Connect classroom cultural preparation with in country experience
8. Increase comfort of in-country travel with local transportation
9. Create a cost-efficient and academic degree-efficient cultural experience
10. Encourage interaction of students with different academic preparation
11. Develop deeper and more diverse friendships among students

Research supports a correlation between immersing students in host country culture and learning. These activities are a quick mechanism to replace culture shock with familiarity in a new environment (Doyle et al., 2004). Koernig (2007) identified scavenger hunts as effective tools to acclimate students to a new culture. Students learn to adjust to new surroundings as well as utilize public transportation. After such an activity, students familiarize themselves with the layout of the city and how to navigate. Similarly, Duke (2000) identifies treasure hunts as an effective activity for cross-cultural comparisons on study abroad trips visiting either one location or multiple locations. This type of activity immerses students in culture, and observations can be made on variances between home and host country. Scavenger hunts force students to interact with their new environment and provide confidence needed to navigate. Students also become skilled at reading maps, observing cultural behavior, and questioning. Additionally, research stresses the importance for activities such as scavenger hunts to occur at the beginning of the trip, the first day or two. Students become confident and focused for the rest of the trip (Ensz, 1988). Scavenger hunts acclimate students to particular aspects of the host country including transportation, currency, and cultural nuances. The activity expands their comfort zones as they learn to interact with various aspects of the foreign culture (Mills, 2010).

Gordon and Smith (1992) view public transportation as a mechanism to acclimate students to a new culture. Transportation in a foreign country is a useful tool to introduce students to the local economy, the local currency, and the city itself. Students learn foreign exchange equivalencies and learn to interact with the host country's economy (Koernig, 2007). One of the most important benefits received from teaching students to use local public transportation is the confidence it builds regarding navigation skills in the present and future travel to other countries. Once students acclimate to local public transportation they are more comfortable embarking on activities without their leaders. In many cities, public transportation is an efficient way for students to experience more locations (Gordon & Smith, 1992; Johnson & Mader, 1992). In a large city like London streets can be crowded making it hard to walk or take a car or bus. This leaves the "Tube" as one of the most effective methods of transportation but also one of the most intimidating for foreigners (Neild, 2017). Forcing students to navigate the "Tube" on their own in activities like the Race can provide benefits. Mastering public transportation in a foreign country is a daunting task, however once completed it, "affords students a great sense of satisfaction and appreciation of its practicality (Ensz, 1988, p. 332)."

While participating in the Race, students become accustomed to locals and the culture they are a part of in a short period. Intercultural awareness is important in study abroad programs. By interacting in the new culture, students learn to better understand it and how to behave in it. They also learn how to compare their home country to the host country. Experiential learning allows students to immerse themselves in the culture for the duration of the activity. Additionally, from this intercultural awareness, students gain a global perspective which can benefit in future work and life upon returning home (Bandyopadhyay, S. & Bandyopadhyay, K., 2015).

Employing ethnographic research techniques increases intercultural awareness in study abroad programs. The technique may include reading non-fiction descriptions or a novel set in the host country. Assignments ensure students draw observations and connections from readings prior to the trip (Schaefer & Lynch, 2017). Prior to the London study abroad trip, students read assigned portions of two books regarding life in London, *Watching the English* by Kate Fox (2014), and *London: The Autobiography* by Jon E. Lewis (2009). *Watching the English* details implied rules of English behavior from the view of an English national anthropologist (Fox, 2004). *London* details 2000 years of London's history through essays written by individuals who experienced it (Lewis, 2009). While completing The Amazing Race activity students were required to identify observations from *Watching the English*, and then present these observations to the class. The Race also included locations students read about in "London." The "London" book became a valuable tool for students understanding historical significance and interesting facts about various locations. By sharing observations with the group as a whole, students learned about aspects of the culture they previously did not understand. Students deepened their intercultural awareness. The more students know, the more they observe. Students will have a greater appreciation for, and knowledge of, the culture they are engaged in if they gain a basic understanding of the ethos beforehand (Mills, Vrba, & Deviney, 2012).

A scavenger hunt is cost-effective. Budgets can be tight and faculty must think outside of the box to develop activities working within spending constraints. According to McKenzie, Lopez, and Bowes (2010), financial constraints of study abroad pose challenges to implementing both meaningful and relevant activities. Learning activities such as the Race provide such an experience while also remaining economical (Doyle et al., 2004). Incremental costs of the Race are limited to maps, and minor supplemental materials. Tube passes were already included in the budget; maps and prizes are of minimal additional cost.

Scavenger hunts such as the Race are especially effective for short study abroad programs. During a 2-week study abroad trip, time is limited. Finding time to include all necessary academic content and also provide students with free time is challenging. Similar trips have allowed approximately one or two days where students may choose their own activities (Koernig, 2007). The Race provides an opportunity to include academic content while also allowing students some degree of freedom to explore the city. Within parameters of the activity teams have ample time to make their own decisions. Student comments suggest leisure activity coupled with academic activity strike an appropriate balance.

Some students prefer structured activities more than others (McKenzie et al., 2010). Koernig (2007) concludes that most students enjoy activities and cultural exploration over academic content. By combining academic and cultural content, instructors provide students with a meaningful experience which meets program objectives and student desires. The Race provides an opportunity to balance learning and a self-guided tour. The post–activity reflection ties in concepts students have learned and observed, while the activity itself satisfies students' desires for interesting experiences (McKenzie et al., 2010). The Race required teams to research unique facts regarding locations before the Race. Students commented that a fact finding requirement effectively combined recreation and learning.

There is strong research to support pre-trip meetings to enhance student learning and develop team social and working relationships. Allowing students to work in teams prior to the activity allows them to develop deeper relationships, perform better as a team at the beginning of the activity, research locations they will be visiting, identify places they may want to visit, and identify what they will gain from the activity (Mills, 2010). Allowing students to participate in the development of the trip itinerary can be an effective mechanism to begin teambuilding and provide students with a sense of ownership over their learning (Orpett, Akande, Purdy & Nakano, 2010). We suggest for a smoother activity that students meet with their teams and begin planning before they commence the activity. Students can use this opportunity to meet their team and choose locations they may want to visit later.

Short-term faculty led trips have drawbacks of being too short in duration, lacking freedom for students, and being prone to group conflicts. Since the trip is only a few weeks long, there is little time to cover course content while in-country. Academic preparation prior to the trip is encouraged. Instructors try to fit as much academic content as possible into the course which leaves students without much free time or flexibility (Babb et al., 2013; Duke, 2000). Additionally, since students are together constantly for the duration of the trip, they are likely to experience conflict (Babb et al., 2013). This article provides a format for a learning activity that may lessen negative aspects of short-term, faculty-led trips and help instructors and students derive additional benefits from the experience.

EVOLUTION OF THE RACE

The Race was conducted on a short-term, faculty-led, 2-week study abroad program in London, United Kingdom. The program is designed primarily for business students, but is open to all majors. Students travel to London and surrounding areas, and live in co-ed residence halls at Regents University, in central London. The program's purpose is to explore U.K. culture and history and study corporate governance and ethics in Western Europe. The orientation of the program could be modified for other academic courses. Activities include lectures, primarily prior to going to London, and field trips to historical, cultural, and business sites in London. The sites and activities could be modified to fit various course objectives and backgrounds of participating faculty. The program runs in the summer semester which is a six week session from late June – to early August. Students spend the first four weeks in lectures at Grand Valley State University (GVSU) located in Grand Rapids, MI studying International Business and Culture in the U.K. and (as currently constructed) Corporate Governance and Ethics, and then travel to London for the last two weeks of the semester. The program is led by two GVSU Seidman College of Business faculty members and includes approximately 12 to 18 students each year.

The Race was developed over a span of five years. The activity was originally planned with the help of a London Blue Badge guide in 2012. During the 2012 trip, faculty recorded places of interest and locations to be used in the following year. Places to include were discussed and modified with input from the guide. The Race began in 2013. In 2014, modifications were made to the rules. After 2014, it was concluded that the activity took too long, and would benefit from an increased academic focus. Therefore, in 2015, the academic focus increased. A London blue Badge guide was again consulted to identify appropriate sites. After three years of trial and error, a well-balanced activity was developed which met objectives of rapid acclimation while mixing fun with an academic experience. Utilizing both personal and professional contacts abroad can diminish planning difficulties and costs associated with various activities. These individuals can consult with faculty regarding logistics and provide guidance (McKenzie et al., 2010). The 2016 version of The Amazing Race of London is detailed below along with benefits, shortcomings, and suggestions for implementation.

DESCRIPTION OF THE 2016 RACE

Each year, approximately, twelve to eighteen students participate in the Study Abroad program. Prior to leaving the United States, the study abroad group is divided into small teams (3 or 4 students each). Teams are given culturally significant names such as: Brilliant, Posh, Smart, Clever and Aces, all representing common British slang. The assignment is distributed to teams, including their locations, prior to leaving the U.S. to allow opportunity to work together and plan. This also permits students to become familiar with each other prior to London. Table 2 contains an example of assigned locations for five groups. Table 3 shows a sheet that group one would be given at the start of the Race. Table 4 is the assignment description (for group one) given to students several weeks before the trip to allow preparation time.

Table 2: Example Race Locations by Group

Location	Group One	Group Two	Group Three	Group Four	Group Five
North East of the Thames	Bank of England	St Paul's Cathedral	Leadenhall Market	Lloyds of London	**The London Wall (just a section of it)**
South West of the Thames	Westminster Abbey	Palace of Westminster where Parliament meets - also House of Commons meeting area	**Churchill Statue in Parliament Square**	Big Ben	Churchill's War room
South East of the Thames	Tate Modern	Globe Theater	Southwark Cathedral	Borough Market Southwark	**Original Globe Theatre Location**
North Central	Covent Garden	**Gate to China Town**	British Museum	Lions in Trafalgar Square	National Gallery
West of the Thames	**Peter Pan Statue/ Kensington Gardens**	Victoria Memorial/Near Buckingham Palace	Speaker's Corner Hyde Park	Albert Memorial Kensington Gardens	Marble Arch/Hyde Park
Bridges	Westminster Bridge	London Bridge	Tower Bridge	**Millennium Bridge - Locks**	Blackfriars Bridge

Note: Bolded locations represent areas that may be more difficult, or require more time to locate.

Table 3: Example of What Students Received on Day of Race

Group 1 (Brilliant) Locations and Addresses	
Group One	**Address**
Bank of England	Threadneedle St.
Westminster Abbey	20 Deans Yd.
Tate Modern	Bankside
Royal Opera House in Covent Garden	Bow St
Peter Pan Statue/Kensington Gardens	Nearest tube station: Lancaster Gate
Westminster Bridge	Location not provided

Table 4: The Amazing Race of London Assignment

Brilliant - Group 1 Assignment	
Locations:	
Bank of England	
Covet Garden	
Peter Pan Statue	
Tate Modern	
Westminster Bridge	
Westminster Abbey	
Basic Rules:	**Assignment:**
1. You MUST stay together - no splitting up for ANY reason.	1. Visit each location above. The order is up to your group, however, you must have an agreed upon plan prior to leaving Regent's University.
2. You must use a paper map; no GPS or electronics or smart phones, etc.	2. You must have the following for each location: an interesting unique fact - not an obvious fact, and a group picture of all of you in front of the location (take a selfie, ask someone for help, or figure it out).
3. You must be back by 4pm and ready to present by 4:30pm. Otherwise there is a 20% penalty on your grade. If this means you do not finish; then you do not finish your list. YOU must be back by 4pm.	3. Fact: Please research this ahead of time. Your group must agree upon what is unique and interesting regarding each location.
4. You can use your phone only to take pictures and call in an emergency. No other use is permitted.	3. Throughout the day, collect interesting observations or experiences that happen to your group. Funny stories and events are priceless during this activity.
5. Work as a team and function as a team. Do not make individual decisions or denigrate a team member's opinion. You MUST agree as a team. One of the most important points of this assignment is working together.	4. Discuss as a group during this activity and draw 2 conclusions based on the information you read in the *Watching the English* book. Either in support of what Fox claims relates to Englishness or what you expected to see but did not. One of you may want to have a copy of the book in your backpack. This can be anything your group decides upon. (E.g., No one looked at each other on the Tube or were reluctant to talk to us on the Tube. YOU CAN NOT USE THIS AS ONE OF YOUR 2. It is just my example and it is too easy!) You are welcome to try one of the "experiments" she notes as well and see what happens. You can use the items you presented in Professor Goldberg's class in this part of the assignment but you must come up with 2 cultural "Englishness" conclusions from *Watching the English*.

6. Have fun and soak up the environment and culture!	I am thinking this will be the most thought provoking and discussed topic of the day for your group. Really consider the items Fox notes from the reading assignments. You can feel free to talk to locals - ask them questions and see what happens and how you can relate it back to the book.
7. You must eat before you go - no one leaves before 10am. Pack a lunch for you to take - you can grab bananas, granola bars, etc. at the Refectory. Have a solid breakfast. We meet at 9:30am and everyone eats.	5. Upon returning you will have 1/2 hour to create a 10 min presentation on your day. Your group will discuss the best FACT, PICTURE, STORY and 2 OBSERVATIONS you wish to present. Your presentation must be organized and informative and only present those 5 things. You can't go over 10 min or you are docked 20%.
8. You can plan, research, discuss, etc. as much as you want prior to leaving. You may use the Internet to gather your interesting fact and plot out your locations. This can be done in Grand Rapids, the Airport, etc. You just can't use a GPS or Smart phone maps on the day. I suggest you discuss this with your group and do ample research ahead of time.	6. There are prizes for each group member for the top (1) PICTURE, (2) STORY, (3) FACT and (4) CULTURAL OBSERVATION. These will be voted up on by all students. A team could win more than one prize!

Research and planning prior to leaving facilitate team building and cohesiveness. Each year, the Race was scheduled for a Sunday, the day after arrival in London. On the day of the activity, teams are provided detailed and quality maps of London and an overview of the activity. Each team receives six locations from each of the following general areas of London: north east of the Thames, southwest of the Thames, southeast of the Thames, north central, west of the Thames, and a bridge. Within each set of locations is a challenge location which is more difficult to locate. The Race begins at ten in the morning following breakfast the day after arrival. Teams are given a strict time limit for the Race and all teams must be back to the University and accounted for by 4 p.m. An enforced time limit is required to ensure ample time for wrap up, and presentations before dinner. Teams are required to work cooperatively and are not permitted to split up. This promotes safety and team building. Each team must make decisions and give equal weight to others' thoughts. GPS and electronic devices are not allowed. Students are required to use maps and rely on each other. Phones may only be used for emergencies and photos. Grade penalties are enforced for arriving back late. Even if teams have not completed their list, they must return by 4p.m. As part of students' welcoming packets to London, each receives a two week Oyster Travelcard allowing unlimited access to the London Underground (Tube) and buses for the period they will be in London.

The Race requires teams to visit each assigned location and to return with an interesting fact and a group photo for each location. Interesting facts require teams to research sites before the activity and encourages teams to obtain background information on the culture and history of each location. A picture serves as proof of visiting a location and as a memory for the students. Students are asked to present two cultural observations and experiences from the day which they share during the wrap up meeting. Prior to leaving for London, students were assigned readings from *Watching the English* by Kate Fox (2014). This book is written by an anthropologist and provides cultural observations of the English; thus, students develop insight into British culture prior to arrival. During the activity, each group is asked to draw two conclusions based on Fox's observations. The observations may support her conclusions in *Watching the English* or may be observations of behaviors the students expected to experience or view but did not. Thus, students critically apply what they have learned and actively observe the host culture.

Upon return from visiting assigned locations, teams are required to quickly compile facts, stories, pictures, and cultural observations from their experiences of the day into a presentation that requires visuals optionally using Prezi or PowerPoint. Teams are allowed thirty minutes (4 to 4:30) to prepare a ten minute presentation. Presentations cannot exceed ten minutes or a grade penalty is assessed. Presentations facilitate teams sharing their experiences and newly acquired knowledge. Each team experienced a unique and different day. The Race has never failed to evoke cultural insights and experiences in an enjoyable manner and, thus, helps set the tone for a two week cultural and

academic experience. Small prizes are awarded to each team member for the best picture, story, fact, and cultural observation, which are based on a vote by peers. These prizes are of minimal cost and are part of the study abroad budget. They are purchased by faculty members while the teams are racing. Prizes are fun, thoughtful, and souvenir like items. Teams may win more than one or none. The prizes serve to keep it competitive and fun, while presentations accomplish academic objectives. Students vote on prize winners and tend to spread out winners among teams, but that is up to students.

STUDENT BENEFITS

The Race builds cooperative teams, acclimates students to a foreign environment, is cost effective, utilizes time efficiently, and provides a balance between recreation and learning. Students learn the geography of London and how to efficiently use the transportation system. The group setting of study abroad trips also forces students to actively consider their role in the group and their personal identity. Study abroad groups allow students to form new friendships and develop existing ones, as well as learn from other group members. Research shows some students felt they learned more from their group than from the host country itself. This advances the ability to work as a team and promotes enjoyment of the study abroad experience (Jessup-Anger & Aragones, 2013; Younes & Asay, 2003). Additionally, Younes and Asay (2003) point out that unique relationships can be formed between those who have to face new challenges in a foreign country together.

Group composition has a strong influence on team building and the relationship aspect of study abroad. Group management can be as important as academic preparation. According to Younes and Asay (2003), students have identified that larger groups can cause conflict, and smaller groups can increase the quality of the experience. They suggest students be placed into smaller teams within the overall group. Students indicate benefits of large groups include safety, differing personalities, and comfortability while traveling, however large groups have drawbacks. Complaints of large groups include: too many leaders, bickering, and constraints of individuality. The Race activity offers an opportunity for a large group to be divided into teams where additional learning can occur. Some of the complaints of a large group can be relieved while small teams can improve the quality of the experience. Small teams also allow students to share information and knowledge with group members to understand how other students perceived the same information (Mills et al., 2012). Utilizing small teams for reflection and learning can assist students to develop deeper relationships within their group (Jessup-Anger & Aragones, 2013).

Younes and Asay (2003) conclude that students prefer diversity within their teams and note it does not necessarily impact learning, however, it does impact the overall experience. Diversity includes gender, ethnicity, and age. Gender was one of the largest complaints as students did not gain as much enjoyment from teams consisting of predominantly one gender. They point out it is not always possible to gain diversity within the group. However, the Race provides an opportunity for facilitators to control composition of teams. To promote diversity, each team includes at least one male and one female. Students were not able to choose their team. Faculty tried to ensure teams were as diverse as possible. The team context plays a large role in this activity and provides an opportunity to develop relationships among teams and encourage learning. Teams tend to learn and socialize together for the remainder of the study abroad trip (and often much longer after the trip).

Students that participated in the Race were asked to share comments regarding their experiences. Students commented on benefits of a small team activity including teambuilding, developing friendships and learning about London and its culture:

> "I think a big part of the activity was the teamwork. People may not have been familiar with each other but they were required to work together and help each other out in a city that everyone was unfamiliar with."

> "In my experience, breaking out into small groups allowed me to form friendships outside of the initial "clique" that I fell into. It forced me to interact with individuals that I may have had limited interactions with otherwise. I was also able to better absorb other's opinions and observations of the culture because I could discuss in a small group rather than trying to engage with a large amount of people. This activity also developed my teamwork skills because I not only had to learn to work with two other students, but I also had to do so in an unfamiliar environment making it

more difficult. The activity challenged me and the others to cooperate better and listen to each other because more was at stake."

"In my experience, navigating the "Tube" without faculty instruction was one of the scariest but most rewarding parts of our trip. We were forced to work as a team, trust others, and learn the proper way to behave in a foreign country. Something as simple as learning how Londoners wait in line or board a train was extremely helpful in developing our cultural awareness. After the Amazing Race activity I felt more than ready to take on the "Tube" on my own."

"Personally, reading these two books prior to the trip greatly enhanced my experience. I noticed and learned things that I may never have without reading about it before arrival. It was also beneficial to hear what other students had learned and observed in their interactions because it broadened my thinking about the culture I was immersed in."

"It was cool to look for the cultural traits that we had read about prior to our trip. Overall, it was a very useful activity."

"I think that the cultural observations from all of the teams were a good addition because everyone had different opinions and it made you think about your perspectives and experiences in comparison to theirs. The presentations at the end of the activity were also interesting because you gained knowledge and then could apply those perspectives when you saw things later on in the trip."

Students gained knowledge of other team's sites, activities, cultural observations, and highlights of the day. Additionally, students were able to identify areas of interest for their free day that they may not have discovered on their own. The time constraints of this two-week trip make group discussion a critical component since each student cannot experience what multiple teams experienced as a whole.

McKenzie et al. (2010) suggest students take responsibility for their learning and think critically about what did and did not work. Reflections also develop and improve activities for future programs. Each year after the Race was completed, faculty met to discuss what worked well in the current year and what might be improved. Faculty also engaged students at a wrap up session to hear views on what did and did not work well. According to Mills (2010), student learning is encouraged when students reflect on activities of the day with their teams. Group discussions allow students to develop a more holistic perspective of the trip. Presentations following the Race activity allow students to share experiences with other members of the trip. Students also enthusiastically participated in a "reunion" several months after return clearly demonstrating camaraderie that developed in the program.

Student comments support the benefit of post-activity reflection. Many students enjoyed learning about London through the eyes of their classmates and found it helpful to gain knowledge about locations they might visit later in the trip. Students also found presentations at the end of the activity helped them experience the "big picture." Some students enjoy presentations while others do not. The open-ended format of presentations allowed students to be creative at their own comfort level and encouraged participation.

ADAPTATIONS AND CHALLENGES

Depending on the location where the "Race" activity is implemented, faculty may encounter difficulties. One such difficulty may be a language barrier. The activity described in this article was designed for English speaking students, visiting an English speaking country. Students need not possess any additional language skills to participate. However, if the Race is implemented in a country where students need to use a foreign language it is important for faculty to consider implications. Populations of many countries have significant knowledge of English so adaptation may not be difficult. In other situations, enough students may speak the language of the host country which would likely enhance the experience. Variations in culture may offer students a more interesting and challenging experience (Doyle et al., 2004). This activity should be implemented with careful consideration of difficulties that might be encountered. Faculty must have a working knowledge of the study abroad location and cultural peculiarities to ensure they are taken into account.

Students universally commented the Race would not have been as beneficial if it was conducted at any time other than the beginning of the trip. Other students commented they enjoyed having their locations chosen for them, however, admitted to wanting some degree of input in the location planning process. We might suggest perhaps having one location open for students to choose, striking a compromise between structure and freedom in choosing locations. Students could select a location from a list provided to them or at their own choosing subject to faculty approval.

The Race did not always proceed as fluidly as students and faculty desired. Holding the activity on a Sunday has its benefits and drawbacks. While the city is slower on Sundays, at times Tube stations would be closed unexpectedly for cleaning or maintenance. This caused some frustrations for students trying to move from location to location efficiently according to their plan. Teams had to work closely together to develop an alternative plan which reinforced teamwork and learning environment. However, this also produced additional stress. Uncomfortable weather conditions can also pose challenges. The schedule for the trip is tight due to the two week time span and changing the day of the Race was not considered an option. Despite challenges students rose to the occasion and muscled through with relative ease. Faculty observed that often the challenges posed by closed Tube stations, unsavory weather and other unexpected conditions enhanced teamwork, creativity and the benefits of the overall experience.

CONCLUSION

The Amazing Race of London offers opportunity to acclimate students quickly to a new cultural environment, as well as to encourage team building. The activity is cost effective, an efficient use of time, and a good balance between recreation and learning. Students have indicated the Race is both enjoyable and an effective educational experience. Research encourages experiential learning activities. By actively engaging students in a foreign culture immediately and challenging them to adapt quickly they are better equipped for the remainder of the trip. The structure of this activity allows flexibility to include selected cultural, historic and business content. The basic format of the Race could be adapted to other destinations as well as other learning objectives.

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Designing Culture-Based Learning into a Management Course

Staci R. Lugar-Brettin, Indiana Institute of Technology - Fort Wayne, Indiana, U.S.A.

ABSTRACT

Today's university students learn within the context of their popular ("pop") culture environments. Viewed through that lens, higher education is a "culture-based learning product" (Young & Taylor, 2010, p 76). For training and development aligned with career-focused education, Ketter promotes "… designing activities, not content. Content is abundantly available. Designing content is not our job" (2011, p 10). This article describes and operationalizes a culture-based instructional design strategy that creates "a platform for students' voices" in a university introductory management course (Caramela, 2018). Establishing this platform positions students to move through the six stages of Bloom's Taxonomy from "remembering-defining" the problem, to "understanding-associating" management-related challenges to that problem, to "applying-experimenting" with management concepts related to the problem, to "analyzing-mind mapping" real-world relationships in management, to "evaluating-assessing" opportunities and solutions that create measurable results (TeachThought, 2017).

Keywords: culture-based learning, management education, instructional design, higher education, popular culture

ALIGNING CULTURE-BASED LEARNING TO MANAGERIAL DECISION MAKING

Hedstrom points out that the values of "collaboration, learning, openness to change, connectivity, diversity, access, flexibility, autonomy, gratitude, and understanding the meaning and purpose in what they do have all been identified as important values for millennials" (2018). Millennials are defined as individuals born after 1980 (Pew Research Center, 2015). These values can be modeled and exercised in the university classroom through culture-based learning. Young & Taylor report, "Successfully launching a culture-based learning product requires a plan of action guided by a model, framework, or guidelines" that include "developing the product, managing the product, analyzing the product and process, organizing the team, assessing the process and product, conducting training, and meeting the needs of the learner." Consideration should be given to designing "multiple pathways to learning outcomes," piloting the product in one classroom before scaling the activity (and accepting failures as part of learning), "diversifying media format," and assessing "environmental and individual contexts." Culture-based learning demands "diversified assessments" and provides a creative space for students to "identify questions not asked or answered" (p 77).

PEPSI: CREATING A CONVERSATION IN THE CLASSROOM

In applying Young & Taylor's culture-based framework, the learning objectives of an introductory management course were identified and used to create "learning capsules" that could be aligned with the pop culture context of the "Kendall Jenner for Pepsi Commercial" (2017). The goal of this commercial was to "project a global message of unity, peace and understanding," stemming from research that supports that "75% of millennials consider themselves activists" (Schultz & Diaz, 2017). The steps below identify how the Young & Taylor framework, considering the course learning objectives in the context of the commercial can be used to advance students through the six stages of Bloom's Taxonomy.

Step 1. Creating the pop culture context. The Kendall Jenner commercial offers a unique opportunity for management students to explore managerial functions, environmental forces, ethics, communication, team design, and diversity training in the classroom using a pop culture context. The commercial opens with a diverse group of millennials of all races, religions, and social ambitions participating in a peaceful protest, lifting posters with the words "Join the Conversation" and "Love." Watercutter describes, "In the 2-minute-39-second 'short film,' Jenner throws off the chains of the modeling industry by taking off her wig, then leaving a photoshoot to join a protest" (2017). The commercial has been widely criticized for its social insensitivity to destructive, life-threatening protests many have experienced that are nothing like the Pepsi Generation of which Jenner plays a part, walking up to a police officer without consequences. This social conversation offers the perfect platform for conversations, critical thinking, and evaluation in managerial decision making.

Step 2. Developing the product. In an introductory management course, students need to develop a body of knowledge or inventory of management concepts that they will apply at higher levels throughout their degrees. This phase requires that the professor allow students to watch the commercial as many times as necessary (once as a united class and then on their devices). The goal is for students to remember the feelings and influences the commercial created in their minds and hearts, and to allow students to define the managerial problems or dilemmas created. Because research shows that millennials are value-based in their decision making, the professor should expect that millennials will conduct research on reviews of the commercial on social media to align their values with those expressed by their role models (which is what they also do as consumers for whom the commercial was designed). Once students have worked through the "remembering-defining" the problem stage, the professor should advance the students to the "understanding-associating" stage to discuss how the managerial functions of planning, leading, organizing, and controlling were used to create the commercial. As a prompt, the professor could ask the students to evaluate the commercial based on how managers planned and defined the objective of the commercial, to describe how the managers organized its development in phases (using key transitions in the video as hints), to outline how the managers created a budget for the project, and to define how the managers measured the success based on social media feedback. Students may not be able to uncover research to answer each question, which will engage them in critical thinking as to the ways in which managers could have conducted the planning, leading, organizing, and controlling for the project.

Step 3. Managing the product. This phase requires students to present how environmental forces influence managerial planning. The goal of this stage of the activity is for students to "apply-experiment" with tools that managers could use to assess the external sources driving a project's success or failure, using the commercial as the context. As a prompt, the professor should remind the students to recall the commercial's objective as they defined it, and to identify tools that students could use to "explore-define" the various stakeholders and to benchmark competitive commercials designed to express the power of the millennial generation in affecting change through product and social choices. The professor should provide an overview of the balanced scorecard as a management tool and allow students to be creative in how they identify Pepsi Co.'s expected financial, internal, learning and growth, and customer goals related to the Kendall Jenner project. Students should be encouraged to explore Pepsi Co.'s 2017 annual report for its year in review, media highlights, its global brand character, its diversity philosophy, and its initiatives around the world to improve the lives of women and minorities. Additional resources could include advertising practitioner resources, financial and social analysts' websites, and annual reports of leading consumer products companies including, but not limited to, foods and lifestyle brands.

Step 4. Analyzing the product and process. Ethical decision making can be used when analyzing the product (here, the commercial) and the process behind its creation. At this phase, students should begin to learn about ethical frameworks across cultures to develop tools to evaluate the importance of values in individual and organizational decision making. The professor should provide an overview of key tools used to evaluate culture, including Hofstede Insights' models of "power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence" (2018). It is in this stage that students "analyze" and "mind-map" relationships between culture, ethics, and values in managerial decision making. Students could research the role of ethics in relating culture to managerial outcomes, as advertising managers would need to do in establishing which cultures would most likely be open-minded to a consumer strategy based on social activism.

Step 5. Assessing the process and product. This phase relates the principles of effective communication in its many forms to the values and behaviors expressed in the commercial, including a discussion of the intended meaning, the communication channels, and the perceived meaning reported by specific groups that have self-identified as champions and critics of that expression in social and mainstream media. Students should be encouraged to discuss the advantages and disadvantages of social media permanence, and the importance of testing communications with representative groups before launching a company communication in media. As a prompt, the professor could ask students to reach out to diverse groups of non-management students to generate their feedback on the commercial, and then students could develop a response that would "explain events that are important but have not been explained, dispel uncertainties by providing facts, and work to establish open communications and trust over time" as if they represented Pepsi Co. (Bateman, Snell, & Konopaske, 2017). Students should be encouraged to research how advertising agencies develop communication strategies, to design what they believe would be a more effective communication strategy, and to address how managers within the Pepsi Co. organization could have mitigated the threat of miscommunication in the commercial. Consideration should be given to exploring effective communication strategies in the variety of cultures represented in the commercial, to allow students to

learn how student-consumers in other cultures exercise their voices to affect social change (even if consumer products are not involved).

Step 6. Organizing the team. Students in this phase are exploring the fundamentals of organizational design and the potential benefits and pitfalls of each. Relating these management concepts to the Kendall Jenner commercial creates a dynamic network of students who are involved in discussing how Pepsi Co.'s creative team leveraged information sharing, idea generation, cross-functional teams, and organizational resources to develop the project. As a prompt, the professor could present the Pepsi Co. organizational chart and explain the role of mechanistic and organic designs in creating cohesiveness between self-managed teams, self-designing teams, and executive-level decision making groups. Students could be asked to design a Pepsi Co. organizational chart using an organic structure framework that articulates how communication occurs, how expertise is valued and strongly influences decision making, and how Pepsi Co. designers have used past results of advertising campaigns to think in a disciplined way about past successes and failures (Bateman et al.). At this stage, students begin to move toward "evaluating-assessing" gaps in understanding between what the commercial was designed to communicate and how the market responded, to identify where the team could have changed its organizational approach to decision making.

Step 7. Conducting training and meeting the needs of the learner. This is the phase in which students move beyond "evaluating-assessing" and begin to design opportunities and solutions that tie directly back to the balanced scorecard, keeping in mind that "customer intimacy" defined as "exceptional service" and "effective solutions" should be the goal of a consumer products company (Bateman et al.). At this stage, students will pull together all their work for the project and design a presentation for the class that provides training on Steps 2-6. Each student group will position itself as a consulting firm addressing Pepsi Co. following the release of the Kendall Jenner commercial. For Step 2, students present the commercial frame-by-frame and identify evidence of Pepsi Co.'s core values on diversity as expressed in the creative execution of the ad ("remembering-defining" stage). Then the students to move to the "understanding-associating" stage of Step 3 to explain how the managerial functions of planning, leading, organizing, and controlling were used to create the commercial. In Step 4, students "analyze" and "mind map" relationships between culture, ethics, and values related to managerial decision making. In Step 5, students present effective communication strategies for the variety of cultures represented in the commercial, to express how student-consumers in other cultures exercise their voices to affect social change. For Step 6, students design an organizational chart using an organic structure framework that articulates how communication occurs, how expertise is valued and strongly influences decision making, and explain how Pepsi Co. designers have used past results of advertising campaigns to think in a disciplined way about past successes and failures (as applied in Bateman et al.). As a reflection on how this project has met the needs of the learners, students will lead discussions about how Pepsi Co. conducts diversity training and how the training could be adapted to include lessons from the recent commercial's controversies. Students will also share what they learned about managerial decision making using the commercial as a pop culture context.

CONCLUSION

Operationalizing culture-based learning by analyzing a controversial pop culture commercial creates knowledge of how communication can create a personal connection to a company, which Caramela reports is important to millennials: "If a millennial feels that they are not personally connected to their company, they likely won't stick around… so be sure to align your mission with your workers and create a platform for their voice." Applying Young & Taylor's framework to an introductory management course offers students an opportunity to design their learning experiences while achieving course learning outcomes, all with the objective of applying management concepts in order to assess, evaluate, and recommend how a leading consumer organization can increase its social impact by "developing" and "managing the product," "analyzing" and "assessing the product and process," and "organizing" and "training the team."

Culture-based learning transforms professor-delivered learning into student-driven, project based learning. Professors should answer the following questions before implementing culture-based learning: "Do you want learners to explore, listen, share, reflect, interact with the instructor, interact with one another, or some combination of these? Or do you want to find new means of continuing classroom conversations or conducting formative or summative assessment activities?" (Bozarth, 2012, p 65). If the goal is to design learner-focused "inquiry-based"

discovery scaffolded with "open-ended" questions that drive "ongoing" continual learning, professors should begin with a "driving question and challenge" that "engages" students in "problem solving" in a "contextualized real-world" scenario (Sam Houston State University, 2018, citing West Virginia Department of Education's PBL Tools). Culture-based learning can leverage unlimited pop culture examples to deliver meaningful, student-driven learning opportunities in this market-driven culture.

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Staci R. Lugar-Brettin, D.B.A., is associate professor of marketing and management at Indiana Institute of Technology, in Fort Wayne, Indiana, U.S.A. Her research interests include entrepreneurship, innovative education, advanced instructional design, creative collaboration, changed-based organizational culture, and market-driven innovation.

Making Your Degree Your Business: Using Individualized Degree Programs As a Curriculum Tool

Edgar A Maldonado, The Metropolitan State University of Denver, Colorado, USA
Vicky Seehusen, The Metropolitan State University of Denver, Colorado, USA

ABSTRACT

In this article, we propose a new model for the development of university curriculum, particularly curriculum in business programs. Our framework introduces the idea of using Individualized Degree Programs as a liaison between arts and sciences, professional studies and business departments, to design new degrees, minors, or programs that satisfy today's professional demands. This theoretical work also includes a research agenda for future work.

Keywords: Curriculum Development, Business Programs, Business Degrees, Individualized Degree Programs, Student Course Choices

INTRODUCTION

The way business colleges have created curriculum hasn't changed for a long time. Programs are created and modified with the collaboration of several stakeholders. Students provide their input into the process only when becoming alumni and elect to serve on departmental advisory boards.
Given the rigidity of the curriculum process, needs defined by employers and students take too long to be included in designing or modifying University programs. There is a current model for how the curriculum is created, and we are adding elements to this process to speed it up: in this paper, we propose a collaborative way to create new programs and minors using the knowledge base of Individualized Degree Programs (IDP) as the main tool. Basically, IDPs are uniquely qualified to provide input into new majors, minors, and other programs by looking at the course choice trends of IDP students.

Background

The number of students declaring business majors has increased in recent years. When taking into account all the academic fields that are considered as business majors (finance, accounting, marketing, management, and information systems), one out every five bachelor's degrees awarded each year is a business degree (Selingo, 2017). Additionally, business courses have been paired with other disciplines such as healthcare and construction management to create new majors and minors. Cross-departmental collaborations have sprung at many universities in response to a recognition that a more holistic and realistic business education is needed, coupled with state governments identifying the need for diversification of their economies and sharing this information with local higher education institutions (Haughton, 2013).
In another curricular innovation, we see many business schools that have taken an active role in using applied learning concepts to complement formal coursework. Applied learning attempts to integrate classroom learning and what happens in real businesses. It is described as: "learning by doing". University applied learning programs across the country attempt to describe the unique opportunities for students who get involved with their programs. Some of these opportunities include entrepreneurship and social innovation, leadership, research, internships and service learning. (UC San Diego, 2017) The variety of opportunities are designed to appeal to the entire student population, regardless of major.
The potential drawback to applied learning, particularly for a student who is a non-business major is that he/she can only take a small number of applied learning credits. This applied learning experience may not be enough exposure to satisfy the student who is attempting to merge a degree in Health Education with Business Entrepreneurship, for example. This student who has declared an Arts and Science major must then declare a business entrepreneurship minor – if one exists at his/her institution.
Another problem with current programs and is that even when college business programs acknowledge the role of Arts and Sciences courses in providing foundational knowledge for their business majors (i.e. the need for Math in a Finance Degree) the ultimate decision of what is taught in the business program remains the prerogative of the

business disciplines (Topi, 2013). So cross-departmental collaboration that may lead to changes in majors, minors and other programs may actually be hindered by the current business disciplines.
Thus, we looked at how cross-departmental collaboration might occur in a more formalized way that would not lend itself to being hindered by any one discipline. At the university we studied, the Health Information Systems degree was a result of cross-departmental and cross-college collaboration. As we looked into how this collaboration occurred, we found that the Individualized Degree Program (IDP) was instrumental in identifying course enrollment trends: it was IDP staff who reported their informal observations of student course enrollment trends to the healthcare and business management departments. These departments then partnered to create a new degree in Healthcare Management.
As universities grapple with the changing needs of the community and business environment, the need for departments to partner with other departments may be greater and curricular change may need to occur more rapidly.

THE IDP

Although this study is a theoretical one, to inform our research we looked at a specific IDP. We looked at the IDP of a mid-size, open-entry university serving a population of approximately 21000 students in an urban setting in the Rocky Mountain area. The institution mostly serves what is considered a nontraditional student population since average student age is approximately 25 years old. The university has three Colleges (Business; Letters, Arts, and Sciences; and Professional Studies) and a School of Education. The Colleges and the School offer 86 bachelor's degrees and five master's degrees. Students who do not want to participate in the current majors or minors offered by the university can apply to create an Individualized Degree through the Center for Individualized Learning.
The Individualized Degree Program (IDP) allows students to propose a major or a minor that satisfies her/his interests. A typical IDP major entails a minimum of 40 credit hours (with this option, the student is required to have a minor) and includes 21 hours of upper-division credit. There is an IDP extended version that requires a minimum of 60 credit hours, including 27 hours of upper-division credit.
After a student has met an IDP advisor and decided to follow an individualized program, the student must write a proposal explaining the rationale of his/her course choices and degree plan. Among the questions the student is expected to answer are:

- Concisely define and describe your field of study.
- What are your goals for your degree program?
- Why is the IDP the best avenue to help you achieve your goals?
- Introduce yourself, reflecting on your experience and educational history particularly as it relates to your chosen field of study.

University requirements for IDP (General Studies, Multicultural Studies, and a number of residency credits) are the same that for any other bachelor's degree. Additionally, an IDP cannot have more than 30 credit hours from the College of Business, and students are expected to keep a GPA of at least 2.5 before their proposals receives final approval. Finally, a minimum grade of "C" is required in each course included in the IDP.
Housed in the Center for Individualized Learning, the IDP is a valuable and essential program for students that do not find current majors appealing. On its website, the center states: "The Center for Individualized Learning (CIL) houses several different programs geared toward expanding on the traditional university academic experience." Additionally, in its program mission statement, the IDP states "The IDP also serves as an incubator for new academic programs at the University, allowing the University to respond quickly to changing needs in the community and workplace." (MSU Denver, 2018) This statement is broad enough to allow the IDP to perform or take on multiple roles within the institution. If we break the statement down and describe keywords such as "incubator" more accurately, we may provide clarity and a theoretical model to position the CIL to be a more effective liaison between departments to create degrees and programs heretofore unconsidered by the departments.
While there are many colleges and universities now offering IDPs, an examination of literature yielded no studies of IDPs. Perhaps local institutions offering IDPs have performed internal studies, however, the efficacy or impact of IDPs on higher education institutions in general has not been evaluated.

THE TRADITIONAL MODEL OF CURRICULUM CRAFTING

When looking at the process by which curriculum is changed, business colleges follow the same procedure that other colleges or schools follow. The process was described by Lattuca & Stark (2011). Figure 1 illustrates the

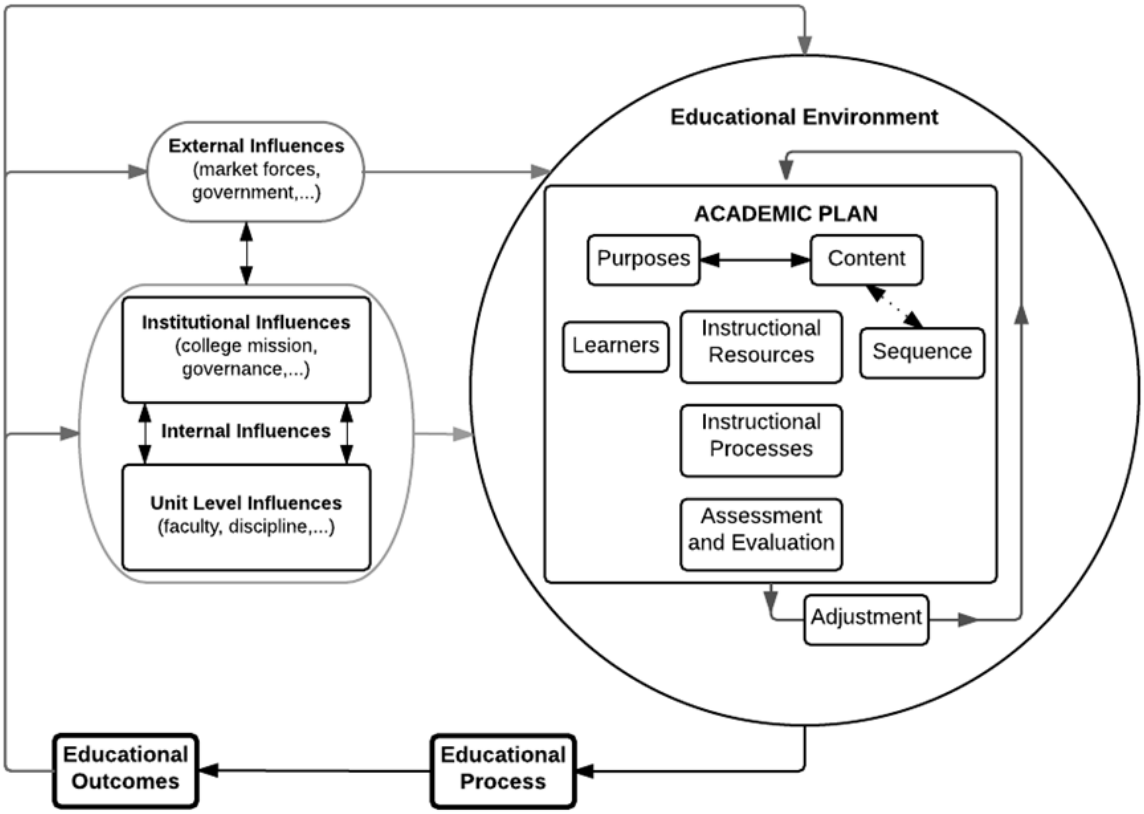
authors' model of factors influencing the development of curriculum in colleges and universities.

Lattuca & Stark identified an Educational Environment that includes self-adjustment of the Academic Plan. The Academic Plan includes three factors that interact: Purposes, Content, and Sequence. Three other elements influence the Educational Environment: Instructional Resources, Instructional Processes, and Assessment and Evaluation. Finally, Learners are also considered as part of the Educational Environment. Nevertheless, Learners are static and do not interact with Purposes, Content, or Sequence of the Academic Plan.

The Educational Outcomes of the program (i.e. quality of their graduates) impact the Educational Environment of the specific program and also shape the External and Internal Influences. At the same time, those External Influences such as market forces or economic changes, as well as Internal Influences such as college procedures, affect the Educational Environment. The Adjustment of the Academic Plan takes place under the Educational Environment's conditions.

The Lattuca and Stark model has two feedback loops. One of the loops feeds from the Educational Environment (i.e. the same department activities), and the other loop comes from the Educational Outcomes. The input from students that directly effects curricular programs seems to take place only once the students are no longer students (they have graduated). They influence the program by means of their own jobs/companies or more directly by being part of the advisory boards. The model presented by Lattuca & Stark only takes into account those traditional programs that exist in the University and that only get changed after long administrative procedures.

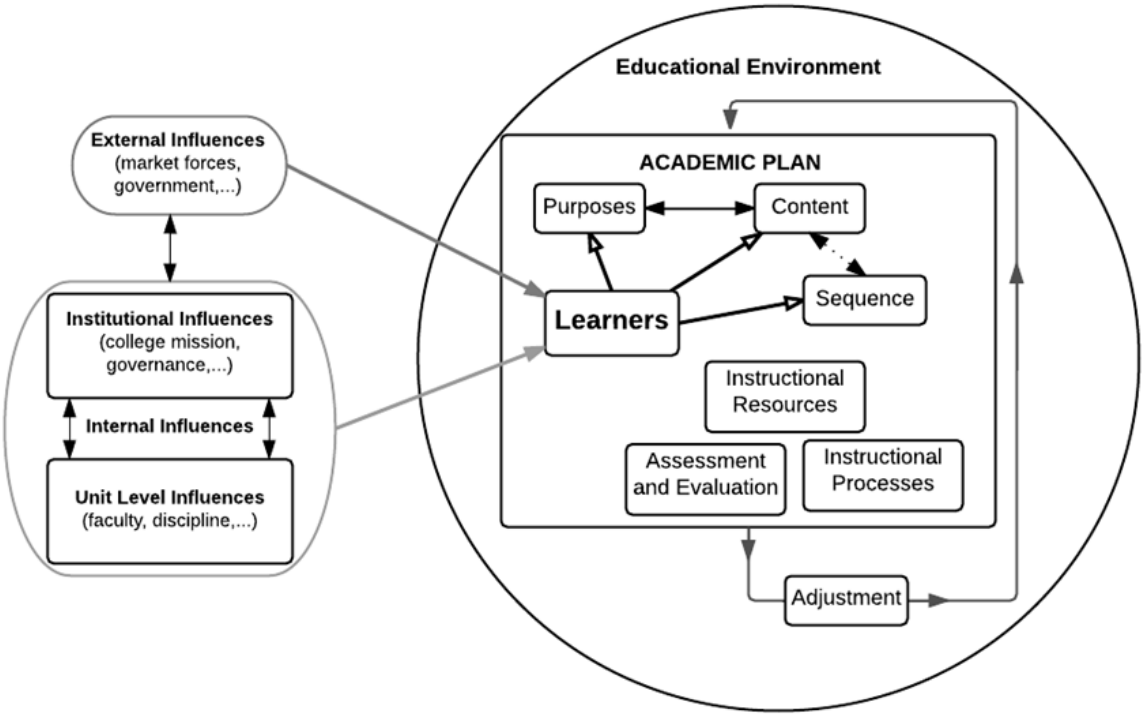
Figure 1. Academic Plans in Sociocultural Context (adapted from Lattuca & Stark, 2011 p.5).



When looking at the IDP, it seems clear that the Lattuca & Stark model does not apply directly to this form of degree. In an IDP, the student becomes an active entity, that changes in real time, the "Purposes, Content, and

Sequence" of his/her program. In Figure 2 we have adapted the Lattuca & Stark model to focus on the immediacy of the IDP curricular process, when using the IDP learner as reference.

Figure 2. Academic Plans in Sociocultural Context for an IDP learner.



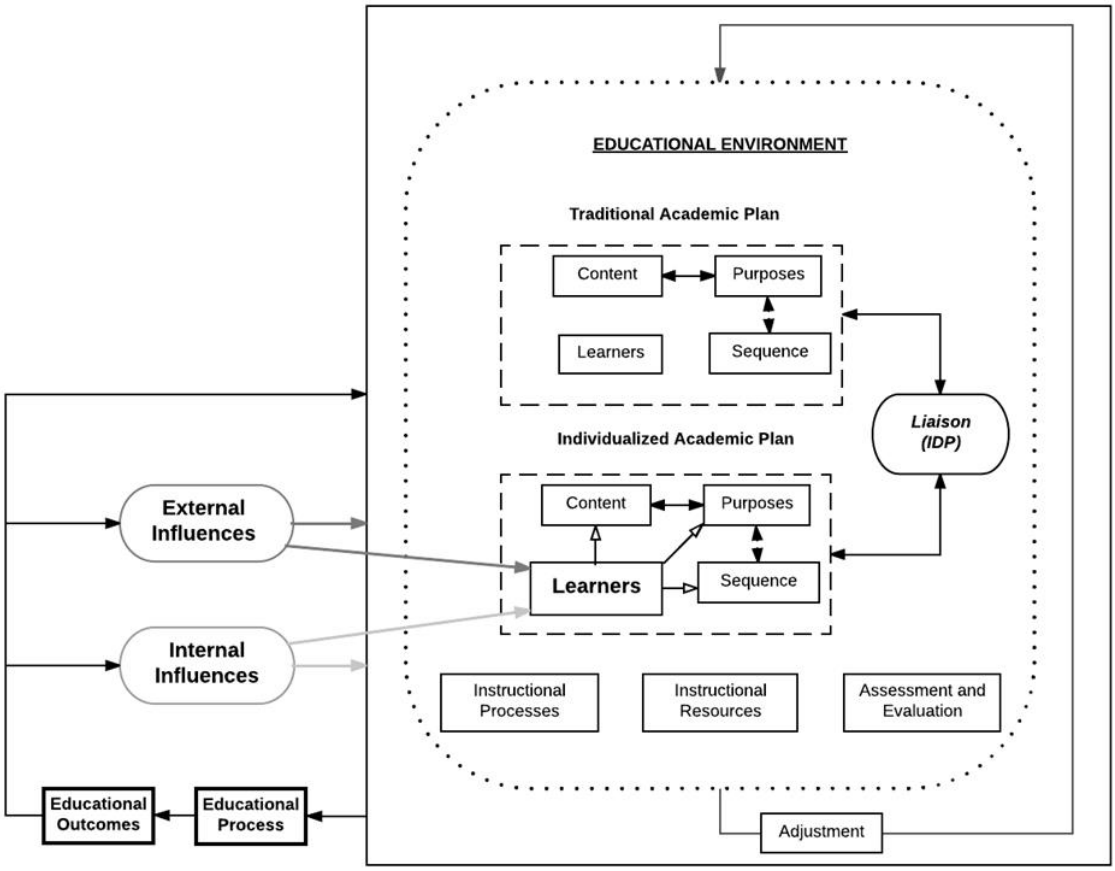
In this model, the External and Internal Influences now impact the Learner, who becomes an active component of the Academic Plan. The concept of the learner being an active component in Academic Planning is not new. For years, K-12 schools have used Individualized Education Programs for students with special needs (Friend & Bursuck, 2002). However, this is a small subset of a much larger K-12 population that, like college and university students, has little control over degree components or the design of their majors. At university, taking electives or declaring minors are generally the only way students have of expressing their own personal interests in areas of learning beyond their majors.

We contend that current students should be an active part of the curriculum crafting process; they can be used as source of knowledge to inform decisions related to new university programs.

PROPOSED MODEL

Trends in the IDP should not be ignored. Students creating their own degrees are generally older and have often been in the business world and thus may have a better understanding of the skills they need to be successful in their chosen career. We propose to use the knowledge from IDP to inform the curriculum process for traditional business majors. Figure 3 is the representation of our model. The Traditional Academic Plan and the Individualized Academic Plan coexist in the Educational Environment. The Traditional Academic Plan receives information from Individualized Academic Plans, by means of the IDP Liaison.

Figure 3. IDP Curricular Liaison Model.



In our new model, the student is an integral part of curriculum design. While the students do not formally suggest curriculum design, his/her actions because of enrollment in the IDP are taken into account. Right now, this liaison model may informally exist within universities. It may exist in small "silos" whereby two or more departments have visualized trends and responded with formalized approaches in the form of new courses or partner programs. We suggest "institutionalizing" or formally recognizing the link between business departments and the preferences of students in an IDP. With a formal relationship defined between the IDP and the business disciplines, it is possible that curricular or degree changes can occur more quickly and thus be more responsive to the needs of business and industry.

Regardless of where the liaison of such a plan resides – in the college of business or in the IDP - some of the responsibilities of the liaison would be:

- Inform current course enrollment trends in IDP majors
- Identify patterns of collaboration between academic departments and business college
- Gather information from companies and the overall job market related to specific needs
- Prepare reports for disciplines illustrating how their courses contribute to the needs of business and industry

DISCUSSION AND RESEARCH AGENDA

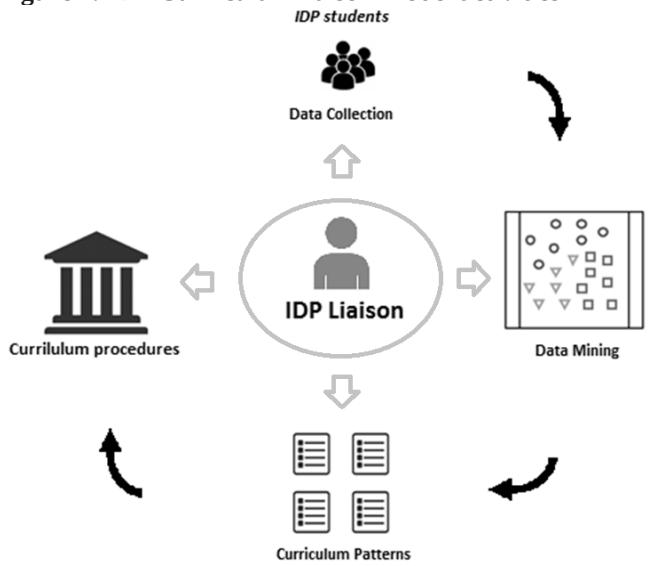
To create a research agenda, we need to categorize the activities carried out by the IDP liaison and use each category as a potential research venue. Basically, there are four main activities that the IDP liaison must carry out:

1. Collection of Data from the IDP
2. Data mining of IDP data

3. Recognition of curriculum patterns
4. Curriculum procedures.

The IDP liaison will collect relevant data from the IDP students. Then, the liaison will use data mining techniques (such clustering, decision trees, etc.) to find curricular patterns. Finally, with that information, the liaison will be able to participate in the curriculum creation process. The four activities are represented in Figure 4.

Figure 4. IDP Curricular Liaison Model activities



Each of the main activities mentioned above has its own set of questions that can be used as part of a research agenda. Table 1 provides information on sample research questions that can be pursued for each of the activities.

We have started using IDP data to provide valuable information that might be used in the development of new curriculum and programs. Our first research project analyzed historical data from an IDP using K-means (a data mining algorithm). We identified possible clusters of business courses that could be considered new majors/minors. The paper has been submitted for publication and is currently under review.

CONCLUSION

Many stakeholders should be considered when creating curriculum. These stakeholders include students, academics, industry, and society. However, the stakeholders that are not included are generally actively enrolled students. In fact, their course choices and preferences are not taken into consideration until after they graduate. Gathering information about student choice trends by evaluating the course choices of students creating their own IDP degrees could be a way to speed up the curricular development and redevelopment of programs – particularly those programs that have a strong business education component.

How we gather this information about student course choices is often not a formalized process within the institution. The importance of the IDP as a source of valuable information cannot be underestimated. If a formal relationship existed between the IDP and various disciplines, the disciplines would then be aware of student enrollment trends more quickly and be able to make decisions about how to, or if they should incorporate these trends into the curricular design. This theoretical work sets out a research agenda to study how Individualized Degree programs can contribute to the evolving educational process of converting students into business professionals.

Table 1. IDP Curricular Liaison Model tasks and research questions

Activity	Sample Research Questions
Collection of Data from IDP students	• What are the motivations for a student to pursue an IDP degree? • How can IDP students motivations be translated into curriculum needs? • What data currently exist that is untapped that would be useful to a liaison process? •
Data Mining Techniques	• What kinds of analytics would be required to summarize the data so that disciplines could make good decisions about new programs? • What can indicate critical mass to be recognized as a trend?
Recognition of Curriculum Patterns	• What kinds of new curriculum are needed? • How do IDP curriculum patterns map to the traditional curriculum and major/minor composition?
Liaison Procedures	• Do processes for creating a liaison model need to be formalized by the institution? • How would information about a liaison process be distributed? • What would be required for departments to accept and actively work within a liaison process? • How would a liaison process affect current curriculum and program development within an institution? • What would the challenges be for institutions who choose to formalize the relationship between the IDP and various disciplines to create new or "incubator" programs? • Who or what department would provide data that could be used to determine the efficacy of creating new programs?

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Picking Pedagogical Practices Students Prefer: An Analysis of the Effectiveness of Teaching Tools in Face-to-Face Versus Online Delivery

Kenneth Henderson, Morehead State University - Morehead, Kentucky, USA
Barbara Lyons, Morehead State University - Morehead, Kentucky, USA
Bruce Grace, Morehead State University - Morehead, Kentucky, USA

ABSTRACT

This study explores graduate student perceptions of fourteen commonly used teaching methods. Convenience samples were drawn from a university exclusively delivering its MBA program via the Internet and a university providing traditional face-to-face classroom instruction. Overall, no significant preference differences were found for nine of the fourteen pedagogical methods. Students enrolled in online classes perceive textbooks, tutorials, and Internet activities as significantly more effective in helping them achieve their educational goals than students enrolled in face-to-face classes. Students enrolled in face-to-face classes rated guest speakers and team presentations as more effective learning tools than their online counterparts. The perceived comparative effectiveness rankings of the alternative teaching tools in assisting higher learning is discussed.

Keyword: learning tools

INTRODUCTION

The composition of university student bodies is changing as adults increasingly enroll in academic programs and traditional, younger students shift to part-time studies in order to work to pay for their education. Market Watch (2013) report that eighty percent of students divide their time between jobs and course work while half of these students need to work in order to pay for their tuitions and other educational costs. Among undergraduates in 2015, 43 percent of full-time students and 78 percent of part-time students were employed (The Condition of Education 2017). Despite these economic pressures, full time undergraduate students comprise 77% of enrollment at 4-year institutions and 39% of enrollment at 2-year institutions (National Center for Education Statistics 2017). To meet the shifting demands of their student population, 77% of accredited institutions of higher education have turned to distance learning programs in order to deliver course work to students separated by time and physical space (Parker, Lenhart, and Moore, 2011). For nearly two decades many universities and colleges have relied on online delivery (Manathunga, 2002; Wernet, Olliges, and Delicath, 2000) and the use of internet-based course content to replace classroom instruction has been regarded as a widely accepted practice (Ahern and El-Hindi, 2002; Brower, 2003; Ponzurick, France, and Logar, 2000). Researchers have investigated effective pedagogy utilizing this medium (Ipek and Ziatdinov, 2017). This study examines the fundamental question *Are the needs of the changing student population being met by this electronic method of delivering education?*

Despite a growing body of literature examining learner needs, motivation, and skills, little research has been conducted with regard to student preferences among the multitude of teaching methods. Furthermore, academicians are divided regarding how online course material should be delivered. Some advocate creating online courses that emulate traditional face-to-face classroom experience while others argue that equivalency is impossible because the medium shifts the dynamics of teaching and learning within virtual classrooms (Donovan, Mader, and Shinsky, 2011). One way to gain insight regarding this "equivalency" debate is to simply compare which learning tools face-to-face classroom students and online students prefer. Failure to find significant differences would support the equivalency theorists while significant differences in preferences would suggest that face-to-face classrooms and virtual classrooms should be constructed differently.

This study asked graduate students enrolled in MBA Marketing Management classes delivered either entirely via the Internet or entirely in face-to-face classrooms to evaluate the effectiveness of fourteen alternative learning tools. The remainder of this paper presents the results of this study.

RESEARCH METHOD

Subjects

Subjects were drawn from MBA students enrolled in Marketing Management subjects taught at two large Midwestern universities. One university delivers its graduate program exclusively online while the other university provides traditional face-to-face classroom delivery. The sample drawn from the online program consisted of 84 students and the face-to-face classroom sample consisted of 42 students. Both groups were evenly divided by gender. No significant age or GPA differences were found between the comparison groups. The majority of students in both samples were less than 30 years old. The samples significantly differed in years of work experience ($t = 3.05$, $p = .003$) with more online students possessing at least 5 years of employment experience than face-to-face classroom students. Significant differences were also found for the undergraduate majors earned by students ($t = 4.435$, $p < .001$). More face-to-face classroom students entered graduate business school with non-business academic backgrounds than the online comparison sample.

Course instructors administered the questionnaires. Participation in the study was voluntary.

Instrument

A questionnaire was developed to examine student perceptions of the effectiveness of fourteen alternative learning tools to promote higher learning. The fourteen learning tools identified in this study are lectures, textbooks, supplemental reading materials, small group sessions with fellow students, one-on-one meetings with instructor, case studies (three or more pages read prior to class), case scenarios (less than three pages read during class meeting), tutorials, videos and other electronic materials, guest speakers, Internet activities, research papers, role playing, and team presentations. Students evaluated the effectiveness of each of these pedagogical methods using a 3-point scale (very effective, neither effective nor ineffective, very ineffective). Students also ranked these learning tools based on their personal preferences.

RESULTS

An aggregate learning tool effectiveness score was calculated (very effective minus very ineffective = ___ % effective rating) for each of the fourteen pedagogical methods. Overall, online students demonstrate a higher overall satisfaction with existing teaching methods than in-class students. Interestingly, face-to-face classroom students hold negative perceptions of the effectiveness of textbooks and online activities (i.e. very ineffective exceeded very effective ratings). Table 1 summarizes the overall effective scores of the learning alternative tools.

Table 1: Students' Evaluations of Alternative Learning Tools

Learning Tool	Overall Effectiveness % / Rank	Online MBA Students % / Rank	Face to Face MBA Students % / Rank
Group sessions	46.38 / 1	51.08 / 2	38.40 / 1
One-on-one	44.52 / 2	49.76 / 4	35.60 / 2
Cases	40.53 /3	50.96 / 3	22.80 / 4
Supplemental Reading	38.58 / 4	49.28 / 5	20.40 / 5
Scenarios	37.88 / 5	46.51 / 6	23.20 / 3
Textbooks	32.57 / 6	53.14 / 1	(2.4) / 13
Research papers	30.04 / 7	37.59 / 8	17.20 / 7
Team Presentations	25.97 / 8	32.78 / 10	14.4 / 8
Internet Activities	24.49 / 9	42.89 / 7	(6.80) / 14
Tutorials	23.16 / 10	36.32 / 9	.80 / 11
Lecture	22.69 / 11	31.33 / 12	8.00 / 10
Electronic materials	20.42 / 12	32.20 / 11	.40 / 12
Role playing	17.66 / 13	20.05 / 13	13.60 / 9
Guest speaker	14.38/ 14	10.84 / 14	20.40 / 5

Table 2 lists the rank order of learning tools in terms of student preference (1 = most favorite, 14 = least favorite) and mean score.

Table 2: Students' Rank Order Preferences for Learning Tools

Learning Tool	Overall Preference Ranking Mean / Rank	Online MBA Students Mean / Rank	Face to Face MBA Students Mean / Rank
Lecture	5.22 / 1	4.96 / 2	5.76 / 2
Textbooks	**5.32 / 2***	4.07 / 1	7.85 / 8
Group sessions	5.66 / 3	6.00 / 3	4.98 / 1
Cases	6.15 / 4	6.00 / 3	6.46 / 3
Supplemental Reading	6.82 / 5	6.62 / 5	7.24 / 7
Scenarios	6.93 / 6	6.92 / 6	6.95 / 5
One-on-one	7.13 / 7	7.36 / 8	6.68 / 4
Internet Activities	**8.05 / 8***	7.16 / 7	9.85 / 14
Research papers	8.30 / 9	8.47 / 9	7.95 / 9
Guest speaker	**8.52 / 10***	9.25 / 12	7.02 / 6
Electronic materials	8.87 / 11	8.73 / 11	9.17 / 12
Tutorials	**8.94 / 12***	8.60 / 10	9.61 / 13
Team Presentations	**9.19 / 13***	9.71 / 13	8.15 / 10
Role playing	9.90 / 14	10.27 / 14	9.15 / 11

T-tests between the comparison groups found significant differences in the perceived effectiveness of five pedagogical methods. Students enrolled in online classes perceive textbooks ($t = 4.831$, $p < .001$), tutorials ($t = 1.65$, $p = .10$), and Internet activities ($t = 3.966$, $p < .001$) as significantly more effective in helping them achieve their educational goals than students enrolled in face-to-face classes. Conversely, students enrolled in face-to-face classes rated guest speakers ($t = 3.149$, $p = .002$) and team presentations ($t = 2.146$, $p = .034$) as more effective.

DISCUSSION

Although the sample populations in this study are similar in age, gender, and GPA, students enrolled in the online program are more likely to possess business-related undergraduate degrees and more years of work experience than students enrolled in the face-to-face classroom sample. These students possess pre-existing foundational understanding of the subject material and can apply this material to a broader range of personal business experiences. This combination of tertiary and hands-on business background might shift the learning needs of these students. Students temporally and spatially separated from their universities or colleges who enroll in courses delivered online may be more self-directed. They use textbooks as roadmaps to guide them through the course material and one-on-one tutorials with instructors to clarify topics they do not comprehend. Conversely, students, who lack prior exposure to business courses and have fewer years of workplace experience, may feel more comfortable in face-to-face classroom environments where instructors frequently review textbook content, augment their lectures with experiential anecdotes, and present appropriate foundational information to facilitate understanding. As a result, students enrolled in face-to-face programs may be less dependent on textbooks as a learning tool. Similarly, online delivery lends itself to solitary study. The logistics of organizing group presentations and guest speakers is much more difficult online than in classrooms. Finally, the finding that online students prefer Internet learning activities more than face-to-face students suggests that students choose learning venues that match their preferences.

The results of this study suggest that technological differences between methods for delivering education may render emulating traditional face-to-face classroom experience impossible in virtual classrooms. The different dynamics of teaching and learning within virtual classrooms versus physical classrooms may require instructors to reconsider appropriate pedagogical tools for cyberspace. Simply transferring traditional classroom learning tools to cyber

classrooms may not be the methods that are most appropriate for online student learning.

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Why Gender Diversity Is Both a Challenge and an Impending Financial Growth Opportunity for the Global Technology Industry

Kristin Holmberg-Wright, Distinguished Lecturer, University of Wisconsin-Parkside USA
David J. Wright, Professor of Finance, University of Wisconsin-Parkside USA

ABSTRACT

Although technology ranks among the lowest industries in terms of gender diversity, recent research indicates that those companies within the tech industry that are more highly gender-diverse yield greater financial value. The paper describes the reasons why women perceive technology degrees to be less attractive than other fields. Finally, the paper presents solutions that universities and employers are using to improve gender diversity and thus, add substantially more value to the global technology industry.

Keywords: gender diversity, tech industry, computer science degrees

INTRODUCTION

The lack of women choosing a computer science degree in college and working in technology companies is well documented and has persisted for a long time. Demands for greater female participation in the global technology industry have historically been based upon political or cultural arguments founded on fairness and equality. However, there is now growing evidence that greater gender diversity contributes significant economic benefits to companies in all sectors, but in particular, adds substantially more value to highly gender-diverse tech companies. In other words, gender diversity is more than a highly laudable goal for the global technology industry. The management teams of tech companies that, first, recognize the reasons why women perceive technology degrees to be less attractive than other fields, and second, use employer incentives to improve gender diversity, will be rewarded with greater financial value compared to their less gender-diverse competitors.

Sangeeta Badal (2014) conducted a research study at Gallup that examined over 800 companies in the retail industry and the hospitality industry. For both industries, the study concluded that those businesses with greater gender diversity generated both higher revenue and greater profits than their less-diverse competitors. More recently, Morgan Stanley's Sustainability and Global Quantitative Research teams conducted a research study of 108 tech companies "based on a common gender diversity investment framework" (Morgan Stanley, 2017). They found "that a better balance of men and women in the workplace can deliver returns with less volatility". Specifically, for the five year period of 2012 through 2016, "highly gender-diverse tech companies returned on average 5.4% more on an annual basis than the average yearly returns of their peers with less gender diversity." The study provides comprehensive quantitative evidence of the value added to tech companies who are able to increase their gender diversity.

"Technology will not stay in the lead in the US unless the gender diversity gets materially better. It's just not. It's just not going to happen" This is a quote from Apple CEO Tim Cook on June 9, 2017 when he spoke a meeting sponsored by the MIT Technology Review (2017). He explained that the lack of women in tech is an enormous issue, one that must be addressed in total from societal as well as educational and work perspectives. To address the enormous issue now facing tech in the US, Cook suggests the focus must be on the totality of the issue. It is not just about gender parity; the lack of women in computer science is a significant issue for the tech industry and a serious economic challenge for the US workforce. For example, 1.4 million jobs will open in computer science by 2020, yet there will be only enough qualified graduates to fill just 29% of the available jobs and less than 3% will be filled by women (Mylavarapu, 2016).

Recently, the US has seen an increase in women entering more STEM (science, technology, engineering, and mathematics) fields, spurred by a multitude of efforts. However, women are still choosing other fields than technology. In an interview, Melinda Gates recalled how in 1980 when she graduated with a computer science degree, 37% of the computer science degrees were awarded to women. Today it is less than 18%. At the same time, the law and medical degrees awarded were about the same and today the numbers of women graduating in those

fields has risen. She further pointed out that if the numbers of women and minorities graduating in computer science continues to be so low, the US will lack a diverse team at the table developing the technology that we all are using. (Murphy, 2017).

Cheryan (2015) suggests the reason for the continued decreasing number of female computer science graduates is due in part to social barriers – both real and perceived. The researchers argue that women don't choose to pursue computer science degrees due to the stereotypes about the kind of people who work in the field. Women don't see themselves fitting in with the stereotypes. The research concluded that such perceptions – real or imagined – have shaped females' career paths.

According to Maria Klawe, President of Harvey Mudd College, women once were about a third of computer science majors. Females chose to study computer science because women had better typing skills and were thought to be more careful. Women majored in computer science, because it was an area they were expected to be successful in. But the reality changed with the introduction of personal computers (PC's). Users could either use PC's for word processing or to play games like Pong and Space Invaders (Pickett, 2018). Games became male centric and women began dropping out of computer science. With the advent of the PC's, tech was no longer an industry dominated by women; it was an industry for men (Williams, 2017).

WHY WOMEN PERCEIVE TECHNOLOGY TO BE LESS ATTRACTIVE THAN OTHER FIELDS

Research on why women are not pursuing computer science degrees have identified problematic perceptions and ideas such as the negative impact of stereotypes, women's view of math, fear of failure, confidence with computers, tech career knowledge, and the lack of role models. To address the issues arising from gender disparity which currently exists, these issues and more must be confronted.

Stereotypes

One of the earlier stereotypes of computer science workers was played by the current host of the Tonight Show, Jimmy Fallon, when he was a regular on Saturday Night Live almost 20 years ago. Jimmy Fallon played the lead character in a popular recurring sketch entitled "Nick Burns Your Company Computer Guy" from 1999 to 2001. Nick Burns was socially awkward, obsessed with machines and computer jargon in a rude know it all manner, and always with unkempt hair with several pocket pagers strapped on his belt. (Kendall, 2009). There was even an episode with a female equivalent of Nick Burns played by Calista Flockhart. This view continues to dominate the image of computer science college majors and workers. Likewise, the field of technology is often defined in masculine terms, leaving women to question their entrance into an area where they expect to meet stereotypical bias and discrimination.

The impact of stereotypes is one of the most widely studied topics in social psychology. Claude Steele (2010) explained the term in his classic Whistling Vivaldi. He argued that certain situational factors can lead people to confirm negative stereotypes about the social group they belong to. Once the negative stereotype is accepted, an increase in overall anxiety and a decrement in performance occur. Likewise, today there have been numerous high profile cases of sexual harassment in Silicon Valley at Google, Uber, Microsoft, and more. Such accounts only add to the extremes of how toxic the field can be for women and leaves open ended questions of how and why women would want to endure such treatment.

Mathematics

Women are perceived not to be as mathematically inclined as men. By second grade, girls already believe boys are better at math (Cheryan, 2015). Stereotype threat continues with the (false) perception that girls are intellectually inferior. Researchers have documented a mere awareness that others expect members of a social group to do poorly in math is enough to create anxiety and decrease the performance among members in the less represented social group (Cici, 2015). It has been documented that males are not, in fact, better at math than women. Likewise, the number of high school girls with high scores on the math section of the SAT has significantly increased. An OECD report has also shown the gender gap has reversed (Hill, 2010). Yet, the stereotype continues and has continually been mentioned as a reason why many girls have not pursued a computer science degree. Carol Dweck (2006) discussed how even having more males in a room before a math test was a factor in lowering female scores. She

explained that the mere stereotype of males being superior in math ability filled the females' minds with distracting thoughts and with the anxiety of confirming the math stereotype.

Fear of Failure

Another problem which can plague women in computer science is an overall fear of failure. Women have been socialized that they cannot fail; they must achieve perfection. Yet, coding never goes as planned and when the code doesn't run, women often feel a failure (Vu, 2017). Females in college are more likely to drop courses in which they consider their grades to be lower than the males, experience serious anxiety in quantitative classes, and often underestimate how well they will do in the workplace (Bohnet, 2016; Seymour, 2000). Women that succeed in a computer science career or in completing the academic program are often viewed as 'exceptional' which again promulgates the stereotype that women don't belong in computer science (Beyer, 2004). And, once in the work world, females feel they must prove themselves by working harder than men (Taylor, 2011).

Confidence with Computers

Women's overall confidence with computers is another factor cited as a reason for women's decreased interest in pursuing a computer science degree (Bohnet 2016). Using a multivariate investigation, Beyer (2004) showed that men had more confidence in using computers than females. In fact, female computer science majors had far less confidence than male non-majors. The low confidence manifests itself in less playful and relaxed attitudes toward computers and programming and also highlights why boys are more prone to playing video games from a young age. In high school, girls are less likely to take programming courses and to complete the computer AP test prior to college (Cheryan, 2015; College Board, 2013). The NSF 2012 research study documented that by the time students enter college, males are already four times more likely to express the intention to major in computer science and engineering, whereas females make the academic decision while in college (Cici, 2015). A 2016 Harvard study found that women with up to eight years of programming experience report the same level of confidence as men with zero to one year of programming experience (Rayome, 2017). Why would an individual chose a field of study they lack confidence within themselves?

Career Knowledge

Dwek's (2006) research suggests women have an unrealistic image of the field and lack accurate information about computer science careers which also causes fewer women to enroll in the academic program. The career is more focused on male values and competition, money and accomplishment. Yet, it has been shown that females are motivated more by intrinsic motivators – the desire to engage in activities because they value it for the inherent satisfaction provided (Pollak, 2015; Colvin, 2015). The perception then exists that computer science will not be a satisfactory career choice and may not fulfill the females' interpersonal needs. When computer science careers are sold to students using extrinsic values and rewards such as financial rewards and number of jobs available, it will not entice females to the area; quite the contrary, it may focus their attention away from the career.

Role Models

The lack of female role models in computer science has continually been identified as an additional issue (Cici, 2015; Bohnet2016). Male computer science majors have easy access to role models in academia and at work. They have multiple individuals to turn to that can assist them with homework or issues with work and coding and to provide support and encouragement.

Female academic role models will continue to be difficult to provide if more women don't enter the field and are open to working with female students and recruiting for additional female students. Currently, only 15% of tenure track computer science faculty members are women (Rayome, 2017). And, the question remains if, perhaps, having a role model that embodies the stereotype of a computer science 'nerd' would actually hinder a female choosing to major in computer science.

Obviously, there are a multitude of reasons women have not completed (nor sought) degrees in computer science and technology. We have only included the issues mentioned in most research. There are still underlying areas that have not been identified nor addressed. Yet, the time is now for colleges, universities and the industry to respond to the continual low number of women in computer science programs and to address the institutionalization of the stereotypes now faced by both men and women.

EDUCATIONAL CHANGES NEEDED

There are many initiatives currently to address some of the imbalance of women pursuing computer science and technology degrees. The initiatives involve a combination of community building, mentoring, education and training. There are more examples today of efforts underway to address the disparity. For example, NSF has invested $2million in a longitudinal study to identify best practices for keeping women and people of color in the field. BRAID (Building, Recruiting, and Inclusion for Diversity) was initiated with funding from Facebook, Google, and Microsoft, to increase the percentage of women and minorities in undergraduate computing programs. The initiative partners with fifteen universities that have pledged to increase diversity and inclusivity within their own computer science departments (Vu, 2017). Yet, educational efforts must begin prior to women entering higher education.

Elementary and Secondary Education

Andy Kessler (2017), writing for the Wall Street Journal, suggests the US is falling behind in making our students computer literate. He explained that in 2014, England made computing a part of its national primary education. Kessler suggests that the US could start by requiring high schools and colleges to allow computer languages to count for foreign language credit.

Saujani began Girls Who Code in 2012 as a nonprofit organization which aims to support and increase the number of women in computer science. They offer training, summer immersion programs, clubs and a book series among other things. The aim is to inspire, educate, and equip young women with the computing skills to pursue 21st century opportunities. Statistics are still depressing. Saujani reports that about 74% of young girls express interest in STEM fields and computer science; yet, by the time they make decisions about what to study and where to start their careers, the number drops significantly to less than 18% (Mylavarapu, 2016).

As mentioned, most females start college with little to no experience with computers or an understanding of computer science degrees. Colleges and universities must work with elementary and secondary educators to get the message out that no prior experience is needed. University personnel need to be present on high school campuses, offer courses with college credit to high school students, and improve and expand recruiting tools for perspective female students. The fundamentals of computer science and programming must be taught earlier, perhaps even being required (merely to allow students to function in a quickly changing and more technical world).

College and University Programs

Increasing the number of women in computer science and technology continues to frustrate college administrators who have offered special boot camps, internship programs, guest speakers, etc., yet the numbers continue to decline. Korn (2017) pointed out that a majority of the computer courses taken the first two years consist of technical courses with a programming emphasis. Recognizing females have (or believe they have) little or no experience with programming, redesigning the four year academic program to be less technical in the early stages may help.

Recognizing most females don't choose computer science until they are in college, a critical course to attract females is the introductory computer science course. Choosing instructors who understand the importance of the course for attracting majors, who are in no way seen as biased, and who recognize and can empathize with the women students' lack of confidence, while helping both men and women students in the class to successfully work together becomes significant. The course should incorporate values that arise when both sexes work together. The course should not be merely a technical course, but rather more of a personal exploration.

At an early juncture, students should be exposed to the historic role of women in computer science. The recent success of the popular movie Hidden Figures opened many people's understanding of women's historic role in computer science (and the space race). Gender intelligence and an awareness and appreciation for the gifts each gender brings should be as important as learning a program language. The difference between men and women should not be seen as a weakness, but rather be promoted as a strength – a strength that is often misunderstood, undervalued, and criticized. For example, mixed gender teams may recognize and make use of women's connective and consequential way of thinking to enhance problem solving and decision making; while helping women to appreciate the direct feedback and the sharing of statistics and facts that men bring to teams. Such differences can

only be appreciated when the students all work together and the instructor opens discussion of strengths and weaknesses individuals bring to group work. These lessons will then follow to the work place.

Beyond academic courses, there needs to be more support staff due in part to the high grade demands that women especially put upon themselves. Female students need to have support people to talk with and allow them a safe place to share their grade and program fears. Research has also confirmed that women are more influenced by teachers and counselors in a positive way (Pollack, 2015).

Organized activities which help to create a community of women should be a priority. Speakers should be brought in. Workshops on computer usage, programming, app development, security, and other professional activities should be offered (in addition to what is covered in required courses). Outreach activities should be planned, as well as dinners and group outings which all allow female students to bond and have a safe place to discuss their concerns and, perhaps, insecurities. Staff and faculty role models need to be continuously involved.

Internships and research opportunities must be expanded for female students. Female students shouldn't have to continually compete with males for such opportunities. Research opportunities can be used for recruitment purposes. Additionally, undergraduate research experiences have been shown to be a key factor in retaining students in computer science, particularly in the undergraduate to graduate school transition (Alvarado, 2012). Women are much less prone to apply for internships and research assistant positions, believing male students know more and are more deserving of such opportunities (Seymour, 2000). With many of these offerings, it would enhance the experience if once again men and women can work together and open lines of communication and understanding.

Pollack (2015) reported that a male professor suggested changing the name of the major from computer engineering to computer arts. He was convinced that this would double the number of women overnight as it would recognize women's creative side and ability to use the right side of their brain. This suggestion goes along with the idea to reframe the skills needed to succeed in computer science to stress communication, teamwork, creative problem solving rather than mere technical skills (Korn, 2017).

WORK WORLD CHANGES NEEDED

Challenges for Women in the Work World

Women are not well represented in computer science in higher education. Females are even less of a force in the corporate world where just 5% of the leadership positions in the technology industry are held by women (Mylavarapu, 2016).

Stereotyping and discrimination of women with computer and information science degrees does not stop once women are in the work world. For example, evaluating women's work is skewed if they are working in areas where there are few females. "Stereotypes shape our perception of competence. We hold women to a higher standard in evaluating and also women tend to evaluate themselves to a higher bar." Gender bias in male dominated areas is considered almost automatic (Bohnet, 2016). Most recently, Facebook data revealed that code written by females was rejected more frequently than that written by male colleagues (Seetharaman, 2017).

Lazlo Bock, formerly Senior Vice President of Google's People Operations, after viewing national and data specific to Google about women in technology, exclaimed, "Suddenly you go from being completely oblivious to going, 'Oh my god, it's everywhere" (Manjoo, 2014). Mr. Bock went on to publicly offer data on diversity at Google and to confront how personal bias often interfered with how women were treated in the workplace (Bock, 2015).

Research shows men are promoted in the work world based on potential, while women are promoted on past accomplishments. This again leads to women being evaluated and scrutinized differently than men for positions and promotion. Additionally, females may be evaluated for the same qualities/values that a male brings to the table, rather than being recognized for the skills they bring to the table such as inclusiveness, problem solving capabilities, empathy, and the use of right and left brain thinking in tandem.

Hiring decisions are, in part, based on a candidate having the right "fit" with the company and its culture. Women don't exactly 'fit' in occupations or companies where the number of men dominate. Because they are few in number

and don't 'fit' with the majority of employees, women are often excluded from men's social and professional networks where information is shared and personal and professional alliances are built. Because of the exclusion, women are often not privy to office politics or to hearing about new projects or jobs. With time, again, females will be seen as inferior in work abilities and not recognized for the strengths they bring to the work place.

The real challenge becomes supporting women once they are hired and then integrating, not marginalizing, females into the work environment. Women leave technology companies at twice the rate of men according to a survey from the University of Wisconsin Milwaukee. "Most major tech companies are revolving doors in which women and people of color quit at similar rates to which they're hired due to poor treatment, lack of advancement opportunities, and unfairness" (Alba, 2017).

Employer Incentives to Improve Gender Diversity

How then do companies find and keep women in the tech work world? Immediately what comes to mind is to work diligently to overcome the stereotypical beliefs and sexism that impacts the field. After the gender differences in the coding jobs were found at Facebook, the company began to help employees identify and offset inherent prejudices (Seetharaman, 2017). Companies are going to have to reach out, actively seek women, determine what females are looking for, and promote them. Companies need to become active in scientific and tech organizations that women are members of. They need to use LinkedIn and other social media, partner with universities and colleges, offer research opportunities and internships. Women need to be included in the interview process to make it more inclusive and less intimidating for perspective candidates. More collaborative programming exercises or individual projects should be used in the interview process.

Recognizing that women do want to make a difference and be part of something more than just holding a job, tech advances should be broadened. For example, when speaking about jobs in digital media, perhaps the design of and beauty aspects should be highlighted. Web security should recognize the need to make not only the web but the world a safer place for children and families. The digitization for online sales should be addressed as an important way to make life easier and more adequately address consumer needs in timely fashion. None of these conceptions are wrong by any means and they open up a different way of viewing the jobs therein.

Likewise, it has been proposed (and used by many) to remove names from resumes. Further, checklists of qualifications should be used to make the interview and evaluation of candidates more objective. Rubrics could even be used to more objectively and consistently evaluate candidates' responses in interviews.

Finally, the pay scales need to be evaluated to eliminate gender bias. Data shows that a female web designer makes less than a male ($.79/$1.00). Statistics from Forbes show that, for example, a woman holding a computer job makes 80.8% to 86.7% less than the equal male counterpart. You may attract the female scientist to begin, but you certainly won't keep them (Kauflin, 2017).

So how then do you retain the women you hire? Bock (2015) recognized the lack of women in critical professional positions at Google. He explained the first step to mass empowerment was making Google safe for all people to speak up. Bock also felt it critical to document and share data. Sharing data goes a long way toward combatting work bias which often happens 'behind closed doors'. He believes individuals are unaware of their innate stereotypical views of the opposite sex. Ways to help recognize and deal with workplace biases must be identified.

Mentors and sponsors have been shown to make a critical difference in male dominated workplaces. Mentors and sponsors have been shown to advance women's (and men's) careers by showing one the ropes, making connections, and putting one's name forward for career enhancing opportunities. Stratigakos (2016) found that men in architecture were significantly more likely to be sponsored. She explained that mentors tend to choose protégés who remind them of themselves and who are similar in personality and background. In architecture as in computer science, men are going to need to be selected and trained to serve as effective mentors to women – to recognize and expand the positive change and outlook women bring.

Networking with other women and professionals from various computer science jobs and areas is important. Networking opportunities in and outside the organization should be planned and actively supported by all

executives. Mentoring, sponsorships, and network initiatives are first steps in motivating and retaining women. But, due to the disparity in numbers of male and female computer scientists, more systematic interventions become critical.

Female role models in computer science are important. Role models can counter negative stereotypes and have been shown to increase motivation for career advancement and success. This hasn't always been the case. Note, in 2010 Mattel introduced a stylish and pink clad "computer engineering Barbie". It came with a book that was taken out of print when it was shown to represent Barbie as an incompetent engineer needing the help of the males to succeed (NPR, 2014).

More mixed gender teams and work is essential. Sandberg (2013) supported the idea of more teams. "There is a wealth of evidence that diversity helps teams and organizations perform better in terms of innovation, creativity, revenue, and profits. Using the talents of our full population is critical to our economic growth, corporate productivity, and individual happiness." Ms. Sandberg's quote captures the importance of growing the number and retaining women in computer science and the job force. The time is past due to seriously focus on and address the weak numbers and full use of female gifts in computer science.

SUMMARY

To capture the overlooked advantage women bring, computer science has to be redefined to make it more attractive to females. As Tim Cook said, the lack of women in tech is an enormous issue that must be addressed in its totality. We do need more studies, publications, workshops and symposiums, protests and redesigned academic programs to raise awareness about computer science and the entrenched gender disparities. We do need to become more inclusive of both genders working together for the overall betterment of the profession and those in it now and considering it for the future. Technology is our future and our survival. Despite the barriers outlined in this paper, it may be that financial forces will drive greater gender equality and accelerate growth for the global technology industry. How can we continue to overlook the advantage of women in such critical areas which profoundly impact all our lives?

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Kristin Holmberg-Wright is Distinguished Lecturer of Management and Organization Behavior at the University of Wisconsin-Parkside, and author of numerous publications and presentations in the areas of soft management skills, leadership, and business management.

David J. Wright is a Professor of Finance at the University of Wisconsin – Parkside since 1992. Previously, he was a faculty member at the University of Notre Dame and Indiana University, Bloomington. The author of more than 60 peer-reviewed publications, Dr. Wright specializes in the study of capital markets, security analysis, security market indexes, with a special emphasis on bond indices. Other activities of Dr. Wright included eight years as an advisor to Ryan Labs Asset Management in New York City and he received the U.S. Congressional Merit of Recognition by Speaker Paul Ryan for over 10 years of volunteer service as the Finance Committee Chair to the Kenosha Area Business Alliance (KABA) in Wisconsin.

How An Independent Studies Project Can Help Prepare Students For Graduate School

Marc Beck, Murray State University, Murray, Kentucky USA

ABSTRACT

This paper describes a directed research course in which a group of senior level college students conducted a research project and documented their findings. The goal of this project was to better prepare undergraduate students who are planning to continue their education in graduate school. This project resulted in a professional survey paper and helped the students develop valuable research, writing, and presentation skills. A group of selected students was tasked with analyzing and comparing different 3d file formats and 3d graphic programs and summarized their findings in a survey paper. As part of the project the students developed an algorithm that ranked the different items by taking into account factors, including cost, user friendliness, and compatibility.

Keywords: student career success, Higher Education, student driven research

INTRODUCTION

In 2013, the likelihood for Computer Science majors to obtain a graduate degree was 33.3%, which was slightly below the average for all majors combined at 35.1% (US Census Bureau, 2013). According to the Council of Graduate Schools (Council of Graduate Schools, 2013), 40% of graduate students in STEM fields complete their Master's degree within two years and a total of 66% complete it within four years. That leaves 34%, who either take even longer to complete their degree or drop out. With 43%, doctoral programs have the highest dropout rates of all post-baccalaureate programs (Ampaw and Jaeger, 2012). These dropout rates and the amount of extra time it takes some of the students who do graduate suggest that many graduate students are struggling. Many graduate students are overwhelmed with their research assignments (Oswalt and Riddock, 2007) and are not used to the different structure compared to their undergraduate coursework. For example, in graduate school, understanding the course material is far more important than memorizing it (Chang, et al., 2007). Graduate students often take longer than initially expected to complete their degree. Many of them even abandon their pursuit of a graduate degree altogether (Council of Graduate Schools, 2013). The amount of time it takes for students to decide to drop out varies from student to student.

BACKGROUND

The Department of Computer Science and Information Systems (CSIS) at Murray State University (MSU) has about 250 students. About 115 of them are undergraduate students majoring in Computer Science (CSC), the rest are undergraduate and graduate students in the Computer Information Systems (CIS) and Telecommunication Systems Management (TSM) programs.

Graduate students are expected to do research, perform experiments, present projects, and publish papers. Pabst (Pabst, 2011) describes universities as places that simultaneously create and fulfill a demand for knowledge. This is accomplished through research. Solving old questions often raises new ones, which then themselves require solving. Graduate students, especially in the Doctoral Program are at the forefront of this process and are required to develop the skills to acquire, generate, possess, interpret, and discuss knowledge (Pabst, 2011). An important skill in graduate school, especially when pursuing a terminal degree, is therefore the ability to write research papers. Students majoring in computer science usually take courses in composition offered by the English department during their freshman year and later have very few opportunities to write extensively, particularly on topics in computing (Kay, 1998). This project does not only address writing, but also oral presentation skills.

Several factors that contribute to the high dropout rates among graduate students have been found. According to Carpenter et al. (Carpenter, et al.), one reason that many students are ill-prepared for the graduate school application process or for the graduate school experience, is if their undergraduate institution has only undergraduate programs.

That means that students often do not know what is expected of them in graduate school, since they are not interacting with anyone who is going through that experience. Hall et al. (Hall et al., 2017) state that undergraduate GPA and GRE score are unreliable as predictors for success in graduate school because they do not measure the student's ability to conduct research.

PREVIOUS RESEARCH

There have been numerous attempts at better preparing students for life after college. Carpenter and Colleagues began offering seminars (Carpenter, et al.) on why or why not to pursue a graduate degree and what to expect in graduate school. For those students who do not move on to go to graduate school, most enter the workforce and some even try to start their own business. Solutions have been developed to prepare those students for their future career as well. Pilskans (Pilskalns, 2009), for example, developed a senior project with the goal to teach students entrepreneurial skills that would help them succeed in commercializing their ideas.

The author attempted a similar approach, however this approach was aimed at preparing undergraduate students for graduate school instead. In order accomplish that, a research project was offered as an elective special topics course to a selected group of four undergraduate students, all of which were seniors at the time.
As a topic for their project, the students were given the task to address the following problem: A large number of different file formats for 3d graphic objects are available. Most 3d editing and rendering software and game engines only support certain formats and not others. Third party conversion tools exist, but often cause data loss when converting one file format into another. The large number of different file formats and programs to deal with them can be confusing. It may often be difficult to choose one of the many different file formats for a specific project. The task given to the students was to compare and evaluate the most common of the many file formats and to rank them based on a number of different criteria to find the most relevant ones.

In order to find a solution for this problem, the group was given the task to examine the most common file formats and the most common 3d graphic programs and to write a survey paper which they would present at a conference. The students had been given a great deal of autonomy by the instructor and they were very creative in developing a method to rate the different programs and file formats.
A paper describing a similar project to evaluate 3d file formats and software was published by McHenry and Bajcsy in 2008 (McHenry and Bajcsy, 2008). That paper is now partially outdated, since new 3d graphic tools and new file formats have become available since then. However, it still contains useful information, such as details about several of the different file types and a list of errors that can occur during file format conversions. McHenry and Bajcsy suggest that some of these problems can be overcome by using a neutral file format. The students were not aware of the existence of this paper and did not find it during their literature search. The result was that they developed their own evaluation criteria independently and that both papers complement each other.

Huss et.al. (Huss et al., 2002) encourage students to participate in research and to make sure they spend time with faculty. That increases the likelihood that students get good letters of recommendation. Skills and experience gained in undergraduate research are going to be valuable to the students later on. Instructors are advised to encourage students to seek out mentors early on in their undergraduate careers. Although the results of the study conducted by Huss et.al suggests that it would be more difficult for students at larger universities to establish those kinds of relationships, this would be balanced out by greater access to research experience (Huss et al., 2002).

GOALS

The original goal of this project was twofold. First, to give the students an opportunity to acquire and improve skills useful in graduate school. Second, to produce a paper that would provide a clear overview of existing 3d graphic software and the different 3d file formats. This project was intended to benefit the participating students, the 3d graphics community, and the instructor in the following ways:
The students learned how to organize and write a meaningful survey paper. They developed the ranking algorithm by which the different programs and file formats were compared. These analyses were presented to the instructor during one of the weekly meetings. During the course of this project the students were able to improve their presentation skills. For example, the PowerPoint slides were less cluttered when comparing later drafts to the earlier ones and the wording improved greatly. The students also learned the importance of limiting the scope of a research

project by realizing how time consuming it would have been to examine every single program and every single file format.

The paper written by the students was originally supposed to be submitted for publication in the Journal of the Kentucky Academy of Science. It was designed to be used as a guide to help game developers, educators, graphic designers, and CGI animators decide which software and which file formats to choose for their work. Due to time constraints the paper was not submitted, however one of the students improved the algorithm, collected more data and developed this project into her honors thesis.
The findings of this research project have helped the instructor to determine which software and which file formats to use for teaching a course in Computer Graphics. The results will also be useful for future research projects.

The project had several milestones that the students needed to accomplish:

1. Research different file formats and software tools and pick the ones to be represented in the study.
2. Develop a formula to evaluate the file formats as well as the software tools.
3. Gather results and draw a conclusion from those results.
4. Write a paper that could be published and present the project at a conference.

RESEARCH DESIGN

The students met with the instructor on a weekly basis to discuss findings and results. They divided up the tasks given by the instructor amongst themselves and reported on their progress or any obstacles they discovered. The instructor guided the students how to write and format a successful survey paper that will be submitted for publication in a peer reviewed journal. The students were given a great amount of autonomy how divided the tasks up among themselves and contributed to roughly equal parts to the project.
The paper written by the students consists of a detailed description of the project and includes descriptions of the software and the file formats as well as comparison tables.

The students found overall 81 different programs for creating and editing 3D graphics as well as 144 different 3D graphics file-formats. The 5 most commonly used programs and the 10 most commonly used file-formats were chosen for further study based on a number of attributes, which were determined by the students.

The students developed a formula to rank the different programs after determining what the most desirable attributes in software and file formats would be. They selected the following four attributes: Popularity, file-format compatibility, cost, and user-friendliness. Each attribute was calculated individually and multiplied by a weight W. A similar formula was used to evaluate the different file formats.

$$W1\left[1-\frac{c}{(c+a)}\right]+W2\left[\frac{x}{5}\right]+W3\left[\frac{y}{(y+b)}\right]+W4\left[\frac{z}{10}\right]$$

The formula above is the one the students developed for evaluating 3d graphic programs. This formula takes into account popularity, file-format compatibility, cost, and user-friendliness of the software that is being evaluated.
W= the weight for each attribute.
c= the cost of the current software the students were evaluating.
a= the average cost of all software in the current comparison.
x= the score out of 5 for user-friendliness.
y= the average search results of the current software being evaluated across a selection of 4 popular search engines.
b= the average of the compared software's search results across the search engines.
z= the number of compatible file-formats from a list of 10 file-formats for the software being evaluated.

The formula below was developed by the students to evaluate file formats. It consists of components for popularity, file size, and software compatibility.

$$W1\left[\frac{y}{(y+b)}\right]+W2\left[\frac{s}{(s+a)}\right]+W3\left[\frac{v}{5}\right]$$

W= the weight for each attribute.
Y= the average search results returned by 4 search engines on the file-format we are currently scoring;
b =the average search results of all of the file-formats in the current comparison over the used search engines;
s= the file size of a sample object in the file-format currently being examined;

a= the average file size of the same sample object converted to the other compared file-formats;
v= the number of compatible software for the current file-format. (Kennedy, 2016)

DISCUSSION

During the course of the project, the students encountered various obstacles, which prompted discussions amongst the group on how to overcome these obstacles in the most effective way. The students came up with their own creative methods to solve the problems and agreed on which solution to implement. For example, it was decided to use the popularity of the software packets as one of the search criteria. For evaluating popularity, search engine results were counted. One of the software tools being evaluated was Blender. Of course when typing the word Blender into a search engine, one will inevitably get results that are completely irrelevant to 3d graphics. The solution the students came up with to address this problem was to use the search term "Blender 3D Software". For example, most search engines, especially Bing, returned a large number of websites advertising kitchen appliances and only very few websites about the software when the word "Blender" was entered. The students solved this problem by entering the search term "Blender 3D Software" into any search engine, which yielded mostly relevant websites.

For measuring user friendliness, the students developed a checklist if a software tool had certain features to make it more user friendly and calculated an overall score based on the number of check marks on that list. This example shows how the students learned in their research how to use methods for measuring criteria and how to combine, modify, and fine tune those methods.

This project has encouraged one of the students to continue it on her own during the following semester and develop it into her honor's thesis (Kennedy, 2016). Her efforts resulted in a much more comprehensive and sophisticated paper. This student also decided to apply for graduate school.

This student's honor's thesis addresses many shortcomings of the original paper and extends the scope of the investigated file formats. It also describes how the algorithms have been improved in terms of accuracy and inclusiveness and includes a new and revised ranking formula that increased the number of evaluation criteria for software from four to nine. The number of criteria to evaluate file formats was changed as well, from three to five, by removing one attribute and replacing it with three more relevant ones. The individual components of each formula have been revised as well.

Even though the paper was of good enough quality to be published after some revisions, the students had all meanwhile graduated and were not interested in revising the paper and publishing it.

Financial factors, such as the prohibitive cost of programs like 3d Studio Max prevent the evaluation of certain software. Free trial versions of some of the software tools that are available now were not available at the time the project was conducted. There were also time limitations, since only one semester was available to conduct the research, write the paper, and prepare the PowerPoint presentation. Despite these obstacles, this project was successful in the end.

CONCLUSIONS

The project has been concluded and the participating students received 3 credit hours toward their degree for their work. The students presented their project at the annual Kentucky Academy of Science meeting in November of 2015 at Northern Kentucky University. Since only one student was allowed to present at the conference, the presenter was voted by the group. It was originally planned to publish in the Journal of the Kentucky Academy of Science. It was not possible to format and refine the paper to publishable quality due to time constraints.

In the future, students will need to be taught how to conduct a more thorough literature review.
It is too early to say if this course actually prepared students well for graduate school. It convinced one student to apply for graduate school and encouraged the others at least to consider applying.

New software is being released and new file formats appear, while older ones become obsolete. For example XNA Game Studio having been replaced by Unity as most widely used 3d game engine. The data in the paper may no longer be relevant five years from now, but the algorithm developed by the students might be useful to calculate new data.

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An Exploration of Marketing Students' Perceptions of Twitter as a Pedagogical Tool

Khaled Aboulnasr, Florida Gulf Coast University, Florida, USA

ABSTRACT

A challenge that instructors face in using social media platforms as teaching tools is students' acceptance of such technology in an educational context. Using the Technology Acceptance Model as a theoretical foundation, this study explores students' perceptions of the use of Twitter as a pedagogical tool in the marketing classroom. Findings show that its perceived usefulness as an educational instrument and its perceived enjoyment are the two strongest predictors of students' attitude towards Twitter. Furthermore, perceived ease of use, self-efficacy and Twitter anxiety were important predictors of students' acceptance of the technology. Implications for marketing educators interested in incorporating innovative ideas, and particularly social media platforms such as Twitter, into their pedagogy are discussed

Keywords: Technology, Social Media, Twitter, Pedagogy

INTRODUCTION

Social media platforms such as Facebook, Twitter and YouTube have had a transforming impact on the way people communicate, collaborate and build communities. According to the Pew Research Center & American Life Project, 69% of adults use social networking websites (Perrin 2015). Realizing their boundless potential, the onset of social networking technologies has created greater opportunities for businesses to instantaneously engage with consumers and offered them more innovative ways to create and deliver value for their stakeholders. Currently, 73% of Fortune 500 companies are active on Twitter while 66% of them have corporate Facebook pages (Barnes, Lescault, & Wright, 2013). As businesses expand their adoption of social media, demand for business graduates with relevant social media training has also risen. This trend has led many colleges of business to update their programs to incorporate elements of social media into their curricula with the purpose of developing students' digital networking skills (Mackay, 2010).

The push toward incorporating social media as a learning tool has become even more pressing in light of the 2013 accreditation standards of the Association to Advance Collegiate Schools of Business (AACSB). More specifically, Standard 13 emphasizes the importance of employing teaching methods that encourage active student involvement in the learning process (AACSB 2013 Business Accreditation Standards, 2013). Given its highly interactive nature, social media represents one such method. College students are at the forefront of social media use. A recent study reports that 93% of students use at least one social media platform on a daily basis (Smith & Caruso, 2010). This digital technology has become an integral component of students' lives and identities and represents a predominant means through which they communicate and connect with others (West, Moore, & Barry, 2015). Hence, the use of social media in the classroom has become a compelling alternative as a tool to enhance student engagement. These developments have left business educators and particularly marketing professors with the challenge of exploring the best practices of utilizing social media as a pedagogical tool.

Amongst the various social media platforms being integrated in the learning process, Twitter has been receiving a growing interest from educators (Rinaldo, Tapp, & Laverie, 2011). Twitter is a highly popular social networking site with more than three hundred million monthly active users (Aslam 2017) and has recently been used in marketing classrooms aimed at skill-building and increasing student engagement and interaction. In the limited but growing body of literature on the use of Twitter in education, most research has focused on exploring the benefits and opportunities associated with its use in the classroom (Rinaldo, Tapp, & Laverie, 2011; Lowe & Laffey, 2011; West, Moore, & Barry, 2015). However, no research has comprehensively investigated the determinants of students' acceptance of Twitter in the teaching-learning process. This is important because similar to other new technology introductions, user adoption and acceptance are critical to their success. In the case of introducing Twitter as an educational tool, students play an active role in the process as they become co-creators of their own learning experience. As a result, the extent to which students are willing to use Twitter in the classroom is critical to its

success in fostering engagement and augmenting student learning.
Given its increasingly influential role in education, more empirical research is needed to address the challenges associated with the use of technology and particularly social media as an educational tool from the students' perspective. The current study addresses this gap in the literature and contributes to this growing body of research by focusing on assessing the determinants of students' receptiveness to the use of Twitter in the marketing classroom. The results of this study provide marketing educators with valuable insight into the factors influencing students' acceptance of social media as a pedagogical tool. A better understanding of these factors is expected to facilitate the process of persuading students to embrace technologies identified as useful for their learning. Using an extended form of the Technology Acceptance Model, this study presents an empirical investigation into the antecedents and consequences of students' attitude towards using Twitter as a pedagogical tool in marketing courses.

THEORETICAL BACKGROUND & HYPOTHESES

Social media technology is defined as "web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content, in digital environments through multi-way communication" (Davis III, Deil-Amen, Rios-Aguilar, & Canche, 2011). Hence, social interactions and information sharing are at the heart of social networking. The emergence of social media platforms such as Facebook, Twitter and YouTube has created boundless opportunities for collaboration, information creation and idea sharing. In an attempt to more effectively connect with students while equipping them with the skills required for the job market, many marketing educators have jumped on the bandwagon of educational technologies incorporating elements of social media into their pedagogy (Tuten & Marks, 2012).

While Facebook may be the most popular social networking service, Twitter has more often been the platform of choice for educational purposes (Junco, Heibergert, & Loken, 2011). Twitter is a micro-blogging social media website that allows networking and the exchange of information through the posting of short messages known as tweets. These messages cannot be more than 280 characters in length but may include links to articles, photos, videos and other websites. Twitter also allows users to group relevant tweets together through the use of hashtags. Hashtags are user created keywords that facilitate the search for specific topics. Twitter may be used through the Twitter website in addition to smartphone and tablet applications. All the information exchange on Twitter takes place in real time, which makes the platform an attractive one for both professional and social networking (Dunlap & Lowenthal, 2009). Hannay and Fretwell (2011) predict that the use of applications such as instant messaging and Twitter in an academic context will soon be common practice at institutions of higher education.

Recent research has presented a number of pedagogical advantages for using Twitter in the classroom. Junco, Heibergert and Loken (2011) suggest that Twitter may be used in a classroom setting to generate interest in course topics, to share material and to communicate with students. Twitter may also be used to motivate students to become more engaged by sharing their own input with the instructor and other students. According to the results of their study, using Twitter in the classroom improved communication between instructor and students, encouraged active learning and allowed for immediate feedback. Similarly, Croxall (2010) and Wankel (2009) emphasized the role of Twitter in facilitating class discussions.

Rinaldo, Tapp and Lavarie (2011) suggested that Twitter allows educators the opportunity to create an experiential learning environment, encouraging more in-depth learning as students become more involved with the course material as opposed to only thinking about it in a traditional classroom setting. Furthermore, Twitter may offer other educational benefits such as responding to students in a timelier manner, encouraging students to write concisely, providing students an opportunity to connect with professionals in their field and allowing for informal learning (Dunlap & Lowenthal, 2009). Marketing educators in particular may also find using Twitter a suitable opportunity to teach students the social media and communication skills that they may use in their profession.

Despite the numerous benefits and multidimensional opportunities offered by Twitter, realizing its full potential in the educational process faces multiple challenges. As with other social networking applications in education, some students may not yet be accustomed to knowledge sharing through social media in a learning context (Rinaldo, Tapp, & Laverie, 2011). Moreover, students may perceive the use of social media in the classroom as an overload that represents additional time and effort constraints (Hung & Yuen, 2010). Other impediments that might limit the effectiveness of Twitter as a pedagogical tool include the degree to which students are familiar with its use (West, Moore, & Barry, 2015; Rinaldo, Tapp, & Laverie, 2011). Lin, Hoffman and Borengasser (2013) reported that

students' lack of engagement in using Twitter may be attributed to their limited literacy or experience with the microblogging service. Similarly, Junco, Elavsky & Heiberger (2013) found that adoption rate differences between students may represent a barrier to the successful use of Twitter in an educational context. In spite of the myriad of potential pedagogical benefits that Twitter may offer, these challenges underscore the importance of a better understanding of students' perceptions of Twitter in addition to their readiness and willingness to accept the platform as a learning instrument.

While there is a growing number of marketing educators who are using Twitter as an educational tool, there is little or no research that has captured students' response to the use of Twitter in a classroom setting. In the present study, we use an extended form of the Technology Acceptance Model as a theoretical foundation to examine students' perceptions of Twitter's ease of use, usefulness and actual usage in the context of a marketing course. We also explore other variables that may shape students' attitude towards the use of Twitter such as technology anxiety, self-efficacy, perceptions of enjoyment and self-image congruence (see figure 1).

The Technology Acceptance Model (TAM) was created by Davis (1989) and then further developed by Venkatesh and Davis (1996). It finds its roots in the theory of reasoned action (Fishbein & Ajzen, 1975). This theory suggests that behavior is a function of one's attitudes towards and beliefs about the behavior. More specifically, the TAM suggests that usage of an information system is predicted by both behavioral intentions and attitude toward the technology. Attitudes in turn may be predicted by two core beliefs; the perceived ease of use and perceived usefulness of the technology (Venkatesh & Davis, 1996). Perceived ease of use refers to the degree to which an individual believes that using a given system is effortless (Davis, 1989). Perceived usefulness is described as the extent to which one believes that using a system enhances their performance (Davis, 1989). It reflects the utility that an individual perceives in using the system. In the context of using Twitter for a pedagogical purpose, perceived ease of use describes the extent to which students perceive it as simple to use while perceived usefulness signals the degree to which it is believed to enhance their performance in the classroom.

Attitude is an important construct in the TAM as it represents one's evaluation of a given technology (Davis, 1989). It also affects the extent to which one is prepared for, accepts and behaves towards the said technology (Selwyn 1997). Prior empirical evidence supports the role of attitude in shaping technology usage and acceptance (Phua, Wong, & Abu, 2011). In the context of this study, Twitter usage is defined as the extent to which students utilized the platform to post course-related material. It is plausible to argue that the more positive one's attitude is toward a given technology, the more likely one is to adopt and use this technology. Hence, we expect that students' attitudes towards Twitter will affect the extent to which they use it in the course.

H1: Students' attitude toward Twitter usage as a learning tool will have a positive effect on their actual use of Twitter in a Marketing course.

Perceived ease of use and perceived usefulness represent the anchors of the TAM and there is considerable empirical evidence in support of their effect on attitude towards the technology (Shih, 2004; Venkatesh, Speier & Morris, 2002; Venkatesh & Davis, 1996). The more an individual perceives a system as easy to use or useful, the more likely is he or she to hold a positive attitude toward that system. Moreover, perceived ease of use is also known to be a determinant of perceived usefulness as an easy to use system should enhance the perceptions of usefulness of such system (Venkatesh & Davis, 1996; Chau, 1996). These arguments lead to the following hypotheses:

H2: Twitter's perceived usefulness as a learning tool will have a positive effect on students' attitude towards using Twitter in a Marketing course.

H3: Twitter's perceived ease of use will have a positive effect on students' attitude towards using Twitter as learning tool in a Marketing course.

H4: Twitter's perceived ease of use will have a positive effect on Twitter's perceived usefulness a learning tool in a Marketing course.

Even though the TAM has been shown to be a highly parsimonious model with high validity, to better explain technology acceptance, researchers expanded and further developed the TAM to include other constructs that may

be of additional value in predicting the variance in attitudes and usage behavior. These constructs include self-efficacy, technology anxiety, self-image congruence and perceived enjoyment (Anton, Camarero, & Rodriguez, 2013; Venkatesh, 2000; Venkatesh & Davis, 1996).

Self-efficacy is defined as "one's beliefs and expectations regarding one's ability to perform a task required to achieve specific outcomes" (Bandura, 1997). It is a construct that reflects one's belief that he or she can perform a given task. In the context of Twitter, self-efficacy is concerned with a student's belief in his or her ability to successfully use the social media platform for the purpose of satisfying course requirements. Prior research in the area of information systems has found that self-efficacy has a positive and significant influence on perceived ease of use (Venkatesh & Davis, 1996). These results were also replicated in other contexts such as internet self-efficacy and the perceived ease of use of online information search and online shopping (Joo et al. 2000; Eastin, & LaRose 2000). Hence, it is reasonable to assume that the more confident a student is in his or her ability to use Twitter, the easier to use they will perceive Twitter to be.

H5: Twitter self-efficacy will have a positive effect on Twitter's perceived ease of use in a Marketing course.

Anxiety was incorporated into the TAM to capture the emotional dimension of technology use. The construct represents a negative emotional reaction to the use of a given system (Venkatesh, 2000). Prior research has mainly placed emphasis on anxiety related to the use of computers. Venkatesh (2000) defines computer anxiety as "an individual's apprehension, or even fear when she/he is faced with the possibility of using computers." We extend this definition and apply it to anxiety experienced in response to the use of Twitter. Hence, Twitter anxiety reflects the apprehension and uneasiness a student may experience when considering the use or when actually using the platform. This anxiety may be a result of a lack of knowledge of the system but it can also result from fear of sharing information online. For example, Liu (2010) has shown that people may experience anxiety when posting content online. Anxiety has been shown to influence attitudes, intentions, behavior and performance. Specifically, it has been shown to lower a system's perceived ease of use as it directs cognitive resources away from task completion (Venkatesh, 2000). It is thus expected that greater levels of expected anxiety experienced as a result of Twitter use will lead to lowering Twitter's perceived ease of use.

H6: Twitter anxiety will have a negative effect on the perceived ease of use Twitter in a Marketing course.

While the TAM has remained for many years the dominant theoretical foundation for explaining the adoption and usage of new technology, it has recently been criticized for only including utilitarian dimensions such as perceived ease of use and perceived usefulness as the main predictors of attitude and adoption intentions (Bagozzi, 2007). A number of researchers have argued for the importance of incorporating more hedonic adoption motives into the model (Anton, Camarero, & Rodriguez 2013). One important hedonic dimension that was incorporated into a revised form of the TAM is the extent to which using a system was perceived as enjoyable. Venkatesh (2000) defined perceived enjoyment as "the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use". This construct may be of particular interest in the context of Twitter usage. The entertainment value that results from using a given system is expected to improve the attitude toward such system. Bruner & Kumar (2005) demonstrated that the perceived enjoyment of using handheld internet devices was an important predictor of attitude. In the context of using Twitter as a pedagogical tool, Chod, Caliendo & Much (2015) listed student enjoyment as one of the benefits of using Twitter. In line with a TAM that includes both utilitarian and emotional motives that shape attitude and adoption intentions, we argue that the extent to which students perceive the use of Twitter in the course as enjoyable will shape their attitude towards using Twitter. Hence, the following hypothesis is suggested:

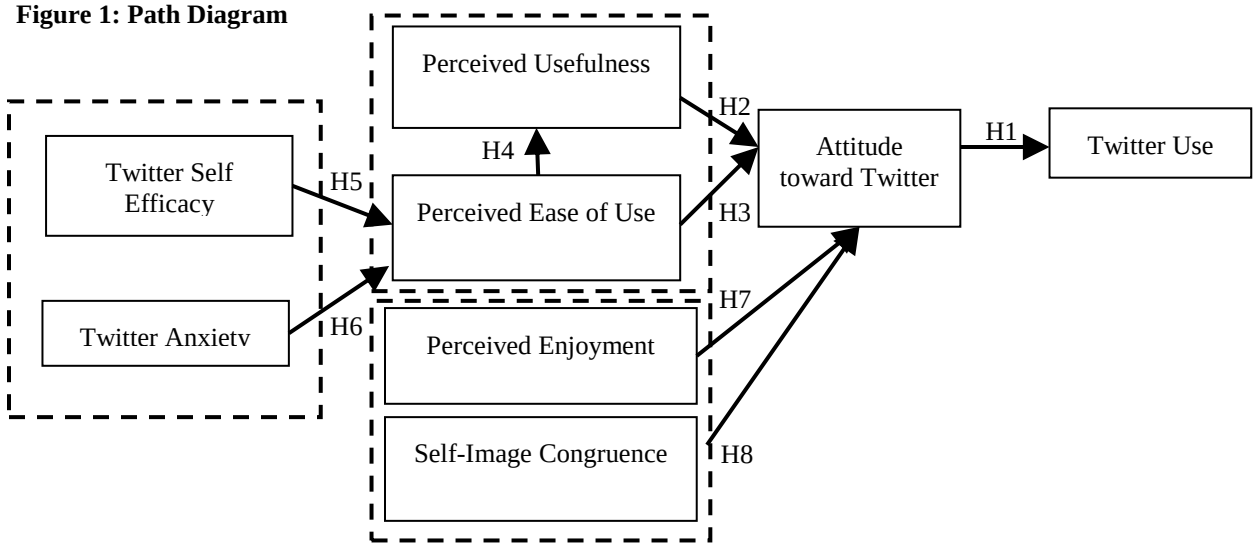
H7: Perceived Enjoyment of using Twitter as a learning tool will have a positive effect on students' attitude toward using Twitter in the context of a Marketing course.

Recent research on innovation and technology adoption has drawn attention to the importance of the self-image congruence construct. Self-image congruence results from the subjective comparison of one's self image and the image he/she has of the product and its typical user (Cowart, Fox, & Wilson, 2008). The extent to which there is a match between the conceptualization one has of him/herself and the product-user image determines the level of self-image congruence (Anton, Camarero, & Rodriguez, 2013). Self-image congruence was shown to influence preferences, purchase motivations, attitudes and intentions towards new products (Kang, Hong, & Lee, 2009).

People have a preference for products whose images are more consistent with their own self-image. This may be explained by their need for "self-consistency and self-esteem" (Cowart, Fox, & Wilson, 2008). Applying this framework to the adoption of Twitter as a learning tool, it may be argued that students who perceive Twitter and the typical Twitter user to be more compatible with their own self-image will express a more positive attitude toward the social media platform. Hence, we make the following hypothesis:

H8: Self-Image congruence will have a positive effect on attitude toward Twitter as a learning tool in a Marketing course.

Figure 1: Path Diagram



METHOD

Study Participants and Descriptives

Over the course of four consecutive semesters, Twitter was used as a learning tool in eight different sections of three marketing courses (Consumer Behavior, Market Strategy and Global Marketing) taught by the same instructor. Students were asked to create an account on Twitter, follow the course instructor, read the content that the instructor posted and tweet their comments about the posted content. The instructor posted links to business articles and information that described events in the marketplace. This content represented an application of the topics discussed in class. One tutorial was given at the beginning of each course to explain Twitter usage and discuss expectations. All students who agreed to participate in this optional Twitter activity earned the same number of points toward their class participation grade regardless of frequency of participation. A survey instrument was developed to assess the constructs in our model and was administered at the end of each course. One hundred ninety-three students participated in the study by completing the survey. One hundred and three females (55%) and eighty-seven males (45%) completed the online self-administered questionnaire in the last week of class. The participants' average age was 24. The questionnaire contained the completion instructions and the measures. To test whether demographic characteristics had an effect on participants' responses, a multivariate analysis of variance was conducted. Results indicated no significant differences in terms of age, sex or education level on any of the constructs in the model.

Measures

All the variables in the proposed model were assessed using measures and scales that were adapted from prior studies and modified to fit the context of the current research. For each construct, multi-item, seven-point Likert scales were used. All items were anchored by *strongly disagree* and *strongly agree* with the exception of the scale measuring actual behavior, which used items that were anchored by *not at all* and *all the time*. Higher scores represent a higher level of each variable. The three items used to measure perceived usefulness (Cronbach's α = .90) and the three items perceived ease of use (Cronbach's α = .97) were adapted from Davis (1989). Four items were used to measure attitude toward Twitter (Cronbach's α = .97) and were adapted from Taylor & Todd (1995). Perceived enjoyment (Cronbach's α =.99) was measured using three items while self-image congruence (Cronbach's α =.96) was assessed using two items. Both scales were a modification from Anton, Camarero and Rodriguez

(2013). The four items used to measure self-efficacy (Cronbach's α =.96) were adapted from the scale used by Wang, Ertmer, & Newby (2004). Twitter anxiety (Cronbach's α =.94) was captured using three items modified from the scale used by Liu (2010). Finally, two items were used to measure actual behavior (Cronbach's α =.92; Spearman-Brown statistic = .92) and were adapted from the scale used by Moon & Kim (2001).

Measurement Model

An exploratory factor analysis (EFA) was first conducted to test for the unidimensionality of constructs. Testing one scale at a time and using an eigenvalue of 1.0 as a cut-off point, only one factor was extracted for each variable, supporting the claim that each scale had only one underlying factor. A confirmatory factor analysis (CFA) using SPSS AMOS 22 Structural Equation Modeling software was then used to evaluate the qualities of the measurement scales and to assess the properties of the theoretical factor structure. As an additional indicator of unidimensionality of constructs, all items loaded as postulated (Gerbing & Anderson, 1988).

While the overall model was significant (X^2=319.7; df=219; p= .00), Hooper, Coughlan and Mullen (2008) suggest that X^2 is not a reliable index of model fit as it tends to be sensitive to multivariate normality and to sample size. Alternatively, the normed chi-square (X^2/df =1.16), which is below the 3.0 level recommended by Hu et al. (1999) was used. Model fit was assessed using the indicators recommended by Bagozzi and Yi (2012). The comparative fit index (CFI) = 0.98, the non-normed fit index (NNFI) also known as the Tucker Lewis index (TLI) = 0.98, the standardized root mean squared residual (SRMR) = 0.03 and the root mean square error of approximation (RMSEA) = 0.05. Observed values for these indices were all within the range of recommended levels for a good model (Hu & Bentler 1998, 1999). Table 1 shows the observed vs. recommended model fit values.

Table 1: Measurement Model Fit Indexes

Model fit index	Model results	Recommended values
Normed Chi-square	1.16	≤ 3.00
Comparative fit index (CFI)	0.98	> 0.95
Non-normalized fit index (NNFI)	0.98	> 0.95
Root mean squared residual (RMSR)	0.03	≤ 0.08
Root mean squared error of approximation (RMSEA)	0.05	≤ 0.06

The model was then tested for convergent and discriminant validity of constructs. Gallagher, Ting & Palmer (2008) suggest the use of factor loadings (standardized regression weights), average variance extracted (AVE) and reliability to assess convergent validity. As presented in Table 2, all the items loaded in the theorized direction, were statistically significant and the factor loadings were higher than 0.8, well above the 0.5 cutoff recommended by Hair, Black, Babin, Anderson, & Tatham (2006). Reliability was assessed using Fornell & Larcker's (1981) composite reliability (CR) formula. As shown in Table 2, composite reliability (CR) values ranged between 0.90 and 0.99 exceeding the 0.70 acceptable reliability benchmark (Bagozzi & Yi, 2012) indicating internal consistency. Convergent validity was further established by calculating average variance extracted values. Average variance extracted values for all the constructs ranged between 0.74 to 0.96 exceeding the recommended 0.5 level (Hair et al. 2006) further confirming the convergent validity of the constructs.

Two methods were used to assess discriminant validity. First, the average variance extracted by each construct was compared to all the inter-construct correlations. Results show that all AVE estimates were greater than all the squared inter-construct correlations establishing discriminant validity for the model (Fornell & Larcker, 1981). Average variance extracted estimates are presented in Table 2 and inter-construct correlations are shown in Table 3. Second, a chi-square difference test between an alternative constrained theoretical model and our hypothesized model was conducted. Dunn, Seaker and Waller (1994) suggest that evidence for discriminant validity exists if the chi-square difference value is statistically significant. We created an alternative constrained model in which all inter-construct correlations were assigned a value of one. The chi-squared difference between the models was 416.78 with 28 degrees of freedom, p<.001. Hence, the results of the two sets provide support for discriminant validity.

Structural Model

Hypotheses were tested using a structural equation model created using SPSS AMOS 22.0 statistical software program. Goodness of fit measures indicate an acceptable model fit to the data. (normed X^2= 2.05, df= 238, comparative fit index (CFI) =0.96, non-normed fit index (NNFI) = 0.96; standardized root mean square residual (SRMR) = 0.87 and root mean squared error of approximation (RMSEA) =0.07). Estimates for the completely standardized path coefficients are displayed in Table 4. In support of hypothesis one, results show attitude has a positive effect on actual Twitter usage behavior (H1; β= .41, p<0.01). The path from perceived usefulness to attitude was also supported (H2; β= .45, p<0.01). A direct effect of ease of use on attitude as predicted by hypothesis three was not supported by the data (H3; β= -0.04, p>0.05). However, the results do provide support to hypothesis four predicting a positive effect of ease of use on usefulness (H4; β= 0.59, p<0.01). In support of hypotheses five, self-efficacy increased ease of use perceptions (H5; β= -0.78, p<0.01). Further, as predicted by hypothesis six, Twitter anxiety had a negative effect on perceptions of ease of use (H6; β= -0.18, p<0.01). The results show support for hypothesis seven postulating a positive and direct effect of perceived enjoyment on attitude towards Twitter (H7; β=0.66, p<0.01). Lastly, the path from self-image congruence to attitude was not statistically significant (H8; β= -0.10, p>0.05). Hence, hypothesis eight was not supported by the data.

Table 4: Hypotheses Testing Results, Structural Paths

Paths	Hypothesis	Standardized Path Coefficient
Attitude ----------> Usage	H1	0.41*
Usefulness ----------> Attitude	H2	0.45*
Ease of Use ----------> Attitude	H3	- 0.04^{ns}
Ease of Use ----------> Usefulness	H4	0.59*
Self-Efficacy ----------> Ease of Use	H5	0.77*
Anxiety ----------> Ease of Use	H6	- 0.18*
Enjoyment ----------> Attitude	H7	0.66*
Self-Image Congruence ------> Attitude	H8	- 0.10^{ns}

*Coefficient is statistically significant at p<.01
^{ns} Indicates a non-significant coefficient p>.05

CONCLUSION

Within the context of an enhanced TAM as a theoretical foundation, we examined the determinants of students' attitude toward the use of Twitter in marketing classes. Based on data collected from one hundred ninety-three students enrolled in eight different sections of three marketing courses, we examined the relationships between students' perceptions (Twitter self-efficacy, anxiety, self-image congruence, enjoyment, usefulness, ease of use) and the outcome variables of attitude toward Twitter and actual Twitter usage. The results of the empirical tests provide support to the overall extended TAM. Furthermore, the results supported all the hypothesized relationships with the exception of H2 that suggested a direct effect of ease of use on attitude toward Twitter and H8 that hypothesized that self-image congruence would lead to a more favorable attitude toward Twitter. According to our model, a student's attitude toward the use of Twitter as a pedagogical tool in a marketing course is directly affected by the student's perception of usefulness and indirectly through perceptions of ease of use. It was also found to be positively affected by Twitter's perceived enjoyment but not by self-image congruence. Ease of use was found to be positively affected by Twitter self-efficacy and negatively affected by Twitter anxiety.

The findings of this study have significant implications for marketing educators. Results indicate that to facilitate the use of a social media platforms such as Twitter for learning purposes, it is critical for students to have a favorable

attitude toward the platform. To do so, it is important to increase students' perceptions of Twitter's usefulness to their learning experience. As such, it is advised that instructors communicate the benefits of using Twitter to students early on in the semester. These benefits include improved communications with the instructor and other students in the course, greater engagement with course content, enhancement of students' grade point average, in addition to career preparation through the opportunity to network with marketing professionals on Twitter (Rinaldo, Tapp, & Lavarie, 2011). Furthermore, to reinforce the usefulness of using Twitter, the instructor found it beneficial to forge a connection between the online discussion on Twitter and the discussions that take place in the classroom. Doing so made Twitter discussions more relevant and, therefore, emphasized the usefulness of the platform to students.

According to the results, enhancing students' perceptions of the ease of using Twitter do not have a direct effect on attitude favorability. This result may be attributed to the fact that a new technology is mainly adopted for the benefits and functionality it offers rather than its ease of use (Davis, 1989). However, this result should not diminish the importance of perceived ease of use. It is recommended that instructors invest in facilitating students' perceived ease of using Twitter. This is important because perceived ease of use has a strong and significant effect on perceptions of usefulness according or our results. This can be achieved by offering instructional tutorials early on in the semester, especially for students who are unfamiliar with the platform. These sessions may also help increase students' Twitter self-efficacy and reduce Twitter anxiety. Given that self-efficacy was found to improve ease of use perceptions while anxiety has the opposite effect, it may be beneficial to provide a certain period of time at the beginning of the semester for students to practice using Twitter. This practice period may be particularly beneficial for students who may not have the skills to use Twitter professionally and might experience unease due to using it. It is worthy to note that when dichotomizing the data, 19% of respondents in our dataset have expressed Twitter anxiety while 11% indicated that they do not perceive themselves as having the skills required to effectively use Twitter in the context of the course.

Although perceived usefulness was found to be a strong predictor of attitude toward Twitter as conceptualized by the TAM and confirmed by the results, in this study perceived enjoyment had a stronger effect on attitude. This result sheds more light on students' motivations in accepting a social media platform like Twitter as a learning tool. While it is important to select a platform that students perceive as useful for their learning experience, it is also essential that this platform is perceived as fun and enjoyable. When students perceive Twitter as useful to their learning experience and also enjoyable to use, this will improve their attitude towards it and consequently increase their actual use of the platform. This finding is consistent with recent research work that incorporated hedonic motivations in examining technology acceptance (Anton, Camarero, & Rodriguez, 2013).

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Sneaky Packets: Packet Switching Concepts for the Technologically Disinterested

Kevin P. Pauli, School of Business, Mississippi College, MS, USA
Tammy Y. Arthur, School of Business, Mississippi College, MS, USA

ABSTRACT

This paper proposes an in-class exercise that makes the arcane and abstract concepts associated with packet switching, more interesting, relevant, and generally fun. Using self-efficacy enhancing activities students are exposed to fundamental Internet concepts like encapsulation, packet switching, DNS, addressing, etc. through an in-class variation on the old activity of passing notes. Students have found the exercise fun. They also generally retained a better conceptual understanding of how packet switching systems work than those just reviewing the concepts, based on their performance in course assessment.

Keywords: Internet, packet switching, encapsulation, teaching, in-class exercise, fun, game

INTRODUCTION

Almost everyone is now using the Internet and its associated technologies daily through smartphones, tablets, computers, and even televisions. They send and receive e-mail, surf websites, download information, upload assignments and engage in a vast array of other activities. However, for those non-technically oriented business students in an introduction to information systems course the how's behind this digital magic are often difficult to understand, especially when faced with theoretical and logical models. This resistance is further fueled by apprehension and occasional fear about difficult technological concepts. While some among this group may argue that they do not need to understand technology concepts, it is hard to argue that technology and business are not more linked than separate.

To help in overcoming this disconnect and improve learning some have looked at simulations (Cronan, Léger, Robert, Babin, & Charland 2012) and games (Boyle, et. al. 2016), but these often require a technical competence and system interaction which actually reinforces the students' resistance to the topic. In response we have developed an in-class activity that requires the students to not just be actively involved in the learning process, but to experience the Internet and networking communications process first hand in a fun and interesting way. This proposes a classroom activity to demonstrate in a fun and entertaining way the foundational concepts behind the packet switching methodology used by networks and the Internet.

THEORETICAL BACKGROUND

For many years in-class activities have attempted to capture business students' attention and encourage them to think about topics and systems in a different more interactive way. One classic example is the paper plane exercise to cover business production and management concepts as students build paper airplanes (Valle 2010). This does not, however, address the students' resistance or anxiety regarding technology related topics. In relation to teaching foundational information technology concepts to unengaged business students, the construct of self-efficacy is a major determinant of performance (Gist, Schwoerer, & Rosen, 1989; Compeau & Higgins, 1995; Smith-Jentsch et al., 1996), and engagement (Chen, 2017) and is negatively associated with the major negative aspect of anxiety (Bandalos, Yates, & Christ, 1995; Compeau & Higgins, 1995), especially among women (Lee & Huang, 2014). Business students often fail to see or actively avoid seeing the relevance of technology concepts. Self-efficacy has been related to both the acquisition and transfer of skill (Smith-Jentsch et al. 1996). Social cognitive theory and the role of self-efficacy, as being positively related to learning, have generally been supported (Pajares & Miller, 1994; Compeau & Higgins, 1995).

In a study of learning computers and systems Gist et al.'s (1989) study of computer learning and self-efficacy, found those high in self-efficacy at the beginning did better, in all training conditions, than those lower in self-efficacy. While externally imposed strategies can expedite the learning process - internally provided strategies are more

effective (Singer & Chen, 1994). A task which is seen as too difficult, either through independent appraisal or through experience and feedback, will lead the individual to avoid it or fail to commit to it due to a fear of failure (Bandura, 1991; Wood & Bandura, 1991; Martocchio & Webster, 1992). Non-computer-oriented business students facing required information system and technology courses are filled with this fear and thus show immediate resistance. If someone does not want to learn, then they will not succeed.

The focus of this paper is on a specific form of self-efficacy termed, "computer self-efficacy", which has been defined as a "judgment of one's capability to use a computer" (Compeau & Higgins, 1995) or as applied to our situation the student's capacity to understand a computer concept. Computer self-efficacy affects the individual's computer usage, anxiety levels, perceived ease of use, and usefulness (Igbaria & Iivari, 1995). Computer self-efficacy is also malleable. Research shows that mastery experiences, modeling (Bandura, 1977; Wood & Bandura, 1989), and actual usage (Compeau & Higgins, 1995; Igbaria & Iivari, 1995) can positively affect a person's computer self-efficacy. Alternatively, other research has shown that self-efficacy may be either negatively (Compeau & Higgins, 1995) or positively (Igbaria & Iivari, 1995) affected by expert support. Thus, computer self-efficacy appears to be a critical key to the learning which results from a learning experience. Increasing computer self-efficacy appears to provide the individual learner with additional tools which can maximize the benefits of any training condition or material.

How computer instruction is presented has been shown to have a strong effect on both ultimate learning and levels of self-efficacy. A pretraining intervention which simply defined the computer material to be taught as being "acquirable" resulted in self-efficacy gains over a "fixed" or limited acquirability definition (Martocchio, 1994). In other research, identifying the training as an "opportunity" resulted in higher levels of computer self-efficacy and learning (Martocchio 1992). Labeling training as "play" was also found to result in higher motivation to learn and better performance among younger workers (Webster & Martocchio, 1993). If the individual is provided the opportunity to learn about the computer in a positive, playful manner, computer self-efficacy should be increased, and training should result in increased learning.

It is proposed that a positive and playful manner of computer interaction could be achieved using a fun classroom activity. Humor (Marques 2012) in learning has been found to result in better attention, greater retention, and better understanding, and overall a more pleasant environment. Playfulness has been found to be correlated with involvement in a task (Webster & Martocchio, 1992), which can lead to increased positive computer experience and higher computer self-efficacy beliefs. Thus, it is our contention that the use of a fun and often humorous classroom activity, which uses simple activities to demonstrate more complex computer concepts, could allow for increased computer concepts mastery experiences and thus high computer self-efficacy.

By drawing the individual into a more involved and positive experience with information technology concepts, it is believed that anxiety and fear will decrease. Decreasing anxiety should result in higher computer self-efficacy beliefs (Compeau & Higgins, 1995; Bandalos et al., 1995). This coupled with some fun and a little humor, should lead to an increase in the amount of learning which can occur during subsequent instructional sessions. By decreasing the apprehension and anxiety associated with general technology concepts, the learner can focus on the specific material and ideas being provided and not on the preconceived technology and application specific fears.

THE ACTIVITY

The activity is designed to demonstrate, in a fun and interactive manner, an array of the fundamental concepts behind packet switching and routing in networking and the Internet. There is substantial abstraction of the concepts, but the primary focus is not absolute technical accuracy, but rather a more entertaining and fun macro-conceptual understanding of the process. Specific traffic details and concepts (connectionless, encapsulation, packets, latency, etc.) are covered after the fun activity has been completed and the student's self-efficacy regarding computer concepts has been raised.

ACTIVITY SET-UP

The Address Book

We begin by mapping our classroom. In a traditional classroom this is accomplished by using the already present structure of the classroom. For example, we have a center aisle with six rows of desks on each side, with each row consisting of 4 chairs. This becomes our basic map which we will later translate into specific addresses (Section.Row.Seat). This map is then populated with the students in the class based upon either their assigned seat or their customary seat location (See Figure 1). Thus, each student is now identified by name and by a unique address within the classroom. This is important since we will be using this later as our network address book. If a room has additional aisles, then simply create additional address books for each section. This allows for the activity to be scaled to even large lecture halls. The segmentation also helps to keep the addressing to a reasonable scale.

	A	B	C	D	E
1					
2					
3		Door - DNS			
4		***DOOR***			***AISLE***
5		SEAT			
6	ROW	4	3	2	1
7	1				John Smith
8	2	Sally Simms		Andy Jackson	Steve Jones
9	3			Jane Doe	
10	4	Jim Johns	Joe Six	Jack Black	Karl Marx
11	5		John Silver	Bob Dillon	Ken Doll
12	6			John Doe	
13					
14					
15		ADDRESS			
16		DOOR.ROW.SEAT			
17		example: "John Doe"= DOOR.6.2			
18					
19		Computer - DNS			
20		***AISLE***			***COMPUTER***
21		SEAT			
22	ROW	1	2	3	4
23	1	James Bond	Perter Parker		
24	2		Clark Kent	Gina Quinn	John Houston
25	3	Bruce Lee	Adam Ant		Blake Stone
26	4	Sam Brown	Don Jones	Ben Parnell	
27	5		Adam Smith	Pat Taylor	Pat Smith
28	6				
29					
30					
31		ADDRESS			
32		COMPUTER.ROW.SEAT			
33		example: "Adam Smith"= COMPUTER.5.2			
34					

Figure 1: (DNS) Address Book

For the next portion of the activity we create a table in either a word processing document or a spreadsheet. We find the spreadsheet is easier to manage. A portion of what the spreadsheet would look like is shown in Figure 2.

	A	B	C	D	E	F	G
1							
2							
3	John Doe		A	1	of	4	Internet
4	John Doe		A	2	of	4	Is
5	John Doe		A	3	of	4	Really
6	John Doe		A	4	of	4	Fun
7	Jane Doe		B	1	of	5	Computers
8	Jane Doe		B	2	of	5	Are
9	Jane Doe		B	3	of	5	So
10	Jane Doe		B	4	of	5	Very
11	Jane Doe		B	5	of	5	Cool
12	Pat Smith		B	1	of	11	I
13	Pat Smith		B	2	of	11	Really

Figure 2: Messages

The Messages

Several messages of differing lengths are now prepared. These messages can be humorous ("I really love computers") or more neutral ("This is message one"). We find the humorous messages tend to make the activity more interesting to the students involved, especially as the recipient reads it out loud. We recommend preparing at least 3 messages: one of 3-4 words, one of 6-8 words, and one of 10-12 words. These messages will later be converted into word long packets to be sent through our imaginary network to be reassembled by the targeted recipient. We often create two of each message addressed to different students just in case a specific student is absent or changes seats on the day of the activity.

Encapsulation

The messages are now broken down into smaller "packets." To do this we simply type one word on each line of the table that you created (see Figure 2). Each word is put onto a different row and each row is then given a sequential number and the total number of segments in the message. This will allow the user to reassemble the message later in the activity. The letter to the left of the sequence number is just a quick way to regroup each message if like us you later accidentally drop all the slips of paper.

Addressing

Each message is addressed to someone in the classroom. This is done by entering the student's name on the row associated with each segment of the message. So, if the message has 4 words, there should be 4 rows, each addressed to the same student, and each sequentially numbered indicating a total of 4 segments (see Encapsulation).

The address book created earlier should contain the name of the student who is the intended recipient of the message. This will later be used to find the student location given his/her name. We find it best to select several different students around the room to make this more interesting and more flexible, since specific students could be missing the day of the activity and to allow as many students as possible to be involved in the activity.

Cutting

Print the full list of messages to be sent and cut each row apart, remembering to keep each message together with all its numbered parts. The longer the message the more "packets" it is going to have, this will be nice later when wanting to demonstrate network congestion and automatic rerouting.

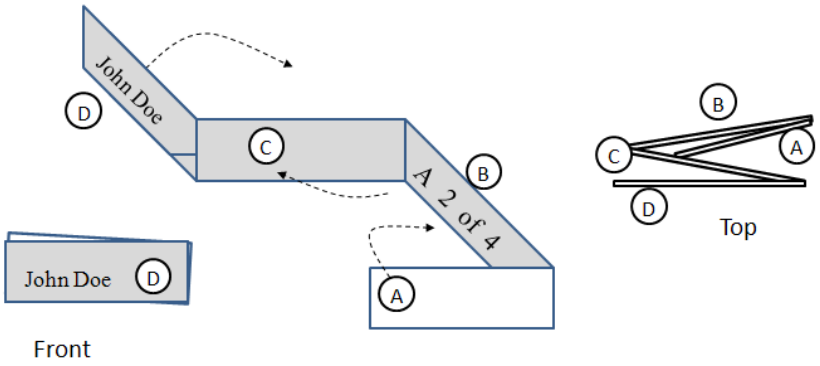

Figure 3: Folding each "packet"

Folding
Each of the message rows is now folded into an encapsulated packet with only the addressee visible on the outside of the message. We tend to fold the slips of paper from the right, so we fold A over B, then B over C, then we fold D backwards so only the addressee is showing (see Figure 3). This step represents the encapsulation of the message packets in preparation for transmission over the network.

ACTIVITY

Game Day
On the day of the activity we start by explaining that the entire class is now going to be "the Internet." Each student will be a "node" on this imaginary Internet and as such will be responsible for moving messages along based upon the message's address and each student's relation to that final address location. We explain that as a node each student is to move the packets (the small slips of paper) to the destination as quickly as possible without leaving his/her seat by passing the message only to those in the seats he/she can reach easily and directly. If someone is busy or not paying attention then the message must be passed to someone else immediately, even if it is in the wrong direction, he/she cannot wait for anyone. This is where the activity can get especially fun and, in some cases, silly.

Appoint one student at the front of each classroom section as the DNS. This person is given the address book that you prepared earlier with the name and "address" (Section.Row.Seat) for every student in his/her section. It is his/her job to address the message segments that he/she receives. Using the address book, the DNS will locate the student named on the message then start the message packets towards their destination (we find this is more enjoyable and challenging, although not quite accurate, if the DNS does not write the address down, but rather tells the next node, who must thus also tell the next and so forth in a fun throwback to the old game of telephone). This is also a great teaching moment to explain how the actual Internet DNS system works as our DNS's provide numeric addresses based upon the more understandable student names. Since it is likely that not everyone in the class knows every other student, the DNS provides a way to send a message to the desired student, much like the now archaic phonebook or more modern cell phone contacts, allow us to call people without remembering everyone's phone number.

Explain that after all the packets have made their trek the recipient should unfold each packet and check the sequence numbers on the messages and make sure that all the parts are there. If the message is complete the receiver is to send a confirmation back to the DNS by telling the node closest to him/her that it is "complete," that node then repeats the message to the next available node and so forth until the DNS gets the message and tells you. If a message is incomplete a message should be sent back explaining the error or missing packet. If the message is complete the student can assemble and read the message out loud to the class (this is why we prefer a humorous message, as this can be an enjoyable moment in a class many view as challenging and not fun).

The Message

Using the smallest message start the activity by handing the first packet to the DNS. As soon as he/she finishes finding the address and starts to pass it along, give him/her the second packet, and so forth. Moving quickly forces the DNS to quickly process and forward the messages without being able to wait on the next level of nodes to be "ready." Watch the various packets move through the student nodes to their destination. When all the packets have made it to the destination the student should read the message.

Repeat this process using the remaining message packets. The faster that you send out the packets the more likely you are to have dropped packets and congestion issues. These can lead to excellent demonstrations of how nodes automatically shift the traffic to avoid congestion or how the Internet protocols verify that messages are received and complete.

Watch the activity and note the following as teachable moments:
1) Congestion. Students who are talking or not paying attention are obstacles to the efficient flow of the packets to the recipient. Also, some individuals may attempt to give another node two packets at once or a second packet before the node has finished passing on the first packet. Stop at this point and use this to explain that the node should always route to the next available node, rather than wait or try to overload a node. Also, you can randomly identify a node as out of service (this works best for someone who is a critical juncture between different parts of the room) forcing the nodes around him/her to reroute the packets to another available node, regardless of whether the next node is in the direction of the packet's destination. This serves as a nice illustration of the robustness of the Internet and the packet switching protocols.

2) Sniffing. Watch for any student node that unfolds a message packet and peaks at its content. Stop everything when you see this and use it as an opportunity to discuss the inherent insecurity of the Internet packet switching model. This can often lead to great discussions of privacy and security and how encryption might help secure the message contents. Do not focus on the student node that opened the packet, this could cause them some embarrassment for a simple misunderstanding about the packet concept, especially since we intentionally do not explain this beforehand. If no student tries to look at a packet tell a student node to read the contents of each packet he/she sees and see how much of the message, he/she can understand.

3) Dropped Packets. If a node drops a packet on the floor it is lost and should be returned to the instructor. When the rest of the packets have been received and reassembled the recipient should notice the sequential absence and send a request for the packet back through the nodes to the DNS. Once the DNS notifies the instructor then you can send the dropped packet back through the nodes to the recipient. This can lead to a discussion of acknowledgement and control, illustrating again the robust nature of the Internet.

Afterwards
Following the activity, we begin a more serious discussion of the fundamentals of networks, packet switching, and how the Internet functions, referring often to the activity for illustration of various concepts. Examples include the setting and identification of node addressing and the DNS system, the idea of circuit switching versus packet switching, and the architecture of local and wide-area networks. This is also used to help illustrate and discuss the traffic and routing differences in hubs, switches, and network routers, as well as other network concepts like packet inspection and network security. Students now understand basic network concepts in a way that is relevant and understandable, but more importantly not arcane and scary. Nodes have been transformed into fellow classmates and abstract concepts into laugh generating activities.

CONCLUSION

The activity discussed in this paper was designed to help reduce some of the resistance and disconnect we found in students in a principles of information systems course. While this particular iteration of the activity deals specifically with packet switching, minor modifications can be made to demonstrate other telecommunications concepts. Understanding how connecting devices affect the traffic on a network is much easier when students see the physical embodiment of every message being copied and sent to every other network node with a hub versus a switch that only sends the message to the targeted node. In addition, topics outside of information systems can be illustrated. For example, structured programming logic can be shown, with lines of code placed on paper and students serving as decision points for where to hand off control.

Students are often unsure, resistant, and overwhelmed by abstract information systems constructs and theoretical models. These students understand computers and the Internet as users, but often lack any understanding of how the technology works and are often not overly interested in learning something they see as difficult and potentially scary. With this activity we have found the students, even the non-technological resisters, to have higher self-efficacy and to be more engaged and interested in the concepts. Additionally, the reinforcement of abstract concepts with actual physical activity seems to help the students recall details of how networks function.

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Kevin P. Pauli is Associate Professor of Management at Mississippi College. He holds a Ph.D. from the University of Nebraska - Lincoln. He has worked for many years on issues relating to ethics, learning, and technology. Current research interests include management, academic honesty, ethics, privacy, computer learning and usage, and computer monitoring. Professor Pauli's articles have appeared in Business and Society, Business Education Innovation Journal, Journal of Educational Computing Research, Journal of Academic and Business Ethics, International Journal for Management & Information Systems, Review of Business Information Systems Journal, Journal of Leadership, Accountability and Ethics, and Business Journal for Entrepreneurs.

Tammy Y. Arthur is Professor of Management at Mississippi College. She holds a Ph.D. from Mississippi State University and worked in IT Management at BellSouth. Professor Arthur's current research interests are entrepreneurship, ethical decision making, and technology-enhanced learning. Her work has appeared in the Review of Business Information Systems Journal, Journal of Academic and Business Ethics, International Journal for Management & Information Systems, Business Education Innovation Journal, Journal of Leadership, Accountability and Ethics, and Business Journal for Entrepreneurs.

Prevention and Resolution for Identity Theft: Practical Advice for Individuals, Business Owners, and Tax Professionals

V. Brooks Poole, Mississippi College, MS, USA
Sheree Corkern, Mississippi College, MS, USA
Hannah Hoffman, Mississippi College, MS, USA

ABSTRACT

Identity theft has become widespread and is rapidly increasing. The Bureau of Justice estimates that 7 percent of U. S. residents over the age of 16 were victims in 2014, and direct financial losses were reported by two-thirds of these victims. Virtually anyone is susceptible and should take measures to ensure their data such as social security numbers, personal information, credit and debit cards, and passwords are protected. Often, financial and emotional distress occurs when confronted with identity theft. Educating students on the seriousness and pervasiveness of this crime is essential. Such information would be valuable for all students and particularly those planning to work in an accounting firm or financial institution. After all, tax preparers attempting to file a tax return may be the first to discover that a client's identity has been compromised. This article reviews prevention, warning signs, and resolution should identity theft occur. Business related course instructors should find this information to be an extremely useful resource to share with their students.

Keywords: identity theft, security, business education

INTRODUCTION

In the current internet era, an individual can access almost every account he owns from anywhere at any time. Cell phone data enables him to survey his checking account before going out to lunch. Free Wi-Fi allows him to pay his power bill at a coffee shop. While on his company's secure server, he may order a new brief case by submitting his credit card information on a web form. In addition to the many times people enter personal information via the web, they also swipe credit cards multiple times a day at gas stations, restaurants, and grocery stores. Not only are individuals' funds susceptible to theft, but their identities are as well.

Identity thieves are involved in a wide variety of fraudulent activities. The United States Bureau of Justice Statistics (2015) defines identity theft as one of three events: (1) unauthorized use or attempted use of an existing account, (2) unauthorized use or attempted use of personal information to open a new account, and (3) use of personal information for fraud. The Bureau's National Crime Victimization Survey found the most prevalent form of identity theft to be the use of another's credit card or bank account information. Often, individuals fail to notice the theft has occurred. Nearly half of the victims from the survey discovered the fraud when their financial institution contacted them about the suspicious activity. About 75 percent experienced financial loss, and those who had new accounts opened in their name faced the largest expenses. Not only can identity theft be financially costly, but it can also take a toll on emotional health, as ten percent of the victims reported the incident to be severely distressing (Bureau of Justice Statistics, 2015).

Unfortunately, the occurrence of identity theft is rapidly increasing. The Bureau of Justice Statistics estimates that 17.6 million, or seven percent, of Americans were victims of identity theft in 2014. In comparison, the Equifax data breach announced in September of 2017 affected about 143 million U.S. citizens, or an astounding 51 percent of the nation's adults. The effects of the breach are expected to spread, even for those who were not immediately affected.

Just as individuals continue to be targeted by identity thieves, identity theft in the business sector is also on the rise. Evidence suggests widespread occurrences of business identity theft, which makes it essential that business students be educated to identify, assess, and manage such risk. The time and effort taken to address just one occurrence can be costly for a businesses' bottom line. Many businesses are at risk of falling prey to this type of crime. Businesses that use credit or debit cards, access online banking, or provide confidential business details stored somewhere such as their attorney's office, may be targeted. All business educators should be advocating the

inclusion of identity theft awareness and prevention in their courses. In today's growing and changing world, business education must address the harsh realities of identity theft and cyber threats, and develop programs to educate its' students in prevention and management. Knowledge and understanding of these potential threats will help prepare students to prevent or recover from such crimes. Ultimately, the goal is to ensure that as future business leaders, students are provided the tools necessary to identify, assess, and manage the risk of identity theft; and in doing so, limit the severity and potential for occurrence.

LITERATURE REVIEW

Several experiments have been performed to discover if involvement in certain activities predicts the likelihood of having one's identity stolen. Reyns and Henson (2016) conducted a study in hopes of finding correlations between routine online activities and identity theft. Based on a random sample of households in Canada, the survey asked questions similar to those asked in the American National Crime Victimization Survey by the Bureau of Justice Statistics. Four online activities were closely examined, including banking, booking reservations, buying goods or services, and social networking. To confirm previous research, the study used linear regression to determine that two of the four activities, online banking and online purchasing, had a high correlation with identity theft (Reyns & Henson, 2016).

Additionally, the University of Texas at Austin Center for Identity has developed a risk assessment model that predicts the occurrence of fraud. The Identity Threat Assessment and Prediction model is a database that collects information from news stories and other sources. It applies analytics to compare threats, trends, and losses. Research finds that the impact of identity theft is usually local with over 99 percent of cases limited to a local geographic area or a particular type of victim. Nearly 34 percent of compromised personal information incidents involve co-workers or family members of victims. Research also finds that emotional distress often has a larger effect on people than financial loss (Harman, 2017).

Often, technological advances come with the negative side effect of creating more ways for criminals to hack into private information. Facial recognition is becoming a more widely used form of identification. The release of the new iPhone X, which uses Face ID, is making people more aware of the potential issues. Robertson, Kramer, & Burton (2017) performed a study to examine the likelihood of devices accepting fraudulent images for facial recognition verification. One experiment tested a mobile device while using photo identification that had been altered by software that combines, or morphs, two different faces. Experimenters pre-loaded a cell phone with either an actual photo of the participant, an "imposter" photo, or a morphed image of the two as the face-match for ID. Then participants tried several attempts to unlock the device with facial recognition. While the phones never gave access when the "imposter" image was uploaded, they did detect the morphed photos as a match to the phone user 27 percent of the time. In another experiment, the researchers asked participants, who were unaware of the purpose of the study, to identify whether two facial images were of the same individual. Some of the photos matched, some were a mismatch, and some of the mismatches had been morphed. Participants accepted 68 percent of the morphed images as matches, leading to a conclusion that identity thieves can use technology to alter images and pass as someone else with fraudulent photo identification. In a second round, the participants were warned that some of the images might be altered, and the "match" response decreased to 21 percent for the morphed images. (Robertson et al., 2017).

Identity theft is not only faced by individuals, but by small businesses as well. In 2016, businesses reported 82,000 cyber incidents, but the total could be close to 250,000 if all cases were reported (Too Small to Fall Victim, 2017). According to the FBI, personal and corporate identity theft are the fastest growing crimes in the nation. Corporate identity theft is a threat to businesses of all sizes. It can occur when others pose as the business to acquire credit, when employees' or customers' personal information is compromised, or when company records are accessed by an outside party. The attack can come from an outsider posing as an employee or from an insider with malicious intent, such as an upset employee or a spy for a rival firm. Recent victims include The Home Depot, Target, and Sony (McGee & Byington, 2015). Businesses often become victims when an employee clicks on a link in a phishing email. Phishing occurs when scammers use fake email addresses or websites to lure individuals into providing personal information. The scammer then uses that data for fraudulent purposes (Schreiber, 2017). Hackers may sell the company's stolen information, use it to harm the reputation of the business, hold it for ransom, or use it for personal gain. Consequently, the company may face issues receiving bank loans, keeping loyal customers, and protecting personal employee data once they have been hacked (Too Small to Fall Victim, 2017).

Contributing to business risk, the rocky state of the economy in 2008 forced many operations to go out of business. When owners discontinue monitoring business accounts and registration information, it invites criminals to use their company name for personal gain. Hackers may take out new credit or steal goods from suppliers. They may file fraudulent reports with the Secretary of State offices or change online business records. If a filing meets the essential requirements, the state offices have little basis to question or reject the documents (Mota, 2016).

Each year the IRS releases a list of the top twelve, or "Dirty Dozen", tax scams for the filing season. In 2017, the number one scam was phishing. Phishing schemes target payroll and human resources services, taxpayers and their CPAs, and government agencies (Schreiber, 2017). In an annual threat report by Cloudmark, 84 percent of the 300 U.S. and UK companies that were surveyed disclosed that phishing attempts had made it through their security defenses (Hernandez, 2016). Next on the Dirty Dozen list was phone scams. Criminals pose as IRS agents and call taxpayers threatening arrest, license revocation, and even deportation. The IRS will contact individuals by mail and will never threaten such things. The third scam was identity theft. The Security Summit Partners, which consists of the IRS, tax practitioners, and state tax agencies, are continuing efforts to safeguard against this criminal act (Schreiber, 2017).

Some of the ideas issued from the 2015 Security Summit meeting included pre-refund authentication and refund fraud detection, using post-filing analytics to prevent fraud, use of a tax refund fraud information sharing and assessment center, identity proofing, and taxpayer education (Demshock, 2016).

DISCUSSION

Risks factors for individuals

An individual's likelihood of becoming a victim of identity theft increases by 12 percent when active in online banking and by 17 percent when buying goods online. Those who have been hacked or been the recipient of phishing emails are dramatically more likely to have their identity stolen. Not surprisingly, those who have personal information posted publicly online are more than three times as likely to fall victim (Reyns & Henson, 2016). Currently, four elements known as "knowledge-based factors," including name, birth date, address, and Social Security number, are being challenged as the best personal identifiers for services (Lemos, 2016, p. 1). Three of the four factors are readily available on a piece of mail or someone's social media account. Experts say that stricter security factors must implemented (Lemos, 2017). Ultimately, everyone who participates in modern society is at risk, so the focus should be on prevention and protection.

Prevention for individuals

Social Security card:

A stolen Social Security number is possibly the worst form of identity theft. Individuals should always ask why the number is needed before readily providing it to doctors' offices or companies. An alternative form of identification may be acceptable. A Social Security card should never be regularly carried in a wallet (Gerstner, 2015). Proper and secure locations for storage include safe deposit boxes, safes, and lock boxes. Parents should also be cautious when school forms require their child's Social and never hesitate to ask why it is necessary (Gerstner, 2013). When emailing sensitive information, such as a tax form with a Social Security number, individuals should save the document as a PDF and encrypt the attachment rather than typing directly into an unprotected email (Weber & Horn, 2017). Furthermore, a stolen Social Security number and a matching name are the only two vital pieces of information that a criminal must have to file someone else's tax return. A refund will likely still be issued if the rest of the information, although fictitious, appears to be legitimate.

Personal information:

Individuals should use much discretion when posting personal information to online profiles. Phone numbers and birthdates should not be shared on social media sites. Children are also a target, so parents should be aware of what their kids are sharing about themselves. Receiving suspicious mail addressed to a child is a sign that someone has accessed his or her personal information (Gerstner, 2013). During the wake of phone scams throughout the nation, the IRS issued a statement in May of 2016 verifying that they would never contact an individual via phone call. Therefore, taxpayers should never reveal any personal information to anyone who calls claiming to be the IRS (Kess, Grimaldi, & Revels, 2017). Additionally, individuals can protect their information by opting to use the

personal hotspot feature on their smartphone or device rather than the free Wi-Fi offered in airports and coffee shops. Hard drives should be encrypted when possible. Individuals should have at least two data backup systems to protect photos, videos, and important documents (Weber & Horn, 2017).

Passwords:
To prevent fraudulent access to personal accounts, users should provide a different password for each site, especially for banking sites. Serious financial loss can result if a criminal discovers that the same login combination unlocks an individual's checking, savings, and credit card accounts. Passwords should be long and contain a combination of uppercase, lowercase, symbols, and numbers (Gerstner, 2013). Login information should never contain the word "password," and username and passcode should never be identical. A personal identification storage system is a helpful aid in remembering numerous complicated phrases. Password vaults, such as Dashlane or 1Password, use a single passphrase to create and securely store complex passwords that can be accessed from desktop, laptop, or handheld device. Changing login information every three to six months is a good practice for highly sensitive accounts such as banking and investments. Home internet users should use a sophisticated Wi-Fi passcode because the signal often reaches neighbors or nearby parks and shops. A guest network with a separate password allows visitors to use the home internet, but the safeguard will not permit them to access personal files and devices (Weber & Horn, 2017).

***Credit cards*:**
Preventative measures to thwart against identity theft include zero-liability policies that offer full refunds for any amount used for fraudulent purchases. Most major credit card companies follow this standard if the fraud is reported in a timely manner. Additionally, there is second-factor authentication, which alerts users when unauthorized access is attempted on their account (Kess et al., 2017). Individuals should frequently watch their checking and credit card accounts for fraudulent transactions and set up alerts for purchases over a certain dollar limit, such as $150 (Gerstner, 2013). Some credit card companies have a feature that will send an email alert if the card is charged when not physically present, such as with online purchases. People should avoid allowing devices to store credit card information, especially on shared or public computers. It is a good practice to keep receipts until transactions have cleared or until a monthly statement is issued. An individual can match receipts to verify that every purchase made was a legitimate one. Matching receipts is also a way to ensure that the correct amount was charged, especially after a meal out when the wait staff adds the tip after the customer has left.

RESOLUTION FOR INDIVIDUALS

The Federal Trade Commission (2017) maintains a website to guide those who have fallen victim to identity theft. There are three immediate steps to take upon discovering the theft. First, the affected individual should call the companies where it is certain that fraud has occurred and ask them to close or freeze the account. Then logins and passwords should be changed. Next, the victim should call one of the three credit bureaus, place a free 90-day fraud alert and get a free credit report. The third step is to report the theft to the Federal Trade Commission by completing the online form or calling the department. Some people may choose to file a report with the local police department as well. After completing the three urgent steps, the individual should begin closing any new accounts that were fraudulently opened, calling businesses to get the charges removed, writing a letter to each credit bureau to correct the affected credit report, and possibly getting an extended fraud alert or credit freeze. Depending on the severity of the situation, a victim may need to replace government-issued identification and clear his or her name from criminal charges. The FTC website provides detailed guidance for each of these steps (Federal Trade Commission, 2017).

Comparatively, the Internal Revenue Service provides guidance for individuals who, when filing their own tax return, discover their identity has been stolen. When an e-file return is rejected, the taxpayer should file the tax return by paper and complete Form 14039, Identity Theft Affidavit. The form goes to the Identity Theft Victim Assistance organization and usually takes 120-180 days to resolve. Certain victims will receive an Identity Protection Personal Identification Number (IP PIN) in a CP01A letter from the IRS. The IP PIN will be used the next filing season to help protect the individual's identity. Some taxpayers will receive a new IP PIN annually to enter on the tax return for identity verification. If the IRS Taxpayer Protection Program suspects that a fraudulent return has been filed under the taxpayer's name and Social Security number, they will send a notice requesting identity verification within 30 days. When an individual is identified as a victim, the IRS marks the taxpayer's account with an indicator to help protect the individual in the future (IRS Updates, 2016).

If an individual suspects that he has fallen victim to credit card fraud, he should contact one of the three major credit bureaus, Equifax, Experian, or TransUnion, which will alert the other two. If a person discovers a false account has been opened in his name, he should notify the company and place a fraud alert or credit freeze. An initial fraud alert is free, lasts 90 days, and requires companies to take extra care in identity verification before issuing credit. An extended fraud alert lasts seven years. A credit freeze usually requires a small fee and blocks new creditors from accessing an individual's credit report. This method is simple security if an individual does not take out new credit frequently, and the freeze can be lifted with an additional fee (Gerstner, 2015).

CONSIDERATIONS FOR BUSINESS OWNERS

Small and medium-sized organizations with good credit ratings are targets for corporate identity theft. Many perpetrators pretend to be a customer or supplier and request payment from the business. To protect a company, management should first know their customers. Employees should always check for the padlock symbol in the address bar of any customer's or supplier's website. They should also check the company registration number, validate delivery addresses, run a domain name check, and get a free company credit check. Upper management should create an atmosphere of awareness and openness when suspicious activity takes place (Mota, 2016). To further protect the company, management should also develop a corporate prevention plan, protect company documents, monitor credit reports, and avoid using master usernames and passwords (McGee & Byington, 2015).

One of the most common ways for businesses and individuals to fall victim to identity theft is through phishing emails that appear to come from trusted sources. Just one compromised identity in a company can give a hacker entry into an entire organization. IBM recommends that companies educate employees to be aware of phishing attempts and implement controls to deter hackers. Peer-phishing attacks occur when hackers impersonate upper management. Emails appear to come from within the organization, and colleagues are likely to respond to the requests of bosses. Microsoft's Azure Active Directory Identity Protection is an add-on to Microsoft's cloud-based identity software. The program catches uninvited users on company networks and blocks their access. If suspicious activity is detected, the program can block a user, require a user to answer further identification questions, or require a user to change their credentials (Hernandez, 2016).

Even national policies exist to protect companies and consumers. The Red Flag Rule was created in 2011 by the Federal Trade Commission, federal bank regulatory agencies, and the National Credit Union Administration. The policy mandates that companies have plans in place to mitigate activities, or "red flags", that would cause or reveal the presence of identity theft. All organizations subject to the Fair and Accurate Credit Transactions Act of 2003 must create a written plan for identity theft prevention and detection. Four categories of warning signs must be identified in the program. Category one includes alerts from a consumer reporting agency, such as a credit freeze, a large number of new credit issuances, or a closed account due to misuse. Category two warning signs are suspicious documents. Such documents may be identification that appears to be counterfeit or reassembled after destruction and presentation of photo ID that does not appear to be legitimate. Category three involves personal information, such as a Social Security number that has not been issued or an inconsistent address and phone number. Category four signs cover strange account activity, such as the request for new credit lines soon after a change in address, a major change in spending patterns, and sudden purchases on an account that has been inactive (Kunick & Posner, 2011). With these policies in place, a business can catch fraud before it happens, or it can reduce the consequences by acting quickly when fraud does occur.

CONSIDERATIONS FOR TAX PROFESSIONALS

In yearly reports from 2009 to 2014 the Federal Trade Commission stated that tax-related identity theft was the most prevalent form of identity theft. This type of fraud occurs when a scammer uses someone else's Social Security number to file a tax return before the victim and receive a refund. In 2012, the Internal Revenue Service anticipated a $21 billion loss over a five-year span (Demshock, 2016). According to *The Tax Adviser* and the *Journal of Accountancy* annual survey, nearly 60 percent of the practicing CPAs who responded had clients affected by identity theft during the 2016 tax season. From 2015 to 2016 there was a 15 percent decrease in the number of individuals who knew they were affected before attempting to file their returns. Preparers or victims are typically unaware of the theft until they attempt to file and the return is denied because the victim's Social Security number has already been

used on a fraudulent return (Bonner, 2017). Upon discovering the theft, CPAs are put in a position where sometimes unused relational skills must be exercised in communicating the bad news and the next steps to an unknowing client. Although the IRS has implemented tax return screening programs and limited the number of refund deposits allowed for a single bank account, the Treasury Inspector General for Tax Administration admits that the battle to stop tax identity fraud persists (Bonner, 2017).

Warning signs for client identity theft include the following (Dishman, 2017):

- IRS reject code R0000-902-01 indicating the client's Social Security number was already filed in a return for the year
- A report stating that a client has a balance due, collection action, or refund offset for a year in which they did not file
- IRS records stating the client claimed wages from an unknown employer
- A business client receiving a notice about an amended return or fake employees
- Evidence of physical alterations to tax forms such as W-2s and 1099s

Preparers should be aware of these indicators and act quickly when they notice something suspicious. Tax professionals should communicate the warning signs to their clients and request to be notified immediately if any of these things occur throughout the year.

The AICPA issued a statement to the IRS Oversight Board listing tips that tax advisors can perform to protect their clients (Demshock, 2016):

- Lock desk and filing cabinet drawers
- Use encrypted external drives
- Blur or truncate Social Security numbers
- Install antivirus
- Use password-protected emails

Taxpayers can help prevent identity theft by filing returns early in the season, shredding important documents, and checking credit reports regularly.

Identity thieves who file fraudulent tax returns not only steal refund money from the government and the victims, but they also negatively affect the employers for whom they claim to work. If the tax return is not flagged as fraudulent, the IRS will attempt to collect the payroll taxes from the company reported on the fake W-2. Then it becomes the employer's responsibility to prove to the IRS that those wages were never paid. Employer Identification Numbers (EINs) are on every W-2 from the company and are often available on the web. While a Social Security number can only be used to file one fraudulent return, a stolen EIN can be used multiple times. Complicating matters is the fact that W-2s are filed with the Social Security Administration rather than the IRS. To prevent EIN theft from occurring, there is a program available that allows some large employers to send drafts of their W-2s to the IRS before they are mailed out to employees. The IRS will match W-2 information against refund claims. Employers should reconcile tax payments to the payroll system, monitor IRS notices, and never pay unwarranted tax deficiencies without ensuring that fraud is not in play (Salam & Sypker, 2013).

CONCLUSION

Ultimately, every individual, business owner, and tax professional should be aware of the risks and consequences of identity theft. Dealing with identity theft is often financially and emotionally distressing, time consuming, and a major inconvenience. Because virtually everyone is vulnerable to attack with data so easily accessible on the web, individuals should show prudence in providing information over the phone or on social media. Social Security cards should be kept secure, and the numbers should not be shared unless absolutely necessary. Individuals should also treat credit and debit card information with special care and check online accounts often in order to locate any fraudulent purchases. Passwords should be complicated and varied for each account. The Federal Trade Commission and the Internal Revenue Service both provide guidance for those who discover their personal information has been compromised. Small businesses are not excluded from the risk and may experience two types of identity theft. First, sensitive information about individual employees or customers may be exploited through hackers or disloyal workers. Secondly, others may fraudulently do business under their trade name. Management should have information security and fraud prevention plans in place to deter the theft of sensitive information. Lastly, tax

preparers deal with client identity theft when preparing tax returns. As professionals and advisors, they have the burden of educating themselves and their clients about the risks and solutions associated with identity theft. There are warning signs and prevention steps that both preparers and clients should follow.

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V. Brooks Poole, CPA, CIA, MTAX, is an instructor of financial accounting and taxation at Mississippi College in Clinton, MS. His research focus is practitioner-geared topics in taxation and international financial accounting. Specific areas of research interest include estate taxation and planning, federal and state income tax planning, international convergence, ethics in financial accounting, and equity and social justice in higher education.

Sheree Corkern, CPA, Ph.D., is an assistant professor of financial accounting at Mississippi College in Clinton, MS. Her area of research is pedagogy and applied research in financial accounting.

Hannah Hoffman earned her Bachelor of Science in Business Administration with a major in Accounting as well as her Masters in Accounting from Mississippi College. Her area of research is ethics and trends in the accounting profession.

Case Study Comparing Accounting Knowledge of Undergraduate and Graduate Students: Practice Innovation in the Consistent Placement of Faculty Over Time

John Tan, California State University, East Bay, CA., USA.
Micah Frankel, California State University, East Bay, CA., USA.
Glen Taylor, California State University, East Bay, CA., USA.
Sandy Luong, California State University, East Bay, CA., USA.

ABSTRACT

A College of Business and Economics, accredited by the Association to Advance Collegiate Schools of Business (AACSB), uses Capsim's Comp-XM simulation exam to assess student achievement of program learning goals: integration and critical thinking across disciplines when making business decisions. Multiple factors contribute to students' achievement of program learning goals. This paper reports one possible contributing factor: the best practices of assigning the same tenured faculty to continuously teach the same accounting course. Beginning in the fall quarter of 2009, a deliberate decision was made to have two tenured faculty teach the majority of sections for the first two introductory accounting courses of the BSBA program: Introduction to Financial Accounting and Introduction to Managerial Accounting. This decision did not apply to the MBA program. As a result, between 2013 and 2016, five different faculty members taught the two graduate MBA courses of Financial and Managerial Accounting. Scores were examined from Capsim's Comp-XM simulation exam from calendar years 2013 through 2016. We find significant differences exist in the accounting knowledge assessment results between the undergraduate and the graduate business students. It is not the intent of this paper to provide any direct causal factor of improvement in students' Capsim scores. This paper contributes to the literature by suggesting the benefits and best practices of assigning the same tenured faculty to continuously and consistently teach the majority of the same accounting course especially the first two undergraduate introductory accounting courses.

Key words
Association to Advance Collegiate Schools of Business, AACSB, Capsim, Business Simulation, Comp-XM,, Program Learning Goals, Program Learning Objectives, Assessment, Assurance of Learning, Closing the Loop, Introductory Accounting Courses, Best Practices, Tenured Faculty.

INTRODUCTION

Educators have been working meticulously in an effort to find ways to improve students' learning. Multiple factors contribute to improvement in students' learning. It is not the intent of this paper to provide direct causal factor of improvement in students' learning. This paper is a case study comparing Capsim's Comp-XM scores of accounting knowledge of undergraduate and graduate students from calendar years 2013 through 2016. Through the case study this paper suggests to readers that a possible contributing factor to improvement in undergraduate students' learning of accounting knowledge is the innovative practice of assigning the same two tenured faculty to teach the majority of the first two introductory accounting courses of the BSBA program: Introduction to Financial Accounting and Introduction to Managerial Accounting. The rest of this introduction section will describe the background of this paper's case study.

Part of a larger university, the authors work in the College of Business and Economics (CBE) situated on the west coast of the United States. The university is regionally accredited by the Western Association for Schools and Colleges (WASC) Senior College and University Commission (WSCUC). CBE has been accredited by the Association to Advance Collegiate Schools of Business (AACSB). CBE has six AACSB accredited degree programs. Two of these programs include the undergraduate program, the Bachelor of Science in Business Administration (BSBA) and the graduate program, the Master of Science in Business Administration (MBA). The BSBA and MBA programs have their own program learning goals and (PLGs) and program learning objectives (PLOs). Program learning objectives are measurable outcomes that derive from the larger learning goal.

Two PLOs from the BSBA program include: (1) students who graduate will recognize and integrate foundation knowledge across functional areas, and (2) students who graduate will apply critical thinking skills to solve business problems. The MBA program also contains a similar PLO, whereby students who graduate will be able to analyze and integrate knowledge across disciplines to make managerial decisions to reach solutions to complex business problems. CBE uses Capsim's Comp-XM simulated exam to assess whether the BSBA and MBA students are proficient in their parallel learning objectives. All BSBA and MBA students will take Capsim's Comp-XM exam in their respective capstone management course prior to graduation.

"Comp-XM can be used as a final exam, for curriculum development and program assessment, and to provide data for accreditation ... It provides a clear picture of how effectively students can use their business acumen to actively manage a business in an evolving, competitive environment (Capsim)." Capsim's Comp-XM simulated exam includes accounting knowledge questions. Curriculum requires undergraduate students to take two introductory accounting courses: (1) Introduction to Financial Accounting and (2) Introduction to Managerial Accounting. Graduate students also have to take two accounting courses: (1) Financial Accounting and (2) Managerial Accounting. If business students, BSBA or MBA, fail to learn accounting knowledge well in their first two accounting courses, they will likely not score well in Capsim's Comp-XM accounting knowledge questions.

The letter grade that a student, undergraduate or graduate, receives from an accounting course is often a reflection of a student's total cumulative points earned from different educational activities ranging from attendance, homework, examinations, completion of business simulation episodes or case studies, and presentation of group project. The first two authors of this paper, who teach both undergraduate and graduate accounting courses, argue that Capsim's Comp-XM exam is the best available measurement to compare success of undergraduate and graduate students in their learning of accounting knowledge on the same exam. Capsim's Comp-XM simulated exam includes accounting knowledge questions of both financial and managerial accounting.

The college and the university are located in a metropolitan city where highly qualified part-time lecturers, possessing backgrounds as partners in accounting firms, are hard to continuously recruit due to the non-competitive public sector pay. Between calendar years 2013 and 2016, CBE assigned five different faculty members to teach the two graduate courses identified earlier, Financial and Managerial Accounting, in the MBA program. Comparatively, since fall quarter 2009, CBE deliberately assigned two tenured accounting faculty members to continuously teach most of the first two introductory accounting courses in the BSBA program, Introduction to Financial Accounting and Introduction to Managerial Accounting.

Comparisons are made and analysis drawn between BSBA and MBA student results in the accounting portion of the Capsim Comp-XM exam. By comparing Capsim's Comp-XM accounting knowledge scores for years 2013 through 2016 between the BSBA the MBA students, our analysis shows that BSBA students' scores improved while the scores of MBA students declined throughout the same time period.

Clearly, there are many factors contributing to the performance of a student's score on the accounting knowledge portion of Capsim Comp-XM exam.

Multiple factors contribute to the difference in accounting knowledge assessments results between the BSBA and MBA students. For example, there are more accounting majors enrolled in the BSBA program compared to the MBA program, which does not have an emphasis on accounting, thus making it less likely to excel at accounting relative to BSBA accounting majors. Every school is different. Having several faculty teaching the two MBA courses of Financial and Managerial Accounting, over a period of four years, might be successful in other schools but not in the case of CBE. In CBE the five different faculty, who taught Financial and Managerial Accounting of the MBA program between 2013 and 2016, did not coordinate among themselves to ensure consistent learning and assessment results. This paper reports to readers the innovative practice of assigning the same tenured accounting faculty to continuously teach most of the first two introductory accounting courses in the BSBA program as a possible contributing factor which positively impacts student results, specifically student scores on the accounting knowledge portion of the Capsim Comp-XM exam.

This paper contributes to the body of literature by explaining the benefits of assigning the same tenured accounting faculty to continuously teach most of the undergraduate introductory accounting courses versus using a rotating door of faculty to teach the initial accounting courses in the program. Furthermore, this paper provides best practices for readers to consider when adopting such a practice. This paper's Discussion Section will discuss the benefits and best practices in details.

Prior literature discusses teaching pedagogy and teaching techniques proven to improve student learning in the undergraduate introductory accounting courses. There is a lack of research questioning whether it matters to have consistency among teaching instructors in introductory courses. There is even less literature available using exam results from a business simulation to compare student success longitudinally, particularly when two test groups demonstrate a contrast in the consistency of the teaching faculty.

The next section discusses prior research conducted in this area. The third section discusses research design followed by an overall discussion of the results in the fourth section. The final and last section consists of the conclusion.

PREVIOUS RESEARCH

Assurance of learning refers to processes for demonstrating that students achieve learning expectations for the programs in which they participate. In regards to such processes, CBE faculty often follow official guidelines like: (1) The Western Association for Schools and Colleges (WASC) Senior College and University Commission (WSCUC) 2013 handbook of accreditation, (2) The Association to Advance Collegiate Schools of Business (AACSB) (2013a) Eligibility Procedures and Accreditation Standards for Business Accreditation, and (3) The Association to Advance Collegiate Schools of Business AACSB Assurance of Learning Standards: An Interpretation AACSB White Paper No. 3 (AACSB) (2013b). Assurance of learning is a faculty driven process. AACSB 2013 Business Accreditation Standard Eight suggests, "for assurance of learning purposes, AACSB accreditation is concerned with broad, program-level focused learning goals for each degree program, rather than detailed learning goals by course or topic, which must be the responsibility of individual faculty members (AACSB, 2013a, p. 33)." AACSB 2013 Business Accreditation Standard Nine further continues on to say, "learning goals describe the knowledge and skills students should develop in a program and set expectations for what students should do with the knowledge and skills after completing a program. Not all content areas need to be included as learning goals (AACSB, 2013a, p. 34)."

Prior literature about teaching pedagogy in undergraduate accounting courses exists in plenty. Cunningham (2011) discusses how to teach a mass lecture section of the course Introduction to Financial Accounting. Saudargaran (1996) advocates for active learning, while Killian et al. (2012) discusses the development of an active student-centered exercise for the first accounting course. Young and Warren (2011) suggest the importance of critical thinking skills and Johnstone et al. (2013) develops a case for critical thinking to be used in the Introduction to Financial Accounting. Premuroso et al. (2011) recommend the use of clickers during teaching. Dallimore et al. (2010) suggest the instructor should foster student comfort with class discussion. Braun and Sellers (2012) suggest instructors should give a daily quiz and Dillard-Eggars et al. (2008) recommend the use of online homework system for the accounting principle course.

One of the benefits of having the same full-time tenured faculty teaching the first two undergraduate introductory courses is to be able to consistently implement pedagogy suggested in prior accounting education literature such as Saudargaran (1996), Killian et al. (2012), Young and Warren (2011), Johnstone et al. (2013), Premuroso et al. (2011), Dallimore et al. (2010), Braun and Sellers (2012) and Dillard-Eggars et al. (2008). Please see this paper's Discussion Section for detail discussion of the mentioned-above benefit.

On the other hand, prior literature about teaching pedagogy in the MBA accounting courses are fewer in numbers among published papers. Hughes (2013) develops a case for MBA students to practice function development and breakeven analysis, while Price III (2013) develops a case for MBA students to practice direct method cash flow statement. Accounting instructors can continuously improve their teaching skills by adopting proven methods in teaching. The next section will examine this study's research design that will lead to such proven methods.

RESEARCH DESIGN

The key thesis of the paper is to show that the innovative practice of assigning the same tenured accounting faculty to continuously teach most of the first two introductory accounting courses of the BSBA program is a contributing factor to the difference among scores between BSBA and MBA students on Capsim's Comp-XM exam, specifically on the accounting knowledge questions

CBE offers two introductory accounting courses in its regular Fall, Winter, Spring and sometimes Summer terms. Enrollment in the undergraduate course Introduction to Financial Accounting between calendar years 2013 and 2016 totals annually 606 students (2013), 577 students (2014), 572 students (2015), and 690 students (2016). Instead of having one mass lecture class with 150 students and one small class of 50 students, beginning in Fall quarter 2015, CBE offered Introduction to Financial Accounting through one online class with 110 students in addition to one to two traditional face-to-face classes of 65 students. Also beginning Fall 2015, CBE offered Introduction to Managerial Accounting as one online class with 70 students plus two face-to-face classes of 45 students each. The average enrollment between calendar years 2013 and 2016 for Introduction to Managerial Accounting is approximately 400 students annually.

Since Fall 2009, the same full-tenured professor with over twenty years of teaching and publishing experience taught either the large lecture section or the online version of Introduction to Financial Accounting. Newly hired tenure-track faculty possessing terminal doctoral degrees normally taught the smaller sections of Introduction to Financial Accounting. Since Fall 2009, Introduction to Managerial Accounting has been taught by either the same tenured associate professor or by newly hired tenure-track faculty.

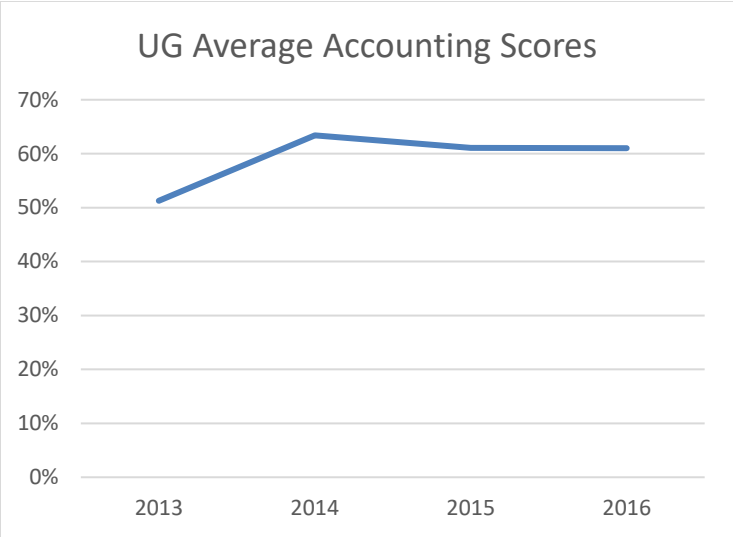
The average enrollment between calendar years 2013 and 2016 for the undergraduate course Introduction to Financial Accounting is around 610 students annually, while the average enrollment from the same period for the undergraduate Introduction to Managerial Accounting is only 400 students annually. Both introductory accounting courses have a high percentage of failing grades and student course withdrawals. One of the reasons for having a high percentage of failing grades in the introductory accounting courses may be due to the fact the University admits freshmen with deficiencies in mathematics and/or English. Freshmen who are deficient in mathematics and/or English are required to complete remedial courses in the deficient areas before they may enroll in business courses. Facing the challenges of teaching freshmen with such deficiencies, CBE implemented the practice of assigning the same tenured accounting faculty to continuously teach the majority of sections for the first two introductory accounting courses of the BSBA program. This practice started in Fall 2009.

Comparatively, from 2013 to 2016, CBE assigned five different faculty members to teach the two graduate MBA courses: Financial and Managerial Accounting. The average enrollment between calendar years 2013 and 2016 for Financial Accounting is around 115 students annually, while the average enrollment of the same period for Managerial Accounting is only 100 students annually. The five full-time faculty members teaching the two graduate MBA courses assigned different textbooks and deployed different teaching pedagogies. They also had varying levels of experience in teaching MBA accounting courses. Unlike the undergraduate introduction to accounting courses, the graduate MBA courses in accounting were not coordinated in terms of learning objectives, textbooks, and outcome assessments. For example, some MBA Financial Accounting courses required projects of financial reporting while others did not.

To address the key thesis of the paper, as highlighted in the first paragraph of research design, this paper compares BSBA and MBA students' Capsim Comp-XM scores on accounting knowledge questions from calendars years 2013, 2014, 2015 and 2016.

Figure 1 and Table 1 show BSBA students' Capsim Comp-XM scores on accounting knowledge questions from calendar years 2013, 2014, 2015 and 2016.

Figure 1: Average Capsim Comp-XM Accounting Scores Among BSBA Students from Calendar Years 2013, 2014, 2015 and 2016



Average BSBA Capsim Comp-XM Accounting Scores are compiled and shown in Table 1.

Table 1: Average Capsim Comp-XM Accounting Scores Among BSBA Students from Calendar Years 2013, 2014, 2015 and 2016

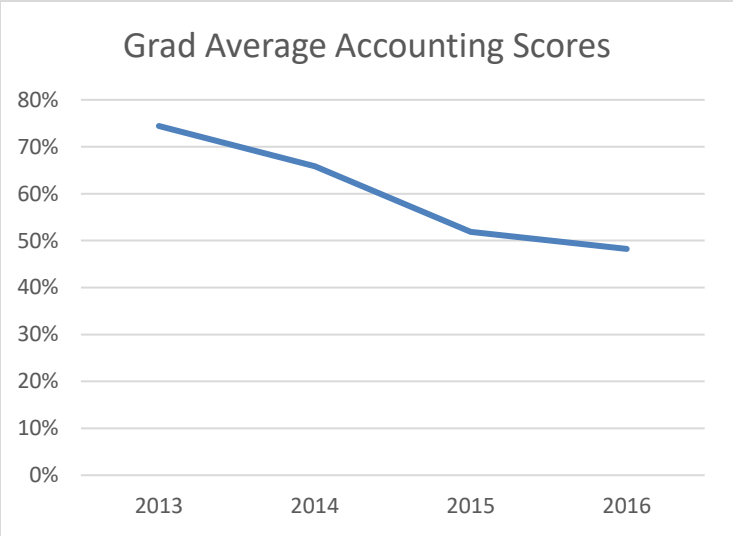
Calendar Year	**2013**	**2014**	**2015**	**2016**
Mean (%)	51.26	63.40	61.06	61.01
Standard Deviation (%)	17.48	18.08	16.79	17.15
Minimum (%)	6.13	5.90	3.76	4.44
Maximum (%)	93.09	98.08	96.76	95.88
Number of Students	534	612	577	216
T-test		**		

Mean (%) is the average percent of BSBA students' correct scores out of one hundred percent of total points.
** Significant differences between the means of current and previous year using independent two-tailed t-test at 95% Confidence Interval.
Number of BSBA students decreased from 577 in 2015 to 216 in 2016 was due to a variety reasons including the increase of enrollment in Science, Technology, Engineering and Mathematics (STEM) Programs instead of Business Program.

Table 1 shows mean percentages of Capsim's Comp-XM accounting knowledge questions among BSBA students for years 2013 through 2016. The mean percentage of 2013 is 51.26% (534 seniors), 2014 is 63.40% (612 seniors), 2015 is 61.06% (577 seniors), 2016 is 61.01% (216 seniors). On average, between 2013 and 2016, 1,939 BSBA students scored 59 percent of the total possible points of accounting questions on the Comp-XM examination. Results of BSBA students improved from 51.26% in 2013 to 63.40% in 2014.

Figure 2 and Table 2 show MBA students' Capsim's Comp-XM scores on accounting knowledge questions (2013-2016). Contrary to the improvement shown among BSBA students, Comp-XM scores of MBA students were in a declining trend between calendar years 2013 and 2016.

Figure 2: Average Capsim Comp-XM Accounting Scores Among MBA Students from Calendar Years 2013, 2014, 2015 and 2016



Average MBA Capsim's Comp-XM Accounting Scores are compiled and shown in Table 2.

Table 2: Average Capsim Comp-XM Accounting Scores Among MBA Students from Calendar Years 2013, 2014, 2015 and 2016

Calendar Year	2013	2014	2015	2016
Mean (%)	74.42	65.82	51.85	48.23
Standard Deviation (%)	9.64	16.29	15.64	19.98
Minimum (%)	54.73	11.10	12.55	0.12
Maximum (%)	95.09	91.75	83.06	89.97
Number of Students	37	95	56	217
T-test		**	**	

Mean (%) is the average percent of MBA students' correct scores out of one hundred percent of total points.
** Significant differences between the means of current and previous year using independent two-tailed t-test at 95% Confidence Interval.
Number of MBA students increased from 56 in 2015 to 217 in 2016 was due to a variety reasons like requiring students of the other two newly developed self-support Executive MBA Programs to take Capsim's Comp-XM exam.

Table 2 shows mean percentages of Capsim's Comp-XM accounting knowledge questions among MBA students for years 2013 through 2016. The mean percentage of 2013 is 74.42% (37 MBA students), 2014 is 65.82% (95 MBA students), 2015 is 51.85% (56 MBA students), 2016 is 48.23% (217 MBA students). On average, between 2013 and 2016, 405 MBA students scored 55.25 percent of the total possible points of accounting questions on the Comp-XM examination.

The next section discusses implications of the results.

DISCUSSION

Figure 1 shows significant improvement in the results of BSBA students when analyzing Capsim's Comp-XM accounting knowledge questions. Results of BSBA students improved from 51.26% in 2013 to 63.40% in 2014. For three continuous years between 2014, 2015 and 2016, results of BSBA students from Capsim's Comp-XM accounting knowledge questions has been around 61%. Figure 2 shows significant decline in the results of MBA

students when analyzing Capsim's Comp-XM accounting knowledge questions. Results of MBA students declined from 74% in 2013 to 66% in 2014, to 52% in 2015, and to 48% in 2016.

Figure 1 and 2 highlight the differences between undergraduate and graduate assessment results based on Capsim's Comp-XM accounting knowledge questions from years 2013 through 2016. Figure 1 shows the average BSBA assessment results based on Comp-XM accounting knowledge questions from 2013 to 2016 holding steady around 60 percent. On the contrary, Figure 2 shows the average MBA assessment results based on Comp-XM accounting knowledge questions declining from 74% in 2013 to 48% in 2016.

The authors acknowledge that many factors exist many which influence assessment results of both the undergraduate and graduate programs. However, through the data provided, it is contended that the institutional practice of having the same tenured accounting faculty continuously teaching the majority of the undergraduate introductory accounting courses is a contributing factor which has positively impacted student scores. This paper will now discuss the benefits of having the same tenured accounting faculty teaching the majority of undergraduate sections of introductory accounting courses.

After receiving tenure status, faculty normally have more time and freedom to pursue their interests in either teaching or research. The benefits of having full-time tenured faculty teaching the first two undergraduate introductory courses are (1) the opportunity to mentor newly hired faculty with doctoral degrees in teaching, (2) implementing pedagogy suggested in prior accounting education literature, (3) attending workshops in order to bring proven teaching pedagogical techniques into the classroom and integrate lessons into course curriculum, (4) establishing and maintaining consistency in learning objectives, textbooks, and outcome assessments between different sections of the same accounting course, and (5) teaching courses more effectively, as experienced tenured faculty are able to understand the strengths and weaknesses of undergraduate students better than part-time instructors who have much less teaching experience.

Dunn et al. (2016) suggest accounting doctoral programs may not have offered their candidates formal training and apprenticeship in teaching pedagogy. Mentoring new faculty is important since "teachers beginning their careers place higher value on training in skills that tend to affect day-to-day teaching responsibilities and likely to improve student evaluations (Dunn 2016, p. 168)." At CBE, it is a common practice to pair newly hired accounting faculty with seasoned tenured faculty for two years when teaching the first two undergraduate introductory courses. This allows new accounting faculty the opportunity to learn and acquire skills of seasoned tenured faculty.

Compared to part-time lectures, tenured and tenure-track faculty have more time to read and deploy published pedagogy in accounting education literature while also teaching classes. For example, between Fall 2009 and Spring 2015, one tenured faculty taught Introduction to Financial Accounting and incorporated the practice of understanding the audience in order to develop a vision for the course, as described in Cunningham (2011). The following two paragraphs briefly describe other published pedagogies that have been adopted by two tenured and tenure-track faculty while teaching the majority of the first two undergraduate introductory accounting courses at CBE.

Prior accounting literature has covered how to teach the first two undergraduate introductory accounting courses. For example, Killian et al. (2012) developed an exercise that incorporates active, student-centered learning into the first accounting course. Through active learning, students can not only construct knowledge within their mind but can also make sense of new information learned in the future, in terms of what is already known in their mind (Saudagaran, 1996).

Springer and Borthick (2007) demonstrate students taught using Excel spreadsheets to solve complex business simulation episodes or case studies have better higher-order thinking skills than students taught using more traditional pedagogy. Young and Warren (2011) suggest critical thinking skills should be taught in the introductory accounting courses and Johnstone et al. (2013) developed a case for critical thinking, which is suitable for use in introductory accounting.

Dallimore et al. (2010) suggest faculty should foster student comfort with class discussion, since the learning-comfort relationship can lead to increased student mastery of course content. Braun and Sellers (2012) suggest faculty teaching introductory accounting courses should give a short daily quiz at the beginning of each class to

motivate students to prepare for class, arrive on time, and participate in class discussions. Through interviews, the authors' colleagues have confirmed they deploy such cited pedagogies, while teaching introductory accounting courses.

Whether teaching large lecture hall classes or smaller classroom sized classes of the introductory accounting courses, faculty have been using technology to improve student learning. Dillard-Eggars et al. (2008) find a strong positive relationship between students' grades and the use of an online homework system for the accounting principle course. Philips and Johnson (2011) find students' transaction analysis performance increased at a significantly faster rate when students used intelligent tutoring system, instead of an online homework system. Philips and Johnson (2011) suggest that online homework system, provided by textbooks publishers, can provide immediate feedback to the accuracy of students' answers of algorithmically generated homework problems. An intelligent tutoring system not only provides feedback to the accuracy of students' answers but also provides explicit step-by-step instruction on the process needed to reach solutions of algorithmically generated homework problems (Philips and Johnson, 2011).

Accounting faculty have also been using clickers in their face-to-face introductory accounting courses. Premuroso et al. (2011) describe clickers as an Audience Response Systems that (1) allow each student to respond to instructor-posed questions in the classroom, and (2) immediately display graphical summary of the answers submitted by all students to each instructor's question. Premuroso et al. (2011) find students perform better when tested using clickers to respond to in-class questions posted by the instructor. The authors' University provides one free clicker to all incoming freshman.

Readers should take notice that it is the faculty, teaching the Introduction to Financial Accounting, who (1) prepare the mass lecture section according to the design suggested by Cunningham (2011), (2) promote active learning as advocated by Saudargaran (1996), (3) teach critical thinking skills by using teaching cases of Johnstone et. al (2013), (4) use clickers while teaching as suggested by Premuorso et al. (2011), (5) promote class discussion to foster student comfort as suggested by Dallimore et al. (2010), (6) give daily quiz and uses online homework system as suggested by Braun and Sellers (2012) and Dillard-Eggars et al. (2008) respectively. The importance of the faculty as a contributing factor to students' learning cannot be underestimated. Consequently this paper strongly suggests that the institutional practice of having the same tenured accounting faculty continuously teaching the majority of the undergraduate introductory accounting courses is a contributing factor to the difference among scores between BSBA and MBA students on Capsim's Comp-XM exam, specifically on the accounting knowledge questions.

Compared to part-time lectures, tenured faculty have more time to attend workshops to bring proven teaching pedagogical techniques into the classroom and integrate lessons into course curriculum. Both undergraduate introductory accounting courses have a high percentage of failing grades and student course withdrawals. Since 2015 the Chancellor's Office has been organizing weeklong "Proven-Practices" workshops in various campus locations emphasizing the implementation of supplemental instruction, especially in bottleneck courses. Jones and Fields (2001) find that participation in both voluntary and mandatory supplemental instruction has positive benefits on a student's grade in the first introductory accounting course. CBE Faculty teaching undergraduate introductory accounting courses have attended the "Proven- Practices" workshops and have implemented supplemental instruction in all face-to-face introductory accounting courses. In an effort to assist CBE faculty, the University has recently created the administrative position of Supplemental Instruction Coordinator to coordinate all in-class supplemental instruction activity throughout the University.

Since Fall 2015, CBE has offered Introduction to Financial Accounting and Introduction to Managerial Accounting through traditional face-to-face classes, as well as through the online program. Chen et al. (2013) find that the delivery mode (online or in-class) is not important in introductory accounting courses. Nevertheless, the Chancellor's Office provides funding to each campus within the university system to provide training called *Quality Matters* (QM) for all faculty teaching courses online. Sener (2006) explains the purpose of *Quality Matters* is to provide a model to assess, assure, and improve the quality of online courses. At present there are four accounting professors who have successfully completed their training and have become QM course reviewers at CBE. Two accounting professors have had their Introduction to Financial Accounting online course successfully reviewed and recognized as "Certified Quality" online courses.

The next few paragraphs contain best practices to consider when deploying the institutional practice of assigning the same tenured faculty to teach the majority of undergraduate sections of introductory accounting courses. The authors suggest six best practices for accounting faculty at teaching institutions.

1. Accounting faculty interested in teaching undergraduate introductory accounting courses.
Faculty should not be forced into teaching the undergraduate introductory accounting courses when their interests are elsewhere, such as in research and publishing. Institutions and programs should select instructors with an interest and passion in teaching students, particularly those with deficiencies in either mathematics and/or English, if that is a known weakness identified within the student population

2. Extensive teaching experiences in intermediate and advanced accounting courses.
Faculty teaching undergraduate introductory accounting courses have extensive teaching experiences in teaching upper level intermediate and advanced accounting courses. For example, one CBE faculty teaching Introduction to Financial Accounting also teaches either an intermediate or advanced accounting course during the academic year. Seasoned accounting faculty should avoid frustrating freshmen with complex accounting topics, such as direct method of statement of cash flow. These topics should not be taught in the first introduction to financial accounting course. Experienced accounting faculty often emphasize key concepts, such as closing and adjusting journal entries.

3. Passionately guiding newly minted Ph.D. tenure-tracked faculty.
Seasoned tenured faculty need to passionately guide the new accounting faculty not only in teaching pedagogies and skills, but also in addressing other challenging issues faced in the classroom, such as student cheating. For example, CBE has benefited from mentorships by pairing new accounting faculty with seasoned tenured faculty to teach the first two introductory accounting courses over a two-year period.

4. Adoption of teaching pedagogies from accounting education literature.
Faculty teaching Introductory Accounting courses must devote considerable time and effort to reading and adopting the latest pedagogies published in accounting education literature. For example, prior accounting literature describes the benefits of incorporating active, student-centered learning into the first accounting course (Springer and Borthick 2007).

5. Training to improve pedagogies or to adopt latest techniques in teaching.
Faculty teaching Introductory Accounting courses and upper level accounting courses must be willing to attend training seminars to improve upon existing teaching techniques. For example, CBE accounting faculty completed training to become *Quality Matters* course reviewers. CBE accounting faculty also attended workshops to integrate supplemental instructions into their courses.

6. Funding for training and attending workshops.
Teaching institutions must provide funding for faculty training and attending workshops annually. Accounting has its own professional standards issued by various professional or regulatory bodies. Continuous professional education is a necessity for faculty to remain up-to-date with the latest regulatory pronouncements. Funding for workshops is also a necessity in order to enable faculty to adopt proven technologies into the classroom. One example at CBE is the adoption of Lecture Capture, which consists of audio capturing of a course's lectures and posting recorded lectures to the course's learning management system website (*i.e.*, Blackbard, Canvas, etc.) for students to review.

The next section is conclusions.

CONCLUSIONS

Table 1 and Figure 1 show mean percentages of Capsim's Comp-XM accounting knowledge questions among BSBA students for years 2013 through 2016. Results of BSBA students improved from 51.26% in 2013 to 63.40% in 2014. For three continuous years between 2014, 2015 and 2016, assessment results using Capsim's Comp-XM accounting knowledge questions has been around 61%. Contributing to this improvement is the innovative practice of assigning the same tenured faculty to most of the undergraduate Introductory Accounting courses. This paper describes the background, benefits, and best practices of this institutional practice.

The authors acknowledge several weaknesses in this paper. Ideally, the authors should provide longitudinal data of at least five years, which is considered a full cycle of assessments for the discipline-based accreditation body or ten years for the regional accrediting body. Different Colleges of Business have different PLOs and this paper provides a case study focusing on the specific environment of the University and the college where the authors work. In the future, the authors will update readers regarding future assessment results. Emphasis will be placed on updates to how online students taking Introductory Accounting courses compared to their in-class, on-campus peers on the Comp-XM examination. There are ample future research opportunities in this area. The authors will research about online supplemental information for students taking introductory courses through the online program and whether *Quality Matters* has incremental benefits to online accounting courses.

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John Tan is an Associate Professor of Accounting.
Micah Frankel is a Professor of Accounting.
Glen Taylor is a Professor of Management.
Sandy Luong is the Director of Assurance of Learning.
All the authors may be reached at the College of Business and Economics, California State University, East Bay, 25800 Carlos Bee Boulevard, Hayward, California, 94542.

The Money Multiplier and Interest on Reserves in the Principles of Macroeconomics Course

David W. Brasfield, Murray State University, Kentucky, USA
Eran Guse, Murray State University, Kentucky, USA

ABSTRACT

Standard principles textbooks continue to present the money multiplier within a framework where the central bank is mainly conducting open market operations in an environment where banks remain "fully loaned up." The standard result is that the change in the money supply is equal to the change in reserves times the so-called money multiplier (1/r where r is the required reserve ratio). Since the Great Recession, however, this presentation is flawed as the Fed is currently using interest on reserves (IOR) as the most important policy tool, and in addition, banks are holding large amounts of excess reserves created by the Federal Reserve. We show that open market operations today may not lead to the multiple changes in the money supply as typically taught in the Principles course. We provide some suggestions as to how to approach teaching current monetary policy, but the proximate purpose of this study is to encourage thought and discussion of how Principles of Macroeconomics instructors should approach the pedagogy of the outdated money multiplier concept and/or interest on reserves when discussing monetary policy.

Keywords: Money multiplier, interest on reserves, open market operations, monetary policy

INTRODUCTION

"The Fed uses open market operation to adjust reserves and thus change nominal interest rates with the goal of nudging the federal funds rate toward the Fed's target." Chiang (2017) Principles of Economics textbook.

"The shift in policy tools also affects the task of some of society's explainers, including journalists and teachers of economics, because most of the past textbook descriptions of how monetary policy works will not be accurate for years to come." Ihrig, Meade, Weinbach (2015).

The fact that money is created from bank credit in a process known as the "money multiplier" is thought of as common knowledge in economics. This idea was first presented prior to the Great Depression and Keynesian monetary policy by Phillips (1920) and Crick (1927), and it is commonly presented in the "money creation" chapter of most principles of macroeconomics textbooks frequently using "T-accounts" to illustrate the process. Teaching the multiplier allows the student to grasp the concept of monetary policy in which open market operations start a process that either creates or destroys bank loans, the money supply, and ultimately affect the economy. Since the Great Recession, however, the manner in which central banks conduct money creation and monetary policy has changed; consequently, we believe that we should change the way we teach these concepts.

The onset of quantitative easing brought forth many predictions of an explosion in inflation (see Shiff et.al. (2009) for example) based on the growth of the Fed's balance sheet and therefore excess reserves in the banking system. This reserve growth led many to predict a massive expansion in the money supply via the money multiplier process. Clearly, this did not happen and, largely, economists now understand why the money multiplier did not work as advertised. The money supply did increase but not proportional to the increase in reserves (or more appropriately, the monetary base). The increased supply of excess reserves was not loaned out – far more reserves were created than the current loan demand, thus we actually saw a substantial drop in the money multiplier (see Fig. 1). This failure of the multiplier process was subsequently exacerbated by a new tool adopted by the Fed: the payment of interest on reserves (IOR -adopted in Oct. 2008). Originally, Milton Friedman (1959) suggested that central banks should pay interest on required reserves in order to reduce the implicit tax created by requiring banks to hold reserves against deposits. Recently, works of Goodfriend (2002), and Ennis and Weinberg (2007) presented reasons why paying interest on reserves can improve a central banks control of monetary policy (the Fed Funds rate) without necessarily changing the supply of reserves. Since 2008, the Federal Reserve has been using the interest rate on

reserves as its major tool for conducting monetary policy (the Federal Reserve System 2009). However, the impact of this tool and, in particular, its effect on the money multiplier process does not seem to have been incorporated into principles of macroeconomics texts in any meaningful way. Hence, the result is that many of us continue to teach a process that is essentially incorrect in the modern financial environment, thereby perpetuating this outdated view of current Fed actions and their impact on the money supply to our students. This was brought home to the authors in discussions with other participants at our presentation of an early version of this work at the 22nd (April 2017) Annual Teaching Workshop at the University of Kentucky. Many in the audience were unaware of the changes to the Fed's operating procedures. More recently, this can be seen in the concern many feel about the Federal Reserve's process of "normalizing" the balance sheet, i.e. ending the reinvesting of maturing bonds (Pan 2017) as a tightening of policy and reduction of the money supply – something we have not seen however.

In this paper, we call for a change in the way we teach the outdated concept of the money multiplier. The traditional way is based on a partial equilibrium analysis under (implicitly or explicitly) a standard set of behavioral assumptions, in particular the assumption of a zero or constant ratio of excess reserves to deposits. This leads to a constant money multiplier, so that we write $\Delta M^S = m*\Delta MB$, where M^S denotes the money supply, m is the money "multiplier" (>1 given a fractional required reserve ratio), and MB is the monetary base, defined as reserves plus currency. As we discuss below, under the new policy environment, this particular assumption is no longer realistic. Thus, since Oct. 2008 the accepted concept of the money multiplier is a misrepresentation of reality, and many of us continue to teach a money multiplier process that is simply wrong. Here, we first discuss the money creation process and the changes to it, some history and evidence regarding these changes, and then present views on how an instructor might present the process of money creation and destruction when discussing modern monetary policy.

THE MONEY CREATION PROCESS

In discussing the money creation process, we should first describe the definition of money. Most principles level textbooks prefer to define money as M1; however, we are going to address the traditional approach using M2, as it allows for money creation to more appropriately go into several different types of deposits.

Consider the money supply: $M^S = C + D$; where C is currency in circulation and D is deposits held by the public (which can include demand deposits, savings deposits, small time deposits, retail money market mutual funds, and traveler's checks). For banks, the funds acquired via deposits can be held either as reserves (R) or they can be loaned out to the public. In the US, banks follow a fractional reserve system where banks have to hold a required amount of reserves, set by the central bank, and proportional to the demand deposits (the required reserve ratio – 'r') held at that bank. Since 2008, banks have received interest on reserves from the Federal Reserve System, but this is less than the interest they can receive from making loans to the public. The interest paid on reserves can be thought of as the opportunity cost of making loans, but this is typically not discussed. These loans are the public's liability and when made, money is created, which will then be held as deposits in banks and/or as currency. The amount of currency the public wishes to hold depends on current preferences for liquidity versus deposits. There is typically an assumption of a constant currency to deposit ratio – 'c' (some textbooks simplify by assuming zero currency holdings and focus on deposit creation).

As loan proceeds are spent, other banks gain these funds as deposits. They also must hold a percentage (r) of the additional demand deposits as required reserves. The remaining excess reserves can then be lent, creating further deposits and/or currency, thus money. This process continues (in diminishing amounts) according to the leakage of funds brought about by the required reserve ratio. As a result, we obtain a multiplied increase in deposits and thus money. A crucial assumption in this (traditional) process is that banks wish to hold zero excess reserves against deposits (this ratio 'e' = 0), or they wish to hold a small but constant ratio. Thus, they will always loan a constant proportion of any additional reserves. It is important to note that the availability of excess reserves is the constraining factor to loan and thus money creation – there is always available loan demand for these reserves.

Traditionally we teach that the policy tool of open market operations is the most important/frequent way the above occurs. If a central bank buys securities from a bank, they then would make this purchase by crediting the bank's reserve account with the Fed. These reserves are initially excess reserves as there are no deposits to hold reserves against. As the bank wishes to make profits, it may (assumed will) choose to lend these funds out to its customers.

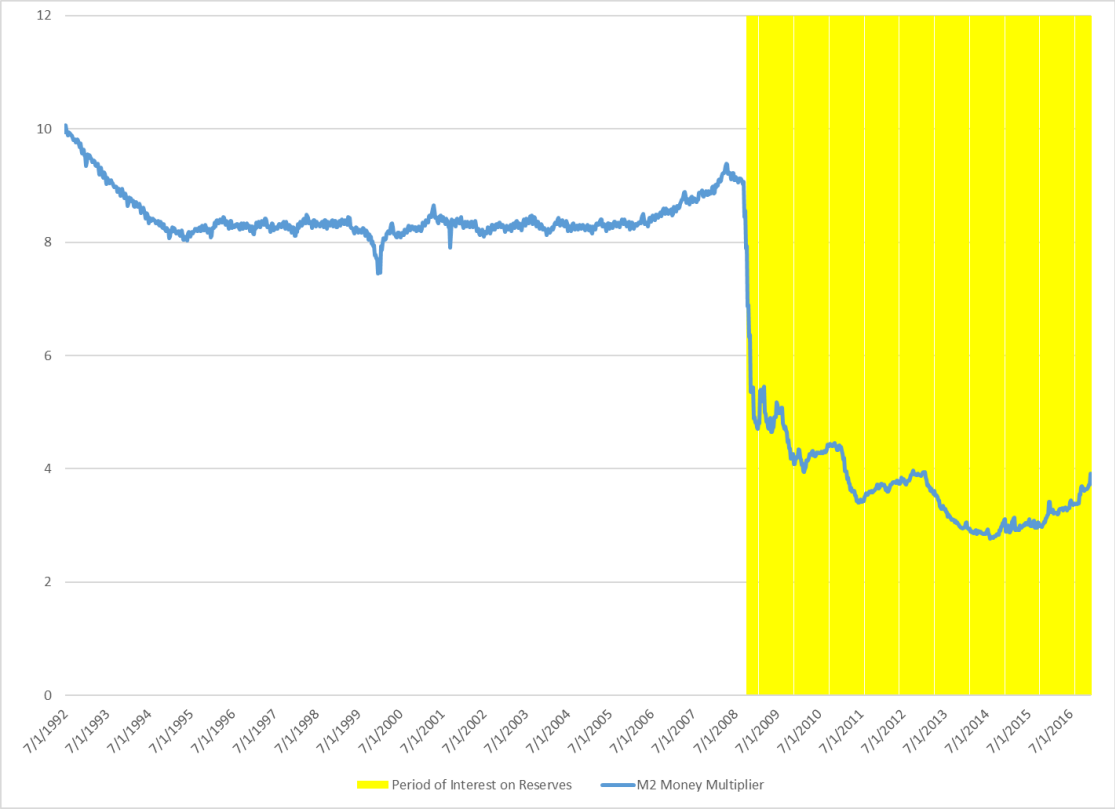
The customers who receive these loans can hold their funds as currency or can choose to deposit their funds into a bank – either is an increase in the money supply. As banks face a required reserve ratio of $0 < r < 1$, any \$1 increase in deposits will lead to the banks being required to hold an additional \$1*r in reserves. Banks can then choose to lend the remaining balance to the public if they wish (again assumed so), further increasing the money supply. As before, the loan proceeds are spent, deposited into another bank, and the process continues.

Thus, we can see (and teach) that the initial change in reserves can result in a larger increase in the money supply - the money multiplier process. This is the traditional treatment of how the Fed's purchases of assets (typically government bonds via open market operations), which expands the size of the Fed's balance sheet, should lead to a much larger increase in the money supply. Current principles of macroeconomic texts suggest to the reader that the Fed's current policy is conducted using these open market operations. Under the assumption that banks remain "fully loaned up" and thus a zero excess reserve ratio 'e', and a zero currency ratio 'c' from above, [1] the common textbook money multiplier (m) simplifies to: m = 1/r. This result suggests that the multiplier m can only change by changing r, which is set by the central bank.

The mathematics of the traditional multiplier process implies that any change in the monetary base will lead to a change in the money supply that is proportional to the money multiplier, or:

(1) $\Delta M = m \times \Delta MB.$

Figure 1: M2 Money Multiplier = M2/Monetary Base (1/1992 – 12/2017)



Unfortunately, the discussion and mathematics of the traditional presentation are flawed, being based on the assumptions that lead to the multiplier being constant. Figure 1 shows clearly that this is not an accurate

[1] Mankiw (2016) presents a similar multiplier where he assumes a constant non-zero excess reserve ratio. He refers to the sum of the required reserve ratio and the excess reserve ratio as the "reserve ratio". Mathematically it is the same result as r above.

representation of modern reality. It turns out that the growth in reserves and the monetary base in recent years has not been matched, much less exceeded, by the growth in the money supply.

What happened? Mathematically the "money multiplier" can be derived by looking at the following ratio: $m \equiv \frac{M}{MB}$. From this definition, we obtain the following:

(2) $\Delta M = m \times \Delta MB + \Delta m \times MB.$

From the discussion above, traditional simplifying assumptions yield $\Delta m = 0$ and we are left with equation 1.

From equations (1) and (2) we can conclude that the traditional money multiplier is actually an "average product" of money creation when, in fact, we are generally more interested in the "marginal product" of money creation from open market operations. For example, if m = 5, but an increase of $1 in MB leads to only an increase in M of 3, this means that the average product of money creation would be decreasing, i.e. the measured multiplier m.

Equation 2 highlights that there are two ways the money supply can change: a) via changes in the monetary base MB, and b) via changes in the multiplier. Often, only an aside, we teach that the size of the money multiplier is dependent on the size of the leakages that tend to reduce the amount banks lend. These leakages include: the required reserve ratio, any excess reserves that a bank may desire to hold, and currency held by the public. The required reserve ratio has a negative effect on the multiplier as if this is increased, then banks will have to hold more in reserves and will be able to lend less. The amount of excess reserves banks choose to hold has a similar effect on the money multiplier, except in this case, banks are choosing not to lend on their own. Finally, the amount of currency the public chooses to hold has a negative effect on the money multiplier. In this case, if the public is choosing to hold more currency, then they are choosing to hold fewer deposits. Deposits (minus required reserves) are funds available to banks to lend, so if the public is choosing to hold more currency, then the banks will have less funds to lend. It is important to note that if loans are not made by banks, then money cannot be created.

From the discussion above, we conclude that there are three ways that the money supply can change. First, a change in reserves leads to a change in the funds that can be lent by banks. Second, if banks choose (excess reserve ratio) or are forced (required reserve ratio) to hold more or less reserves, than this changes the circular connection between deposits and loans and the resulting amount of money created. Finally, the amount of currency held by the public affects the funds held as deposits and again the amount of money created. These changes in the money supply are typically connected to a model where "the interest rate" is determined by the supply and demand for money.

THE ISSUE

The current banking environment is much different than it was when we, the instructors of principles of macroeconomics, likely took our first course in macroeconomics. However, most of us are still teaching this course in the same way we were taught. In terms of monetary policy, there have been critical changes (some well-known, some not) subsequent to the start of the Great Recession that effectively have led to the "money multiplier" becoming essentially endogenous and no longer a stable basis to determine money expansion. These factors include:

- The adoption of IOR as the tool to influence the fed fund rate (FFR) (10/08)
- The movement to the zero lower bound at the time of the Lehman bankruptcy (9/08)
- Concurrently, a substantial increase in reserves over time
- Three periods of Quantitative Easing – which also expanded the quantity of reserves
- Oct. 2017 – beginning of a process to shrink the amount of reserves (normalization).

It is important to note that given the above, the banking system as a whole currently is not fully loaned out (a necessary assumption in the standard discussion of the money multiplier) as many banks are instead holding a very large amount of excess reserves. Most of these reserves were created through the process of quantitative easing (QE), and in a modern day "Operation Twist" the Federal Reserve has also changed its portfolio of assets from short term assets to add longer term assets as well. The large amount of excess reserves stems from the reaction to the Great Recession and changes in the monetary policy process. These excess reserves allow the Fed Funds rate to remain stable in the case of shocks to reserve demand (Goodfriend (2002), pg. 4). Instead of using open market

operations, it can closely set the Fed Fund rate at its target via the interest rate it pays on these reserves (along with other rates). This change allows the Federal Reserve to be able to change its target Fed Funds rate without making changes in its portfolio, or necessarily reserves or money. Open market operations are no longer the main policy tool of the Fed. Consider an open market purchase by the Fed, the reserves created would be injected into a system that already has a large surplus of reserves. Hence, no new loans would be made or money created. An open market sale would not lead to a shortage of reserves in our system awash in reserves. Again, banks would not need to call in loans and destroy money. The textbook process fails. In effect, the money supply is today determined by increases (or decreases) in qualified loan demand – a demand easily fulfilled with the surplus of reserves. But unless the next banks in the system have unmet loan demand (unlikely) the money expansion process stops, there is no "multiplier." However, changes in the interest rate on reserves – the opportunity cost to banks of making loans, may change the money supply if banks respond by changing loan rates and thus affecting the quantity of bank loans demanded. But they cannot systematically force a desired change in the money supply. Given the Fed's new operational procedures, it would thus make sense to update the way we teach the creation (or lack thereof) of money from Fed policy changes.

POSSIBLE TEACHING APPROACHES

The following are approaches that we have discussed and in some cases adopted, but they are by no means exhaustive. It is probably well to separate the concepts of money creation and monetary policy in course development in that, although we are used to thinking about monetary policy in terms of changes in the money supply, which is not the current procedure. Instead, policy is now formulated through interest rate movements initiated by changes in the interest rate on reserves. The money supply is simply allowed to vary in an endogenous fashion with any resulting changes in loan demand.

Approach 1: Do not teach the multiplier

The simplest approach and that which will take the least amount of class time is simply to not teach the money creation process in the principles course and to leave it for later discussion in upper division courses. Knowledge of the money creation process is useful for economics majors, but (being endogenous) is not necessary for a discussion of monetary policy and in most programs it could more readily be taught in Money and Banking courses. The typical principles course is not populated by economics majors and dropping this material (which is currently incorrect anyway) would free up time that could be better spent elsewhere. Additionally, at the Money and Banking level, students are more likely to have had some accounting and thus transactions among the T-accounts so often used would not be so "unsettling" to the students.

Of course, monetary policy should be introduced and, more correctly, discussed as a process of changing interest rates. Textbook choice might be an important factor as the instructor may find their book does not discuss IOR, instead deriving the Fed Funds rate via a market for reserves. The Fed Funds market could be kept in the course as a means of further reinforcing the workings of markets, but is not necessary. It is straightforward to discuss IOR as an opportunity cost of reserves and that banks would attempt to pass such changes along, thus changing bank loan rates. This would then be shown to affect spending (i.e. investment most likely) and Aggregate Demand. This would be an easy, and more currently correct approach to begin a discussion of monetary policy. The downside to this approach alone is that there is no formal way to incorporate feedbacks from Aggregate Supply and Demand that might influence interest rates in general. In other words, it would be difficult (but not impossible) to discuss the impact of shocks to the economy on "the interest rate" apart from the impact of the FED changing IOR. If one wished to bring in the money supply, changes in such could easily be taught as a function of bank loans and, as elaborated below, one can then introduce the money market as a tool to describe the determination of interest rates in general.

Approach 2: Including the Money Market

If one wished, an instructor could introduce money in either (or both) of two ways. Changes in the money supply can be introduced as the endogenous result of the loan process. Noting that the banking system is not constrained by a shortage of excess reserves, open market operations (either adding or subtracting reserves) should have no impact on lending or thus money creation. Thus, as developed earlier, to teach this in the traditional way is misleading. However, as one author here does, it is straightforward to demonstrate that when a bank grants a new loan to a

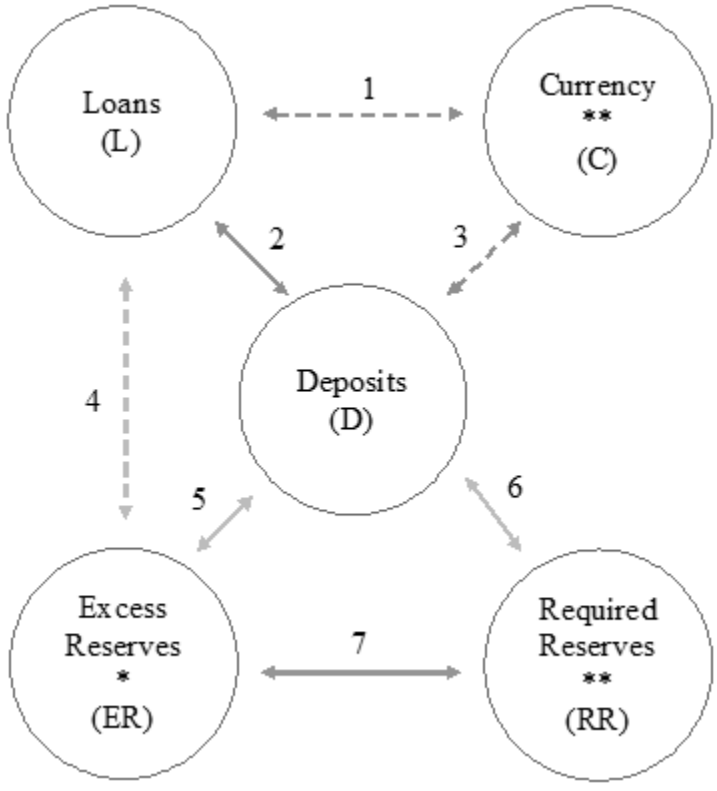
customer money (either M1 or M2) is created as deposits expand. It is important to recognize, however, that the "process" stops here. Excess reserves that may flow to another bank when the loan proceeds are spent are simply adding to a system already flush with reserves that could not be lent, thus the traditional formulation of the money multiplier does not hold. Effectively, the money supply fluctuates with loan demand.

On the other hand, loan demand (actually, the quantity of loans demanded) will vary negatively with "the interest rate" that banks charge, and thus will be affected by the Fed's changing of IOR. Hence, an instructor can relate an "expansionary" monetary policy (reducing IOR) to an increase in the money supply, and vice versa. One can take this a step further and introduce the money market with "the interest rate" as the price of money, money supply a function of policy as just described, and money demand a function of real GDP and prices as typically derived in modern principles of macroeconomics texts. This allows the instructor to incorporate feedbacks from Aggregate Supply and Demand to the money market, thereby influencing interest rates in the economy.

Approach 3: The Money Creation Circular Flow Diagram

If an instructor still wishes to discuss money creation, one way is to use what we will refer to as the money creation circular flow diagram. Figure 2 shows flows from the relevant assets and liabilities of the public (firms, households, and the government), the banking system, and the central bank. Loans, excess reserves, and required reserves represent the assets held by the banking system, and currency and deposits (the money supply) represent assets held by the public. The arrows on the diagram represent the interactions between these assets as they flow in the money creation process. The nodes for currency (C) and required reserves (RR) are denoted by a "**" as they indicate end nodes for the monetary base in the money creation process. The node for excess reserves (ER) is denoted by a "*" indicating a possible end node for the monetary base given banks' preferences for giving loans, the opportunity cost of lending out reserves (the interest the central bank pays on reserves), and the public's demand for loans.

Figure 2: The Money Creation Circular Flow Diagram



There will be natural flows in this diagram when the public pays back their existing loans. When funds from a loan are paid back there will be a flow from C and RR (through D) to L back to ER and RR. The money supply will initially decrease due to this change by the amount the loans have been paid back. However, as these excess reserves flow back into the banking system, the banks will tend to wish to lend these reserves back to the public. Another natural flow may be due to a change in the public's preference to holding currency. If the public wishes to hold more currency, then the public will withdraw some deposits leading to a flow from total reserves (ER+RR) to C. This may lead to a deficiency of RR meaning that the banks would have to call in loans. This process of calling in loans is similar to the process described in an open market sale below. When the public wishes to hold more C, then the money supply could go down, and when the public wishes to hold less C, then the money supply could go up.

Teaching Money Creation

The Money Creation Circular Flow diagram can be used in place of discussing traditional money creation using T-accounts and requires no mathematics. The instructor can first present the circular flow diagram to the students. The instructor would start with the excess reserve node and explain that all excess reserves could be lent out to the public. The dotted line shows that lending out the excess reserves is optional to the banks. Then the next natural step is to talk about how the funds created by the loan could be handled. The public would choose how much to hold as currency and then the remaining funds must be held as deposits. The currency and deposits created from the loans are the money created from the loans. The new bank deposits are now additional funds to the banking system (minus the additional required reserves) which may wish to lend these funds out to increase profits. The next step is to suggest to the student that this process creates a loop of additional possible lending. It is important to include a simple numerical example to effectively demonstrate the loop in the process and how changes in reserves, preferences, required reserves, and interest paid on reserves leads to money creation or destruction. The appeal of this approach to teaching money creation is that there is no need for a constant money multiplier. The students should be able to understand money creation and that the money supply may increase more than one for one with an increase in the monetary base. However, they should also understand that money is created from bank loans and thus money is created only if banks are willing to make loans and the public is willing to take loans.

Open Market Operations

We first consider the discussion under the familiar policy using open market operations. The initial process comes from the loans node "L." If the central bank buys the loans from the banks, then the loan value flows from "L" to "ER." If the central bank buys the loans from non-banks, then the loan value flows from "L" thru "D" and then to "ER" and "RR." With an increase in ER, the banking system is able to (if banks wish) lend these funds to the public. The reserves flow from ER through L and D and then to C, RR, and ER. The sum of the flows to C, RR, and ER must be equal to the amount that initially left ER. The more of the monetary base that flows to C and RR, the less that will be available to continue to lend (ER). Therefore, money creation depends on how much currency the public wants to hold of additional funds and how much the banking system is required to hold as required reserves. Further to this, the banking system may wish to hold on to some ER reducing the flow from ER. The more the banking system wishes to hold as ER, the smaller the increase in money. As funds flow back to ER, these funds can continue to be lent as long as the banks are willing to lend the funds and the public wants to borrow these funds. The circular process gives the result of the "money multiplier." Another appeal of using this method is that we can discuss the limitations of open market operations. It is important to show the student that money may not be created from open market operations if the banking system chooses not to (or is unable to) lend out any of their excess reserves.

The open market sale is similar to the open market purchase. When the central bank sells bonds to the banking system this represents a flow from total reserves (ER+RR) to L. When the central bank sells bonds to non-banks this represents a flow from total reserves (through D) to L (this may include some payment from C to L as well). Under either situation, there is a reduction in total reserves. If there are few excess reserves, then the open market sale reduced RR and now banks need to call in loans to meet their reserve requirement. This process must continue until D is at least equal to $\frac{RR+ER}{r}$. The money supply here contracts by the change in C and D. However (as it is at the time of this writing), this process may not lead to a reduction in the money supply if ER is larger than the size of the open market sale as there would be no need for the banking system to call in loans.

Changes in the Required Reserve Ratio

The change in the required reserve ratio works much like the process described above for open market operations. When the central bank reduces r, this leads to a flow from RR to ER leading to a possibility that the banking system may lend as described after an open market purchase. If the banking system wishes to lend the additional excess reserves, then the money supply will increase. Notice that the flow from RR to ER can always occur. If the central bank increases r, then this would lead to a flow from ER to RR. This flow under normal circumstances cannot occur as the ER in the economy may be smaller than the necessary funds for the flow. For the banking system to get these funds, they must call in loans. The dynamics for this flow is described above under the open market sale. If the loans must be called in, then this will lead to a decrease in the money supply. However, if ER is large enough to make up for the change in RR, then no loans will be called in and the money supply will not decrease.

Changes in the Discount Rate

The third tool of monetary policy, the discount rate, while an uncommonly used tool, was used during the Great Recession. If desired, it can be taught using the money production circular flow diagram. When a central bank lends funds to banks this leads to an increase in total reserves. When banks choose to pay these loans back this leads to a decrease in total reserves. Decreases in the discount rate may influence banks to take out more discount loans which would lead to an increase in ER. If a decrease in the discount rate leads to more discount loans, then the discount loans leads to an increase in ER. As a result, money would be created similar to the process described above under an open market purchase. If an increase in the discount rate leads to fewer discount loans, then this would lead to a decrease in total reserves. As a result, loans must be called in leading to a reduction in the money supply as described under the open market sale. However, the key to this policy is that discount loans must be happening for there to be any change in total reserves. If banks are not currently interested in getting these loans from the central bank, then there would be no change in total reserves and, therefore, no change in the money supply.

Changes in Interest Paid on Reserves

Excess reserves historically have been comparatively very low as banks held excess reserves as "insurance" for fluctuations in deposits and revolving loans such as credit cards. However, at the time of this writing, excess reserves are very high meaning that banks are choosing to not lend these funds as the interest paid for lending them out is not sufficient to compensate the banks for the risk involved in the additional loans. As discussed above, the banking system's preference to holding ER depends on the opportunity cost of lending, the interest the central bank pays for reserves. If the central bank increases this interest rate, then banks will be less likely to wish to lend out their excess reserves. Therefore, as the public pays back their loans to the banks, the banks will choose to hold these funds as excess reserves rather than lending these funds back to the public. This leads to a decrease in the money supply by the change in the amount of loans held by the public. If the central bank reduces the interest rate paid on reserves, then this will encourage banks to lend out their excess reserves. As they lend out these reserves, the money creation process occurs. In addition, for the banks to lend these additional funds to the public, they must offer the loans at a lower interest rate. The lending process will continue until either the excess reserves flow into C and RR or the interest rate paid for loans declines enough such that banks no longer wish to lend out any more funds to the public. Therefore, a reduction in the interest paid on reserves may lead to an increase in the money supply and an increase in the interest rate paid on reserves will lead to a future decrease in the money supply.

Approach 4: The Accounting Discussion of Money Creation

Another way to discuss money creation is by looking at the assets and liabilities of the central bank and the banking system. The simple answer to the question "where does money come from?" is the following: loans from the central bank and the banking system. Monetary policy is performed in order to increase or decrease loans which changes the money supply.

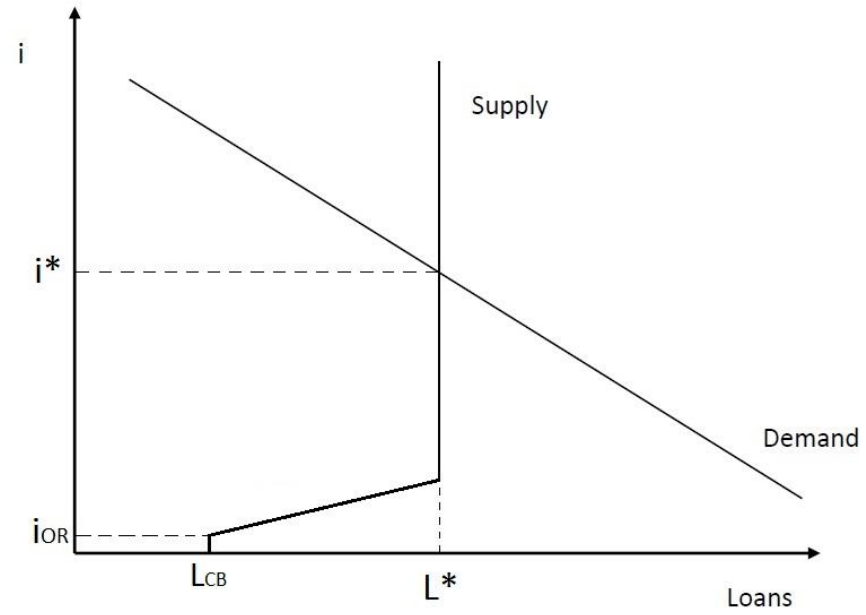
For the central bank, the relevant assets for money creation are loans made to the public obtained from open market operations (CL) and loans made to the banking system through discount loans (DL). The relevant liabilities for the central bank are reserves (R) and currency (C). For the banking system, the relevant assets for money creation are reserves and loans made to the public (BL). The relevant liabilities are deposits at banks (D) and discount loans from

the central bank. Therefore, we get the result that $CL + DL = R + C$ and $BL + R = D + DL$. Combining these equations we obtain: $CL + DL + BL + R = R + C + D + DL$. Noticing that reserves and discount loans cancel in this equation, we obtain: $C + D = M = CL + BL$ or the money supply is equal to total loans made to the public by the central bank and the banking system. Therefore, the money supply is dictated by the number of loans that banks chose and are able to make plus the number of loans that the central bank chooses to make indirectly through open market operations.

This idea allows the instructor to indirectly discuss the tools of monetary policy without using the money multiplier. Open market operations either introduce more funds into the hands of banks to lend or remove those funds. Changing the discount rate either encourages banks to get additional loans from the central banks to make loans or discourages loans. Changing the reserve requirement allows for more funds to lend or restricts these funds. Finally, changing the interest rate the central bank pays for reserves either encourages banks to lend or discourages the banks from doing so.

In addition to this discussion, the instructor can demonstrate graphically the effect on the interest rate from changes to any of these tools of monetary policy. We suggest a simple supply-demand model as shown in Figure 3. The supply of loans comes from the central bank (LCB) and from banks. The supply curve starts at LCB as these loans are determined by the central bank's balance sheet and is vertical here suggesting the supply is perfectly inelastic. The supply curve from LCB until L* is upward sloping as banks are choosing how much to lend and how many excess reserves to hold. As the interest rate increases, relative to IOR, banks choose to lend more funds and hold fewer excess reserves. When the interest rate is sufficiently larger than IOR, then banks will wish to be fully funded making the supply of loans to be perfectly inelastic. Several factors will change supply: IOR, the banking system's preferences for lending, and the size of the central banks' balance sheet given changes to open market operations. The demand for loans is determined by the interest rate via the law of demand and the federal deficit. A change in one of the tools of monetary policy will lead to the appropriate shift in the supply of loans. The student can view this change as a change in the money supply (loans) as well as a change in the interest rate. Here, the money supply is allowed to change due to a change in the interest rate which leads to a change in nominal spending in the economy.

Figure 3: Supply and Demand Model for Loans



The supply-demand model of loans is useful as it can be used for the discussion of both monetary and fiscal policy. In addition to this, the effectiveness of policy can be discussed by the location of the initial equilibrium (where it is located on the supply curve). A change in one of the four tools of monetary policy will shift the supply of loans

either by having the central bank lend more or less (open market operations) or having the banking sector lend more or less (interest on reserves, discount rate, required reserve ratio). In addition, we can demonstrate the effect on the interest rate from an increase or a decrease in the government's deficit.

Conclusion

The well-known money multiplier in monetary economics is currently not relevant in many major economies when discussing monetary policy. However, most instructors of principles of macroeconomics continue to teach this idea in the same way as they always have. This is a disservice to the profession as we are sending out a new generation of ignorant students who do not understand how many of the largest central banks are currently conducting monetary policy. It is our belief that we can improve this problem by changing the way we teach money creation and monetary policy. This change needs to be adopted by the instructors of the principles of macroeconomics course, but more importantly, this change needs to be made in the textbooks we have our students read. In this paper, we presented several ways to discuss the new changes in monetary policy and how these changes affect the money supply in the economy. This list was not a complete list of possible approaches to teach the change in monetary policy, but we hope that it leads to a continued discussion of the topic in the profession.

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An Interactive Tool to Teach Monte-Carlo Simulation and VBA

Roger B. Grinde, University of New Hampshire, Durham, New Hampshire (USA)

ABSTRACT

This paper presents an author-developed interactive tool that can be used to help students develop and run spreadsheet-based Monte-Carlo Simulation models, with output statistics automatically calculated. The software also provides the instructor the ability to help students learn some aspects of Visual Basic for Applications (VBA). Unlike commercial alternatives, it requires no special installation, and runs on both Windows and OS X versions of Excel. Students can quickly use it productively. The simple results screen and its interactive nature give it some advantages over commercial and native Excel simulation approaches for the classroom environment. Download links for the tool and an example file are provided.

Keywords: Monte-Carlo Simulation, VBA, Analytics, Spreadsheet Modeling

INTRODUCTION

Business Analytics has become recognized in industry as providing value, and interest in academic programs has increased as well. At the author's institution, the number of undergraduate business students specializing in information systems and/or business analytics has increased significantly over the past several years. Coupled with this is an increase in the number of specialized master's programs in analytics and related areas. The increased demand creates opportunities as well as challenges. With curriculum space not always as large as the need for courses in analytics-related areas, some courses are called upon to cover additional topics, or to combine topics in order make more efficient use of time in courses.

This paper presents an interactive tool developed by the author that can be used to help students develop and run spreadsheet-based Monte-Carlo Simulation models, with output statistics automatically calculated. No special installation is needed, and the tool runs on both Windows and OS X versions of Excel. Students can quickly use the tool productively. The software also provides the instructor the ability to help students learn some aspects of Visual Basic for Applications (VBA). For courses where exposure to some concepts of programming is desired, as opposed to a full course in programming, the ability to illustrate how VBA can extend the capabilities of spreadsheet models is beneficial.

There are alternative tools for Monte-Carlo Simulation. The two extremes in a spreadsheet context are commercial add-ins (e.g., Crystal Ball, Analytic Solver Platform, @Risk) and native Excel. The decision of approach often takes into consideration overall course goals, other topics in the course, and the time allocated to the topics. The commercial tools are quite powerful, yet require separate installation and a license code, often at a cost. Native Excel can be cumbersome as the user needs to set up a Data Table to run the simulation, followed by manually writing the summary functions and developing desired charts.

The tool presented here lies between these two boundaries, providing an easy to use way to quickly run simple simulations. When not much course time can be devoted to simulation, and the instructor does not want students to need to purchase additional software, this can be an appealing option. The course may also have broader goals, including exposing students to programming or enhancement of spreadsheet models with VBA. It is such a course for which the tool discussed in the paper was developed.

The paper briefly reviews relevant literature. An overview of the tool and illustration of its use is presented. Discussion of implementation follows, along with teaching applications, comparisons to other tools, and conclusions.

LITERATURE REVIEW

Spreadsheet-based Monte-Carlo simulation is a core topic in most business school quantitative methods courses (e.g., Business Analytics, Management Sciences, Quantitative Decision Making). Grossman (2015) aims at

practitioners of Operations Research with an emphasis on spreadsheet modeling. Similarly, LeBlanc & Grossman (2008) discuss the use of spreadsheets for Management Science and Operations Research practitioners. Leong & Cheong (2004) discuss a business modeling course, and how spreadsheets are used in it. Complementing commercial add-ins for simulation, Eckstein (2002) presents an Excel add-in for Monte-Carlo simulation.

Simulation has also been found to be an effective methodology for teaching other topics. For example, Meilczarek & Zabawa (2011) explain how they use Monte-Carlo simulation to help teach a variety of other Management Science topics. Tsai & Wardell (2006) use a VBA-based tool to teach statistics concepts. Doane (2004) makes an argument for using simulation to teach about probability distributions. Similarly, Haney (2015) and Weltman (2015) teach students sampling distribution concepts using Monte-Carlo simulation. Valle & Nordell (2013) teach about forecast uncertainty using Monte-Carlo simulation. In the quality control arena, Balakrishnan (2005) presents a VBA-based tool for teaching statistical process control and process management. And Pappas et al. (1982) discuss a tool designed to teach statistical quality control that turns out to be effective in teaching simulation.

Turning to the teaching of VBA, there is support for it in the literature. Ragsdale (2001) discusses Management Science education, and the role VBA can play in teaching courses in it. Bauer (2006) makes the case for teaching VBA to Finance students. Martin (2000) discusses a stepwise progression approach to teaching VBA in a masters-level program. Palocsay & Markham (2002) discuss teaching a decision support systems (DSS) course using VBA as the platform. And Botchkarev (2015) evaluates VBA suitability for performing Monte-Carlo simulation.

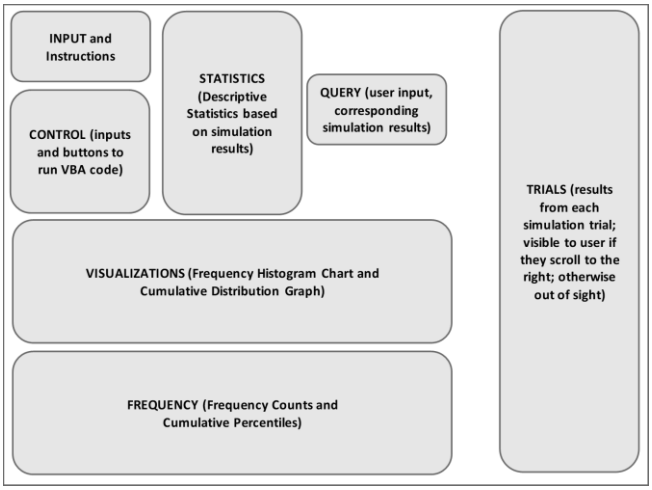
The contribution discussed in this paper is that the interactive simulation tool, while primarily designed to help students learn Monte-Carlo simulation, is also a suitable platform from which to begin, or complement, teaching VBA as well. The tool is highly visual, promotes understanding of what is happening as a simulation runs, and provides the opportunity to delve deeper into how the tool works.

MODEL OVERVIEW AND EXAMPLE

This section presents the overall design, provides an overview of the logic, and presents an example of the tool's use. Ease of use is a design goal, to a) allow the instructor and student to focus on model building and analysis, and b) provide the user with visualizations and statistics automatically and interactively. It is contained in single Excel workbook, with several VBA macros, saved with an XLSM extension. Upon opening, the user needs to enable macros. No add-in installation or license code is required.

Figure 1 shows the overall structure of the main worksheet. In the INPUT section, the user enters a random variable function (e.g., =RAND(), or any formula directly or indirectly involving randomness). The user can also get detailed instructions (Instructions button); the input cell also has a detailed comment. The CONTROL section allows the user to run one or more trials, user-specified. It also allows resetting the simulation (deleting all trials information), and toggling screen updating on or off while the trials run. The STATISTICS section calculates descriptive statistics. The QUERY section lets the user query a specific cumulative probability value, by entering either the cumulative probability, or the value of the output measure. The VISUALIZATIONS section shows a frequency histogram and a cumulative distribution. The number of bins of the frequency histogram can be changed using a slider control. Below the visualizations is the FREQUENCY section, showing the details of the frequencies. To the right, usually out of the user's sight, available if desired, is the result from each trial (TRIALS section).

Figure 1. Overall Layout of Interactive Simulation Tool



Basic Usage

Figure 2 is a screen shot showing results of 100 trials from the U(0,1) distribution, with cell B3 containing the formula =RAND(). This is the most basic usage of the tool. While the trials are being generated, the results update as long as Screen Updating is set to TRUE. The user can request an additional 100 (or any number) trials, without deleting the original 100, effectively pausing the simulation after running each set of trials. Students can observe how sample size affects results (statistics, output distribution, confidence intervals, etc.). Naturally, as the number of trials increases, confidence intervals become narrower and charts more defined. The number of bins in the histogram is easily changed with a slider control, beneficial in the display of results.

Figure 2. Screen Shot of Tool Showing 100 Trials of =RAND()

Incremental Simulation Tool

Instructions On/Off

Simulated Value: 0.747436233

Run One Trial | Clear History | Run Trials | 100 <-- enter # trials | Toggle Screen Updating: TRUE | Number Bins: 10

Summary Statistics

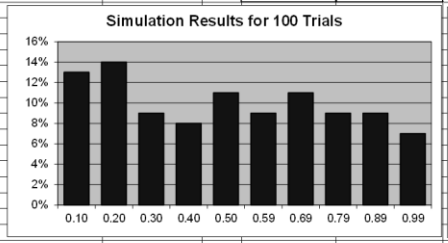
Trials	100
Mean	0.45
StdDev	0.29
Min	0.00
Median	0.449967592
Max	0.99
Coeff Variation	0.6304
StdErr of Mean	0.03
Alpha	0.05
LCL for Mean	0.40
UCL for Mean	0.51

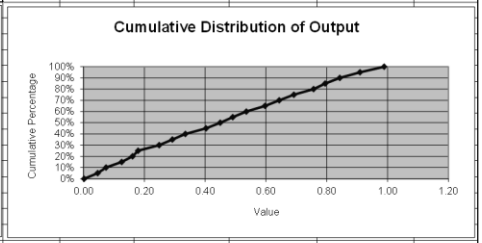
Value at a Given Percentile

Percentile	Value
0.05	0.046551554

Cumulative Probability for a Given Value

Value	Probability
0.25	0.300





Frequency Distribution

BinNu	UpperVal	Freq	Percent	Cum.Perc.
1	0.10	13	13.0%	13.0%
2	0.20	14	14.0%	27.0%
3	0.30	9	9.0%	36.0%
4	0.40	8	8.0%	44.0%
5	0.50	11	11.0%	55.0%
6	0.59	9	9.0%	64.0%
7	0.69	11	11.0%	75.0%
8	0.79	9	9.0%	84.0%
9	0.89	9	9.0%	93.0%
10	0.99	7	7.0%	100.0%
11	1.09	0	0.0%	100.0%
12	1.19	0	0.0%	100.0%
13	1.28	0	0.0%	100.0%
14	1.38	0	0.0%	100.0%
15	1.48	0	0.0%	100.0%

Cumulative Percentiles

Cum.Perc.	Value
0%	0.00
5%	0.05
10%	0.07
15%	0.13
20%	0.16
25%	0.18
30%	0.25
35%	0.29
40%	0.34
45%	0.40
50%	0.45
55%	0.49
60%	0.54
65%	0.60
70%	0.64

Most cells are protected from accidental change (if desired, the user can un-protect the sheet and make modifications). The following cells and buttons are the ones the user can modify without removing protection:

- Button: Run One Trial. Runs a single trial and updates results.
- Button: Clear History. Clears any existing trials and resets results.
- Button: Run Trials. Runs the number of trials specified in cell A10, and updates results.
- Button: Toggle Screen Updating. Toggles screen updating on/off during the running of multiple trials.
- Cell B3: formula directly or indirectly dependent on random values, including reference to a cell on another sheet or workbook.
- Cell A10: number of trials to run in the next batch.
- Cell B15 (change with slider): Number of bins used in histogram.
- Cell E14: Significance level α for confidence interval calculations.
- Cell G9: Cumulative percentile; corresponding value from cumulative distribution returned in H9.
- Cell G13: Cumulative distribution value; corresponding percentile returned in H13.

Besides this simple demonstration, the tool can help students gain more understanding of the effects of sample size, different probability distributions, and estimation of statistical parameters. Example formulas for Cell B3 are many, but include:

- =RAND()+RAND(). Asking students what they expect the shape of this distribution challenges them to think about how independent random variables combine together (i.e., even though each component distribution is uniform, the resulting combined distribution is not). Additional RAND() functions can be added, and students can gain intuition for one of the results of the Central Limit Theorem as the distribution approaches a Normal Distribution.
- =NORM.INV(mean, std.dev). This is the most recognized distribution by students. In terms of simulation, it can be used to use to illustrate that we may need many trials from a simulation to get a representative picture of what may happen in real life.
- =RANDBETWEEN(1,6). Simulating a die roll. This use can emphasize that the average of the trial values, which converges to 3.5, may be a value that has *zero* probability of occurring on any single trial. Students may have a tendency to put more emphasis on an *average* result than on the *distribution* of outcomes. Relating this to business situations emphasizes the importance of the distribution of potential outcomes and estimating probabilities of specific outcomes, rather than relying only on an estimate of the average.

Example

An example illustrating the initial motivation for the tool is discussed here. The formula in cell B3 (Figure 2) is set to the 1-trial output value of a simulation model. Figure 3 shows a simple 5-year investment model with a starting balance of $1000, stored in a separate workbook. First, the 5-year ending balance from a deterministic model ($1469) is calculated (rows 13-19). For the simulation model (rows 21-27), a normally-distributed return is generated for each year using the NORM.INV function. Simulation output for one trial is in Cell F27.

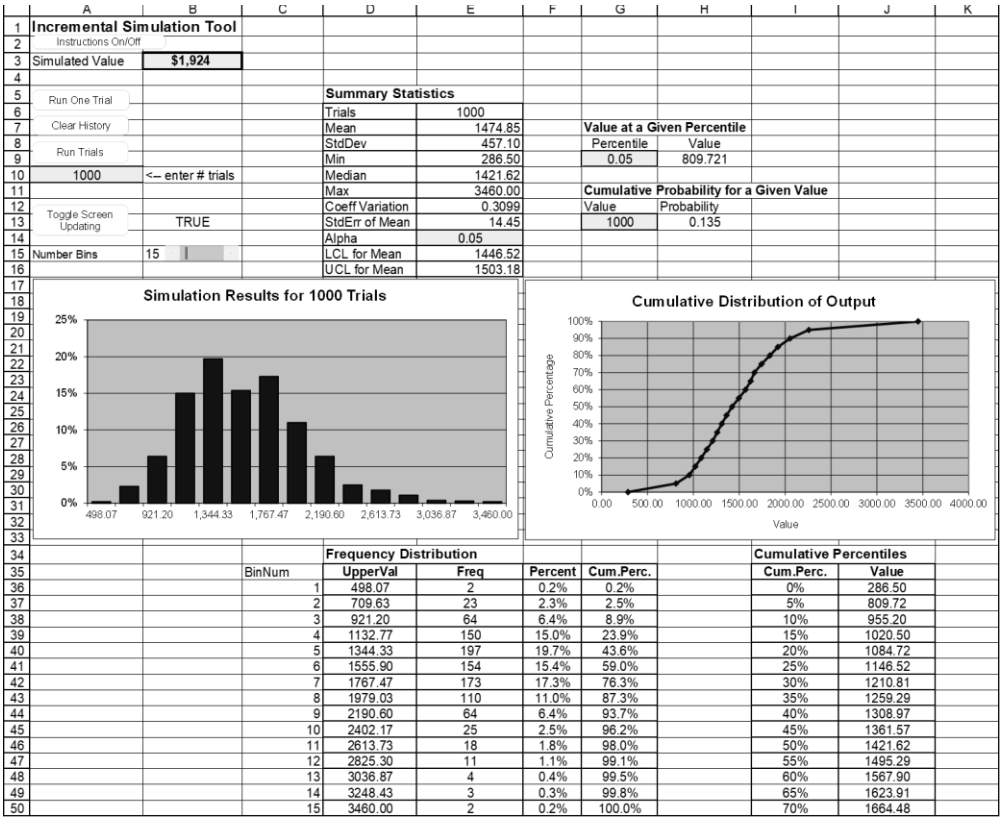
Figure 3. Investment Simulation Example

	A	B	C	D	E	F	G	H	I	J
1	**Investment Analysis**									
2	Compare Deterministic Analysis with Simulation Analysis									
3										
4	Investment	$1,000	(user can change this)							
5	Term (years)	5	(information only; don't change this without adding rows to calculations)							
6	Mean Return (annual)	8.0%	(user can change this)							
7	Std.Dev. Return (annual)	15.0%	(user can change this)							
8										
9	**Ending Balances**									
10	Deterministic Model	**$1,469**								
11	Simulation Model (one trial)	**$1,650**								
12										
13	**Deterministic Model (no uncertainty; uses the mean return each year)**									
14		Year	BegBal	Return%	Return$	EndBal				
15		1	$1,000	8.0%	$80	$1,080				
16		2	$1,080	8.0%	$86	$1,166				
17		3	$1,166	8.0%	$93	$1,260				
18		4	$1,260	8.0%	$101	$1,360				
19		5	$1,360	8.0%	$109	**$1,469**				
20										
21	**Simulation Model (one trial; generate annual returns from a Normal Distribution)**									
22		Year	BegBal	Return%	Return$	EndBal				
23		1	$1,000	-2.3%	($23)	$977				
24		2	$977	33.8%	$330	$1,307				
25		3	$1,307	54.6%	$713	$2,020				
26		4	$2,020	-10.0%	($201)	$1,819				
27		5	$1,819	-9.3%	($169)	**$1,650**				

D23: =NORM.INV(RAND(),B$6,B$7)
(copied to D27

In the simulation tool (Figure 4), cell B3 refers to Cell F27 in the investment example file (Figure 3), using the formula ='[Investment-Example-5year.xlsx] Model'!F27. First, use the "Clear History" button; otherwise new trials will be appended to any existing trials, which may have been from a different model. Then set the number of trials (cell A10), and use the "Run Trials" button. The figure shows a screen shot after 1000 trials. As expected given the mathematics of the example, the mean of the simulation results, $1475, is essentially equal to the calculation from the deterministic model. But now the user has access to information relating to the risk profile of the investment, insight about the shape of the output distribution, and a straightforward way to learn about the cumulative distribution function. Perhaps most importantly, probabilities of specific outcomes can be estimated.

Figure 4. Investment Example Simulation Results



	A	B	C	D	E	F	G	H	I	J	K
1	**Incremental Simulation Tool**										
2	Instructions On/Off										
3	Simulated Value	$1,924									
4											
5	Run One Trial			**Summary Statistics**							
6				Trials	1000						
7	Clear History			Mean	1474.85		**Value at a Given Percentile**				
8				StdDev	457.10		Percentile	Value			
9	Run Trials			Min	286.50		0.05	809.721			
10	1000	<-- enter # trials		Median	1421.62						
11				Max	3460.00		**Cumulative Probability for a Given Value**				
12	Toggle Screen Updating			Coeff Variation	0.3099		Value	Probability			
13		TRUE		StdErr of Mean	14.45		1000	0.135			
14				Alpha	0.05						
15	Number Bins	15		LCL for Mean	1446.52						
16				UCL for Mean	1503.18						
17											
18											
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31											
32											
33											
34				**Frequency Distribution**						**Cumulative Percentiles**	
35			BinNum	**UpperVal**	**Freq**	**Percent**	**Cum.Perc.**			**Cum.Perc.**	**Value**
36			1	498.07	2	0.2%	0.2%			0%	286.50
37			2	709.63	23	2.3%	2.5%			5%	809.72
38			3	921.20	64	6.4%	8.9%			10%	955.20
39			4	1132.77	150	15.0%	23.9%			15%	1020.50
40			5	1344.33	197	19.7%	43.6%			20%	1084.72
41			6	1555.90	154	15.4%	59.0%			25%	1146.52
42			7	1767.47	173	17.3%	76.3%			30%	1210.81
43			8	1979.03	110	11.0%	87.3%			35%	1259.29
44			9	2190.60	64	6.4%	93.7%			40%	1308.97
45			10	2402.17	25	2.5%	96.2%			45%	1361.57
46			11	2613.73	18	1.8%	98.0%			50%	1421.62
47			12	2825.30	11	1.1%	99.1%			55%	1495.29
48			13	3036.87	4	0.4%	99.5%			60%	1567.90
49			14	3248.43	3	0.3%	99.8%			65%	1623.91
50			15	3460.00	2	0.2%	100.0%			70%	1664.48

Simulation results include descriptive statistics, calculation of the confidence interval for the mean for a user-specified significance level, and cumulative distribution lookup values. In Figure 4, the user entered 0.05 for the percentile (cell G9), corresponding to $809.72, indicating a 0.05 probability of ending the 5-year period with this amount or less. The user also entered a value of $1000 (cell G13), corresponding to a cumulative probability of 0.135, indicating the probability of ending the 5-year period with $1000 or less (i.e., incurring a net loss after 5 years of investing with this strategy). By running a few batches of trials in succession without clearing the history, students see what a simulation is doing in terms of refining estimates of output statistics.

IMPLEMENTATION

As an Excel/VBA model, one decides the relative roles native Excel and VBA have in the look, feel, and operation. Here, a design relatively heavy on native Excel was used, with VBA's role to automate specific aspects. With a design goal for a tool that was easy to use and helped the user learn about the details of simulation, this approach seemed appropriate. The tool needs no installation, and works with Excel on both Windows and OS X platforms. Commercial tools tend to be Windows-only, and students sometimes struggle with installation. For students using company-owned computers, policies sometimes restrict installation of new software. Most of the commercial tools

also require a license fee. This section explains the native Excel design, and provides an overview of the VBA usage to make the tool operational.

Native Excel Design
Referring to Figure 1 and Figure 2, the native Excel portion is essentially all the sections except the CONTROL section. The TRIALS section will contain the results from each of the trials. The range of values from the trials is named Results_1. The STATISTICS and QUERY sections are built using standard Excel formulas, using Results_1 as the data range. In the FREQUENCY section, the Cumulative Percentiles are computed using the PERCENTILE function. The Frequency Distribution is somewhat more complex, as the user can enter the number of bins desired, using a slider control. Based on the number of bins, the bin size is computed based on the maximum and minimum values from the simulation, and the number of bins. The bin size is used in the frequency distribution calculations for the upper bound on each bin, and the FREQUENCY array function is used to find the actual frequencies.

The Cumulative Distribution chart is a standard scatter chart of the cumulative distribution calculations. The histogram is a column chart showing the frequency distribution values based on the user-specified number of bins. The chart data range is dynamic, using named ranges BinRange and PercentRange. These are dynamic ranges defined using the OFFSET function. The chart title is dynamic to show the number of trials.

The worksheet is protected, but not locked with a password. The VBA code changes the protection setting when needed to make changes to the worksheet. In addition, the user can make changes to the worksheet, recommended only on a copy of the file.

VBA Functionality
VBA is needed to provide control over the calculation of trials, resetting trials, and the screen updating toggle. The amount of VBA code is quite small. Below is a list of the procedures, and a short description of their functions:

- Sub Workbook_Open(). Event-based; runs when the workbook opens. Calls the Initialization routine.
- Sub Initialization(). Initializes settings so that each time the tool is opened, the user has a similar interface.
- Sub ToggleInstructions(). Toggles whether the instructions are shown. The instructions are stored as a comment in Cell A1. Mapped to a button on the interface.
- Sub ClearHistory(). Clears any trials data; that is, any results in the Results_1 range. Mapped to a button on the interface.
- Sub ToggleScreeenUpdate(). Turns on/off screen updating. Mapped to a button on the interface.
- Sub OneTrial(). Runs one trial of the simulation, and appends the trial result to any previously-run trials. Specifically, it forces a calculation of Cell B3, and stores the result of the trial in the range defined by the Result_1 array. Mapped to a button on the interface.
- Sub ManyTrials(). Runs the number of trials specified by the user in cell A10. Mapped to a button on the interface.

The OneTrial and ManyTrials routines provide the main numerical functionality from the VBA standpoint. OneTrial tells Cell B3 (with the range name “Output”) to calculate using Range("Output").Calculate. As B3 can contain any formula directly or indirectly involving randomness, the calculation cascades to any of B3’s predecessors, and any of B3’s dependents (e.g., statistics, frequencies, etc.). ManyTrials is similar.

Random Number Generators
Besides the VBA routines listed above, several random number generators (RNG’s) are included and listed here (each have applicable calling parameters):

- RndUniform: Continuous uniform
- RndDUniform: Discrete (integer) uniform
- RndNormal: Normal
- RndBinomial: Binomial
- RndExponential: Exponential
- RndTriangular: Triangular
- RndPoisson: Poisson

- RndDiscrete: Discrete; input is range of values and range of frequencies or probabilities
- RndReSample: Input is range of values; one is chosen at random; works on numeric and non-numeric ranges.
- RndContEmp: Input is value range and associated cumulative probabilities. Converted to piecewise continuous distribution.
- RndGeom: Geometric
- RndNegBinom: Negative Binomial

This functionality puts the tool between native Excel simulation, and simulation using a powerful commercial add-in. Use of the RNG's is optional; one can still write native Excel formulas to generate the random values, as in the example discussed earlier. But some distributions are more difficult to write in native Excel, so use of RNG functions can be a convenience. If a user chooses to use these functions in the model, the simulation tool file and the model file are more tightly linked than otherwise, as the model file will be referring to VBA user-defined functions in a different file. Alternately, the simulation tool file can be copied and the model built in a worksheet of the copied file.

TEACHING SCENARIOS

The initial motivation was to develop a tool to make implementing simple Monte-Carlo simulations easily, without add-ins. Once the tool was developed, it became apparent that it could also be used to assist in VBA instruction. The tool can be used in different ways, from using simulation to illustrate concepts in an Operations Management, Marketing, or Finance class, to usage in a Business Analytics class that covers simulation methodology in more depth, with or without VBA. It can the only demonstration of how to do Monte-Carlo simulation, or combined with coverage of native Excel (e.g., Data Tables) and/or a full-scale commercial tool (e.g., Analytic Solver Platform, Crystal Ball, @Risk). The author's primary use is in a course that covers simulation and a brief introduction to some capabilities of VBA, along with numerous other topics (e.g., optimization, data mining). By also covering some foundations of programming, students can enhance capabilities of their models through VBA. The tool here shows how just a little bit of VBA code can add functionality to a model. A course having a primary objective to teach programming usually uses a more structured approach. Nevertheless, introducing VBA and some programming concepts can be done through examples like this, in a course where teaching programming is not the primary objective.

It can also be used to help teach about random variables and probability distributions, and descriptive statistics. With the ability to quickly generate values from any distribution one can code into a workbook cell (using the user-defined function the workbook itself, this list is larger), students can learn more intuitively and visually about various probability distributions.

From a simulation perspective, students can interactively see the results being generated one trial, or a batch of trials, at a time. This tends to improve understanding as students derive insights from many trials. The incremental use of the tool seems to be beneficial. One can set the number of trials (cell A10) to something like 100, and repeatedly use the "Run Trials" button. In this way, the effect of sample size on parameter estimates can be reinforced.

Students can take this tool with them after the course is over, without any licensing restrictions. This is typically not the case for commercial tools. Working professionals sometimes want to continue using simulation after the course is over, and they may not be able to convince their firms to purchase a commercial license. With this tool, they can at least demonstrate what simulation can do for their firm, to bolster their case for a more powerful tool.

VBA Instruction Possibilities

The rest of this section addresses how some aspects of VBA can be illustrated. VBA is a programming language, with additional capability through the Microsoft Office object library. In a course where *exposure* to programming is the objective (as opposed to a full-scale course in programming), an example-first approach followed by illustration of some programming concepts, can be time-efficient while also providing students with a sense of some of the capabilities of programming. Interested students can then be directed to more structured treatments of programming. As a language, VBA has mechanisms for defining subs/functions, variables, data types, input/output, loops, and

conditional logic. Programmers typically write code in the Visual Basic Editor. VBA also has access to much of the functionality of native Excel through the object library. One does not need to learn everything about any aspect initially, but rather some basics, and then incrementally as needed.

Recording a macro is often a user's first exposure to VBA. In the tool, displaying the instructions (cell A1 comment) is one feature. A macro can be recorded to show the comment, and another to hide it. By studying the VBA code, students can begin to learn the structure of VBA code (subs, statements, how VBA references Excel objects, etc.). This is also an opportunity to point out that the recorded code often needs to be cleaned up.

For example, a number of programming concepts and language features are illustrated by studying the code for running simulation trials, using the ManyTrials sub. This routine also references Excel's object model, especially the Range object, to direct calculation and to put the trial value into the output section of the spreadsheet. Figure 5 shows the commented code for the ManyTrials sub.

Figure 5. ManyTrials VBA Code (comments shaded)

```
01 Sub ManyTrials()
02     'This sub runs one or more trials of the simulation, increments the trials counter,
03     'and stores the trial values.
04     'Comments precede each line of code.
05     'Counter variables
06     Dim i, n As Long
07     'Number of trials completed already.
08     Dim vartrials As Long
09     'Unprotect sheet to allow changes
10     Sheets("Sim Inc").Unprotect
11     'Set screen updating to user preference, stored in screenupdatevalue.
12     Application.ScreenUpdating = screenupdatevalue
13     'Current number of trials (already run)
14     vartrials = Range("Trials").Value
15     'Number of new trials to run
16     n = Range("num_trials").Value
17     'Loop over number of new trials
18     For i = 1 To n
19         'Calculate the Output cell (implies calculation of predecessor and successor cells)
20         Range("Output").Calculate
21         'Increment trials counter
22         Range("HistoryHeader").Cells(vartrials + i + 1, 1).Value = vartrials + i
23         'Store new trial value
24         Range("HistoryHeader").Cells(vartrials + i + 1, 2).Value = Range("Output").Value
25     'Loop for next new trial; when n new trials have been done, exit loop.
26     Next i
27     'Re-protect the sheet to avoid inadvertent changes.
28     Sheets("Sim Inc").Protect
29 End Sub
```

In the ManyTrials routine, the following programming and VBA concepts are used:

- Line 1/29. Declaration and ending of a subroutine.
- Lines 2-5, and others (shaded). Comments.
- Lines 6, 8. Variable declarations.
- Lines 10, 12. Using Excel's object model to control Excel. Specifically, unprotect the sheet and set screen updating to the user preference.
- Lines 14, 16. Assigning values to variables, using values stored on the worksheet.
- Lines 17-26. Illustration of a loop control structure.
- Line 18. Top of the loop.
- Line 20. Forcing cell B3 (named "Output") to calculate.
- Lines 22, 24. Adding the new trial to the list of trials.
- Line 26. End of the loop.
- Line 28. Cleaning up; re-protect the sheet, as it was when entering the subroutine.

In the other subs, some other concepts are illustrated. For example, the Workbook_Open sub runs automatically whenever the workbook is opened. Showing this can be a way to introduce the concept of event-based procedures. If the course spends more time on programming, this can be a convenient first example for an event-based procedure.

In a course utilizing spreadsheet modeling for business problems, and not an emphasis on programming per se, it does not take long to illustrate the VBA code and show students how to view it. One can also use this simulation tool as the basis for either lab-based exercises or homework to develop improvements and/or new functionality to the code.

COMPARISON TO OTHER TOOLS

The tool discussed here provides a way for students to learn about Monte-Carlo simulation, experiment and play with it, and generate useful results. It can also be used as a launching point for learning about VBA and programming in general. It is not a complete Monte-Carlo simulation solution. Commercial products are very powerful; e.g., Analytic Solver Platform, @Risk, and Crystal Ball. These products provide more functionality with respect to tracking multiple output cells, built-in probability distributions, fitting data to distributions, correlated random variables, and stochastic optimization. The intent of this tool is not to replace any of these, but to complement. By providing a tool that interactively shows users the results of the simulation as they are generated (raw results, summary statistics, frequency distributions, and cumulative percentiles), the user can develop a better understanding (and trust) of how simulation can be used in a decision-making situation. The tool also provides an easy to use simulation platform to enable demonstration of key concepts in other courses.

CONCLUSION

This paper presented an interactive Monte-Carlo simulation tool that allows users to see the results of their simulation as they are generated. It requires no installation; it is a standard macro-enabled Excel file (XLSM). Unlike commercial tools, it contains no license expiration. In addition, it provides an avenue in which students can begin to learn programming using VBA. While most business majors will not become programmers, students in business disciplines can benefit from at least an introduction to logic of programming in some language, even if they never take a course dedicated to programming. This tool provides a flexible way to provide that introduction at a level of the instructor's choosing.

LINKS TO SIMULATION TOOL AND EXAMPLE

These two links give access to download the XLSM tool file, and the investment model example used in the paper: Simulation Tool, https://goo.gl/q6fMaq; Investment Example, https://goo.gl/BXWr8o.

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Roger B. Grinde, Ph.D. is an associate professor of management science in the Peter T. Paul College of Business and Economics at the University of New Hampshire. His Ph.D. in Industrial Engineering and Operations Research is from The Pennsylvania State University. Earlier degrees are from Carroll College (MT) and Oregon State University. His research interests are in applied optimization, business analytics, end-user modeling & analysis, and pedagogy.

The Government Calls: A Municipal Zoning Simulation

Daniels College of Business, The University of Denver, Denver, CO

ABSTRACT

There are two areas in the study of undergraduate business education which have not been high priority teaching subjects: the first is negotiation by a business to successfully operate within the regulatory environment and second, resolving internal, inter-company and external conflicts, using the Alternative Dispute Resolution (ADR) processes. These are the focus of a course at Daniels College of Business. This simulation requires strategic negotiation in a heavily contested municipal (therefore regulatory) re-zoning hearing.

Key Words: Simulation, Negotiation, Alternative Dispute Resolution, ADR, strategy, zoning, zoning designations, municipal hearings, conflict, disputes.

INTRODUCTION FOR READERS OF THE PUBLISHED VERSION[2]

Ten or so years ago I started teaching an elective undergraduate/graduate business course on conflict resolution, partly focusing on the methods of ADR as promulgated by the American Arbitration Association and other primary ADR entities. The course is a management department course, therefore it was important to consider sources and resolution of conflicts *within* a business (as employee or interdepartmental conflicts), disputes *between* a business and other entities (as suppliers or customers), and business conflicts with governmental entities (or the reverse as negotiating compliance with a regulatory enforcement action). The course thus contains a fair amount of new information for undergraduate students and requires significant reading. But it was also designed to be very student interactive, so several simulations for negotiation, mediation and arbitration were added as key classroom activities. The simulations require students to prepare, role play, form effective teams and to reach defendable solutions.

What is presented here is one of the cases on structured negotiation, which adds an important component for students (as future business executives) to learn the issues of a municipal (or other governmental) hearing. In this case, the municipal body is a planning and zoning commission[3]. As is noted in some detail in the student introduction, a planning and zoning commission (or ultimately a city council) rules on a re-zoning request, subsequently to one or more hearings. However, there is often significant pre-negotiation by applicants with the planning staff, which may result in staff negotiation with the commission or council. And during the caucus part of a hearing, planning commission members may suggest a negotiated compromise. In addition, if there are multiple parties, negotiation and compromise among them may occur before or during (or even after) the commission hearing. Finally, at a real-world municipal hearing there are often emotional overtones—including smooth high pressure selling using beautiful slides by the applicant, and the opposite: fear, negativity, frustration, anger, or nervousness by the citizen side(s), all of which will tend to reduce the effectiveness of presentations to commissions. Much to my delight, after doing this simulation for several years, I have found when students are prepared, they actually *exhibit* some of these emotions at the simulated hearing, which offers great realism. That is often the first thing which they will discuss during the de-brief.

[2]See Appendix for a review of the literature on negotiation, conflict, the processes, nature and regulation of ADR, our ADR course and municipal zoning.

[3] Note: there are varying terms municipalities use for this type of commission—as calling it simply the planning commission or the zoning board or design review board.

LEARNING OBJECTIVES AND USE OF THE CASE IN CLASS

Part of the objective for this simulation is for students to learn the dynamics of operating within a structured regulatory environment as it applies to multi-party business and societal conflicts. In a sense it becomes stage two of their understanding of the ADR processes to resolve common internal and external business disputes. But we have found a second value for this simulation: at the end of this course students complete a simulated arbitration hearing. By incorporating a *structured* hearing process in this zoning case, it gives students a taste of the trial character of an arbitration hearing. As a result, we find students are psychologically better prepared for the arbitration hearing.

I have occasionally videoed both the zoning simulation and the arbitration hearing which has been very educational for the students, as they actually see and hear themselves role-playing ("I can't believe I said that…"). The downside is one year I showed the video of an earlier class to a class that had not yet played the simulation roles, and they had no idea what was going on.

THE SIMULATED ZONING CASE—THE INTRODUCTION FOR STUDENTS

This simulation is based on a municipal zoning hearing, where municipal procedure, negotiation and compromise will be important to reach a resolution and thus a favorable ruling by the planning and zoning commission. The usual "characters" are present: the planning and zoning commission members, the developer, Barrett Developers, Inc. (with a potentially hostile bank representative on its negotiating team); a negotiating team of proximate homeowners, not all of whom are in agreement; a not-for-profit called the Naturalists which has a secret conflicting interest in the property.

ZONING AS A MUNICIPAL ACTIVITY FOR PRIVATE PROPERTY GOVERNANCE

What is zoning?

Zoning is essentially a statutory restriction on property rights and in Colorado it derives from the state's constitution of 1876 and a group of enabling statutes allowing municipalities to create and enforce zoning ordinances. Zoning is underscored by the U. S. constitution and follows the concept that property ownership and its related rights are sacred in the United States, but property ownership and use must not unduly diminish or limit the rights of others. (See *The Economist* 2013 and 2015). A municipality also has the authority, under the constitution, to acquire private property for the "common good" (with "just compensation" to the land-owner), or, again with "just compensation", to modify or limit the use of private property for the "common good". These follow the Constitutional concepts of *eminent domain* and *takings.* [See Nollan (1987) and Dolan (1994).]

Municipalities zone property to create compatible uses that also respect the rights of proximate property owners. Zoning also creates the ability of municipalities to plan coordinated development of property for the "common good". So, the (intended) result is harmonious subdivision of homes and commercial uses. In most instances the planning and zoning processes have worked well to achieve this; in some, however, there have been severe controversies, political fights, legislative recalls, citizen outrage and massive civil and even criminal lawsuits.

Obviously defining the "common good" or establishing the criteria for "just compensation" are difficult and each may excoriate controversies on re-zoning or property acquisition by municipalities. Another problem: does the common good include allowing a municipality to re-zone or acquire property simply if re-development provides the municipality greater property or sales taxes? Or for that matter can a municipality decide there is a different "highest and best use" for a particular property and arbitrarily change the zoning to permit a more intense commercial--or alternatively a less intense use? So, ethics, social responsibility and compliance with fundamental legal principles are all *open-season* for the re-zoning process.

There have been many zoning conflicts in virtually every major municipality throughout the United States. In Colorado [where the author lives], there have been many in Denver and other Front Range Colorado cities, as well as Vail, Breckenridge and Aspen, the posh Colorado ski resorts. In Denver, they have included the former location of the University of Colorado Hospital. Another was the re-zoning of the agricultural ground under Denver

International Airport which was hard-fought by proximate counties. Greenwood Village, a quasi-commercial suburb to the southeast of Denver, has had some major zoning fights. Ditto for suburbs Lakewood and Aurora. In Vail the re-development of Crossroads Shopping Center had citizens threatening major litigation against the city and the corporate developer, which according to many observers followed the classic NIMBY[5] citizen anger. And to move or revise a sign in Aspen can require a municipal hearing. As a result, municipal decision bodies seldom hand down rulings that are acceptable to everyone, which adds to the value for effective negotiation among the disputing parties.

What is a planning and zoning board or commission?

Planning and zoning commissions, sometimes called planning and environmental commissions or design review boards are ubiquitous in municipalities and they often exist in counties. Generally, the members are appointed by the town council or county commissioners and serve for little or no compensation. Their job is essentially to control and monitor land use and ensure an equitable, practical relationship among uses of land—from commercial to industrial to residential. Among the items they will consider for a zoning change are pollution, noise, light pollution, traffic, safety, need, rarely economics unless the re-zoning is in a blighted area, aesthetics, social value, etc. And commissions are inherently charged with considering the fundamental legal concept that current owner use of private property is sacred as long as it is reasonable, complies with the law and doesn't conflict with proximate owners and uses. So, a zoning change request for greater residential or commercial density may often start with two strikes against it.

Planning and zoning commissions are of varying sizes, essentially operate in a legislative fashion and always have a chair that runs the meetings but generally has no greater voting power than other members. However, the chair usually does have the authority to put time limits on presentations, challenge expert witnesses, challenge repetitiveness and guide the discussion at a hearing.

What is the hearing process?

To resolve the issues described in the hypothetical rezoning example, a municipality will hold a commission hearing. Depending on the size of the municipality the hearing may be formal or informal, but generally the objective is for groups with different interests to present their respective cases, negotiate and persuade the commission that their side should prevail. A hearing is formatted so the requesting party is first, starting with an opening statement (sometimes preceded by comments by planning staff), often with architectural slides or PowerPoints showing the "beauty" of the rezoning result, then calling expert or other witnesses to verify it, and often finishing with a closing statement confirming the reasons why the re-zoning should be granted. After completion of the requesting party presentation, the commission chair will open the floor to remarks or presentations by conflicting parties, or parties with alternative interests, or perhaps concurring parties. The commission will then caucus, which may include questions of the parties (or planning staff) by commission members. The commission will then render a decision which the chair will (usually) communicate to the parties via the planning staff but will always communicate to the elected council or county commissioners. Why? Because municipal charters mostly require that the planning and zoning commission is advisor to the elected council or elected county commissioners.

In any case, the format of a commission hearing has some similarity to a trial or arbitration hearing (with limited cross examination) with the commission members resembling a panel of judges.

The Simulated Zoning Case

The facts[6] in this simulation are entirely fictitious but roughly consider some of the zoning controversies noted above, which all required significant negotiation. Our hypothetical rezoning is the request for a property to go from an R-2 zone (relatively low density residential use) to C-4 (high density commercial use). The purpose for the request is a developer wants the higher density designation to build a mixed apartment/commercial building which is

[5] "Not In My Back Yard"

[6] Note: the facts are common to all students, partly because of the constraints of class time and partly because it enhances negotiation among the disputing parties. Obviously at a real zoning hearing this commonality would not exist.

(theoretically) a more efficient use of a piece of ground. The controversy starts when the local residents object to the greater density because they fear it will add traffic and pollution, cause unwanted shadows, change the character of the neighborhood, perhaps reduce the size of a proximate park, or they may question the economic or social value of higher density land use. And there may be competing known or unknown interests of other parties—which in this simulation is the "Naturalists".

The subject property is well located within a municipality and contains a school building which is no longer used as a school and the planning commission has learned from staff that the school board considers the property superfluous and therefore for sale. However, the property has value to the neighborhood because of activities such as Scout meetings, arts and crafts activities, rehearsals and performances of a community orchestra and performances by a local thespian group. Those activities occupy about half of the school building; it has also been a good place for meetings of neighborhood home-owners associations, a veteran's assistance organization and various non-profits.

The total size of the ground under the school is 16 acres which is about 835 linear feet squared. Building is roughly 110,000 square feet with two floors plus a basement.

Barrett Developers, Inc. ("Barrett") the applicant, has made a high-dollar cash offer to purchase the property, with a re-zoning contingency. The school board accepted it, but with the provision that Barrett must get the re-zoning within 75 days and then immediately close the transaction. If it becomes evident Barrett cannot achieve the re-zoning within the 75 days, it can cancel the contract no later than day 74 and get its $3 million deposit back. If the contract is not cancelled by Barrett, the $3 million deposit becomes non-refundable at 12:01 a. m. on day 75. However, Barrett will be given an extension of 30 days to achieve re-zoning and close the transaction. So for Barrett there is risk.

What exacerbates the risk is the deposit of $3 million is borrowed. And that is giving Barrett's bankers heart-burn—the banks believe if the deposit becomes non-refundable it may force Barrett into bankruptcy. So, Barrett's bankers are **aggressively** adding to the push for re-zoning and therefore **have one representative on the Barrett negotiating team**, partly as an advisor but also as a bank protection quasi-financial decision-maker.

Barrett has another financial concern: 60 days have now elapsed, and the zoning hearing is not scheduled for another 5 days, giving Barrett just 10 days thereafter to close if the re-zoning is achieved. Or Barrett must make the decision to allow the $3 million deposit to become "hard" and hope that the re-zoning will be successful within the 30-day extension.

Barrett's plans are to knock down what it considers the "blighted" school building and build a retail/office (so-called "mixed use") complex which is several times the size of the existing building. Barrett obviously has no interest in the property if it can't get the re-zoning to build the mixed-use complex.

For the project to go forward, Barrett therefore needs a major zoning change, from R-2 to C-4. The proposed change to high density commercial zoning is a relatively radical change, which is generally a difficult decision for planning departments and commissions. In this instance, planning staff and commission members have been told by several municipal council members that if they make a radical zoning change, they will be looking for jobs. Obviously, the neighborhood homeowners have **negotiated** well with the elected council.

The C-Suite negotiating team from Barrett is very nervous, partly because of the risk and partly because of a potentially hostile representative from the banks as an unwanted member of their negotiating team. Yet Barrett also expects to profit a minimum of $21.5 million, plus receive generous developer fees when the new building is completed and occupied, so it plans to pull out all the "stops" at the re-zoning hearing.

The local homeowners strongly object to the development proposal. They object to more traffic, bright lights over the parking lot at night, the pollution and the vehicular danger to children which the additional traffic will bring. And they note that the whole area has always been zoned for low density residential use with quiet neighborhoods hosting mature landscaping. They also enjoy the convenient low-key neighborhood activities in the school building.

An environmental group, Naturalists, has presented a "friend of the court" affidavit underscoring the neighborhood value of the historic building, the quiet residential zoning, and concurring with the homeowners on the issues of excessive light, traffic, pollution, danger to small children and old people, etc.

Naturalists would, however, also like to buy the property, with the building continuing to be a meeting place for various groups including a community orchestra, the current neighborhood activities, plus a small private school teaching environmental subjects and a low-key office for the Naturalists. Then they plan to turn part of the surrounding vacant land into a nature park with a community garden,

Naturalists is a not-for-profit (501C-3) and it made a **secret** offer for the property that was less than Barrett's. The school board rejected the offer, but they said that if Barrett couldn't get its zoning, to come back and they'd negotiate. So Naturalists are clearly against the re-zoning proposal, but have a conflict of interest which no one on the planning commission or Barrett or the homeowners is aware of. Naturalists advantage as a prospective purchaser, is they don't need to change the zoning, and their use better fits the philosophy of land use for a surplus school. So if the zoning change is rejected, the school board has (at least tacitly) agreed to sell the property to Naturalists, though for less money.

The residences in the area are single family houses on small lots, with a few duplexes and a few small two-story low-rise apartment buildings; none are in particularly good repair. The preponderance of the population has changed to older citizens from families with young children, though some young children are still seen playing in the neighborhoods. The land surrounding the school building has by default become a large park-like tract, in which children are often seen playing softball.

One of the advantages of Barrett's proposed development will be proximity of commercial services to nearby residents--now the nearest pharmacy is more than two miles away which is a problem for the older neighborhood residents. Thus, there is social and economic value to a change in land use which will aid Barrett's re-zoning proposal.

The municipality also stands to benefit with significantly higher property taxes from the re-developed property[7] as well increased sales taxes both of which it badly needs. So, the commission members (and planning staff) think the job-ending belligerency by certain members of the council is a bluff.

The municipality will, however, not benefit from ownership of the property by Naturalists. It can't charge property taxes to a not-for-profit property owner either, and though they can charge sales tax on orchestra tickets and products that the small businesses who will occupy the building sell, the amounts are projected to be only 12% of what Barrett's commercial purchasers will generate.

Finally, it should be noted that though the homeowners will probably like the plan from Naturalists[8], several owners who are proximate to the site are aggressively against any change in use of the school building, so there is some controversy and even hostility within the homeowners group.

Student Teams:

(1) A C-Suite negotiating team representing **Barrett Developers, Inc.** That team has advised the planning and zoning commission staff that its offer to purchase the property is contingent on re-zoning to C-4. The team includes one **bank representative** who (depending on how chances of the re-zoning go) may (or may not) be hostile to the other Barrett members.

(2) A negotiation team representing the **homeowners** who live in the area, one of whom doesn't want any change at all. The no-change member may (or may not) be hostile to the rest of the homeowners' team, depending on how zoning negotiations go.

[7] Because the property is currently owned by the school district (a quasi-governmental entity), it pays no real estate taxes to the municipality.

[8] (if they learn of it from negotiations with the Naturalists or at the hearing)

(3) The **municipal planning and zoning commission**, who are the entity holding the hearing and will make the decision. Their **chair** (who you must **elect**) will manage the hearing.

(4) A team representing an **outside not-for-profit environmental group** (a Nature Conservancy-like entity called **"Naturalists"**). They have (as noted above) a **secret pecuniary interest** in having the commission reject Barrett's rezoning proposal. They may decide to use it as a bargaining tool during negotiations. But that has risk as Barrett may challenge it as a conflict of interest.

The Hearing and Related Negotiations

As noted above, the class is divided into 4 teams with at least 3 members each. In a larger class, multiple sets of teams are formed. Prior to the start of the hearing, teams are expected to read the simulated facts, with enough thoroughness that they can negotiate without having to do more than a quick glance at the case during the hearing.

- Prior to the start of the hearing teams meet and organize their strategies and objectives. The municipal zoning commission meets and elects a chair who then starts the hearing. *Suggested time: 7-8 minutes*
- The chair welcomes everyone at the start of the hearing and explains the objective of the hearing, and the rules and protocols which will be followed. *Suggested time: 6-7 minutes.*
- The first presentation is by the Barrett team describing their plan, why it is reasonable, valuable, beautiful, economically beneficial to the municipality, etc. The presentation should be divided among the team members. *Suggested time: 12-15 minutes.*
- Second presentation is by Naturalists (critiquing developer's proposal and maybe [or maybe **not**] offering their still secret alternative). Their presentation should also be divided among members of the group. *Suggested time: 10 minutes.*
- The Chair then opens the hearing for discussion and calls on the homeowners' team. That presentation should be a reasoned evaluation with objections/suggestions/threats/alternatives, which should also be divided among the members. *Time: 10 minutes.*
- Members of the zoning commission listen, and at the end of each presentation may ask **information specific** questions via "a question Mr. Chairman" for any of the entities presenting. Why this restriction? Because members should avoid showing bias while presentations are occurring. *Added time after each presentation: 4 minutes*
- Responding "redirect" remarks may be offered by Barrett, the Naturalists, or the residents, but must always be done via recognition by the commission Chair. Responding remarks may initiate a negotiated agreement, or they may evidence a more rigidly focused differentiation in the positions of the parties. *Time: 5 minutes per entity.*
- If there is evidence of a negotiated agreement, the Chair is allowed to briefly adjourn the hearing to let the parties negotiate among themselves. That may result in an agreement that is acceptable to the parties. It is suggested, however, that an adjournment be for not more than 5-7 minutes, as without this restriction, we have found student negotiations will meander.
- At the end of an hour and 15 minutes of class time, municipal zoning commission Chair will close the hearing, and the commission caucuses, deliberates, negotiates and then rules on the zoning controversy. Caucus negotiations are managed by the Chair of the commission. Negotiations, in this instance, are focused on reaching a majority agreement of the municipal zoning commission. We generally allow 10-12 minutes for the caucus.
- It is important to note that the ruling of any planning and zoning commission is strictly **its** decision and it is binding on the parties, regardless of evidence of an alternative negotiated agreement. Why? Because a planning and zoning commission represents the entire municipality, its regulatory ordinances and its elected officials, and it is therefore obligated to thoughtfully apply the *current* municipal zoning code.
- **In this simulation**, since no zoning code is used, the commission's ruling must be **defendable legally, ethically, be reasonable, be in good social conscience and follow reasonable land use practices,** using the assigned reading noted in APPENDIX (B)**.**

- The final act of the planning and zoning commission, is the Chair must write a brief summary of the commission ruling and read it to the participating teams. If there is a dissent by a commissioner, it is discussed during the de-briefing.[9]
- The last 15 or so minutes of the simulation is used for a debriefing, in which everyone is expected to participate.[10] The format for the debriefing varies depending on how many students are participating. For large classes with several teams, I generally have Master's candidates help with the grading and I will ask them first for their remarks. Then I simply go around the room and ask members of each of the teams, starting with the commission chair, if they think the resolution was reasonable, ethical and implementable, and to express other observations and thoughts they may have. The debriefing is thus fairly casual, which often results in lengthy (and lively) discussions among the students which are usually fascinating—especially when there is a dissent from a planning and zoning commission member.

APPENDIX

A. Example of Simultaneous Negotiating Teams for a Class of 20 Students

Team 1: Planning and Zoning Commission
1.
2.
3.

Barrett Developers, Inc.
1.
2.
3. (bank representative)

Homeowners Negotiators
1.
2.
3. (disagrees/any change)

Naturalists NFP
1.
2.
3.

Team 2: Planning and Zoning Commission
1.
2.
3.

Barrett Developers, Inc.
1.
2.
3. (bank representative)

Homeowners Negotiators
1.
2.
3. (disagrees/any change)

Naturalists NFP
1.
2.
3.

B. RESOURCES (In chronological order of publication)

[Note: this part of the Appendix is suggested reading on ADR, its teaching and procedures, and the effective negotiation of business disputes. The earlier *Introduction for Readers of the Published Version* and the *Introduction for Students* are primers on municipal zoning hearings, and derive from my many years on both sides of the municipal table, first as a member of the planning and zoning commissions of two municipalities, then city council (and mayor *pro tem*) of one of them, and (in addition to three decades of teaching in higher education) a commercial arbitration practice spanning more than twenty years.]

[9] A planning and zoning commission ruling for an actual municipality is transmitted via staff to the elected council, which is the official ruling body. Though it is rare, a dissent by a planning and zoning commission member is sometimes filed along with the majority ruling.

[10] *Note for the published readers*: this roughly equals a 2 hour class, but in actuality debriefing often runs far into the following class.

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Manuscript Guidelines, Submission and Review Process

TOPIC AREAS (BUT NOT LIMITED TO THESE):

- Course design – current courses, new courses, new trends in course topics
- Course management – successful policies for attendance, homework, academic honesty …
- Class material
  - o Description and use of new cases or material
  - o Lecture notes, particularly new and emerging topics not covered effectively in textbooks
  - o Innovative class activities and action-learning – games, active learning, problem based
- Major or emphasis area program design that is new or innovative.
- Assessment – all aspects including AACSB and university level assessment strategies and programs
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    - Accept with minor revisions.
    - Not accepted.
- Reviews will be returned promptly. Our commitment is to have a decision to you in less than two months.
- If your paper is not accepted, the evaluation may contain comments from reviewers. You are invited to rewrite and submit again.

If your paper is accepted

- Minor revision suggestions will be transmitted back to you.
- Revise and send back as quickly as possible to meet printer deadlines.
- Upon final acceptance, we will bill you publication fees. See www.beijournal.com for latest per page fees. Sole author fees are discounted.
- The fees include all costs of mailing a copy of the issue to each author via standard postal ground.
- Delivery to locations outside the continental US will cost an additional $10 per author for 5 day delivery.
- Faster delivery methods are available for US and international delivery. Contact the editor for a specific pricing.
- All publication fees should be remitted within 10 business days of acceptance, if possible.
- If you decide not to publish your paper with BEI Journal after submitting payment, we will refund publication fees less $200 to cover costs of review and processing.
- Cancellation cannot occur after the paper has been formatted into the final printer's file.

Manuscript Style Guide and Example

An example is provided following these instructions.
This style guide represents style guidelines in effect for future issues, but always check for updates online.
Authors are responsible for checking for correct grammar, construction and spelling. Authors are also responsible for formatting pictures, tables, and figures such that a pdf black and white file sent to the publisher will reproduce in a readable manner.

General Setup:

- All fonts other than exceptions noted below: Times New Roman. 10 point for text. Other sizes as noted below
- Margins: 1 inch on all sides of 8½x11 inch paper size.
- No headers or footers.
- Absolutely no footnotes or endnotes via footnote or endnote formatting. For footnotes or endnotes, place a number of the footnote in the proper location as a superscript. Then at the end of the paper or bottom of the page, add the footnote as text with a superscript number to correspond to that footnote.
- Page numbering bottom centered.
- No section breaks in the paper.
- No color, including url's. Format to black. No color in tables or figures. Use shading if necessary.
- All pages must be portrait orientation. Tables and figures in landscape orientations should be reformatted into portrait orientation.
- All paragraphs should be justified left and right, single spaced, in 10 point Times font, no indent on first line, l line between each heading and paragraph.
- One line between each paragraph.

Titles, Authors, and Headings:

- **Title centered 14 point bold**. One line between title and author's name.
- Authors: centered, 12 point. Name, affiliation, state, country.
- One line space to **ABSTRACT** (title 10 point, bold, all capitalized, aligned left; text of abstract 10 point, no bold)
- After **ABSTRACT**, one line space, then **Keywords**. Followed by one line space to first major heading.
- **HEADINGS, MAJOR**, 10 point, bold, all capitalized, aligned left.
  The specific headlines will be based on the content of the paper, but major sections should at a minimum include an abstract, keywords, introduction, conclusion, and references.
- **Sub-headings**: 10 point, bold, first letter capitalized, no line to following paragraph. Align left.
- *Third level headings: Italic*, 10 point, first letter capitalized, no line to following paragraph. Align left.
- **Keywords:** heading: 10 point, bold, first letter capitalized, no line to following paragraph. Align left. Your list of keywords in 10 point, no bold.

Tables, Figures and Graphs:

- All fonts 10 point.
- Numbered consecutively within each category. Table 1, Figure 1 etc.
- Title: 10 point, bold, left justify title, one space, then the table, figure, etc.
- Example: **Table 1: Statistical Analysis**

References:

- APA format when citing in the text. For example (Smith, 2009).
- References section: 8 point font, first line left margin, continuation lines 0.25 inch indent. Justify left and right. No line spacing between references. List alphabetically by first author.
- Specific references: Last name, First initial, middle initial (and additional authors same style) (year of publication in parentheses). Title of article. *Journal or source in italics.* Volume and issue, page number range.
- Example: Clon, E. and Johanson, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics*. V. 14, No. 2, pp 211-233.
- For books: last name, first initial, middle initial (and additional authors same style) (year of publication in parentheses). *Title of book in italics.* Publisher information.
- Example: Houghton, P.M, and Houghton, T.J. (2009). *APA: The Easy Way!* Flint, MI: Baker College.

Example (note that this example represents a change from previous style guides)

Evidence to Support Sloppy Writing Leads to Sloppy Thinking

Peter J. Billington, Colorado State University - Pueblo, Colorado, USA (12 point)
Terri Dactil, High Plains University, Alberta, Canada

ABSTRACT (10 point, bold, all capitalized, left justified)

(text: 10 point Times font, no indent, justified, single space, 150 words maximum for the abstract)
The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, although many people do believe this phrase, no one has yet been able to prove that, in fact, sloppy writing leads to sloppy thinking. In this paper, we study the causal relationship between sloppy writing and sloppy thinking.

Keywords: sloppy writing**,** sloppy thinking **(10 point, bold title, first letter capitalized, left justified).**

INTRODUCTION (10 point, bold, all capitalized, left justified).

The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, since many people do believe this phrase, no one has yet been able to prove that in fact, sloppy writing leads to sloppy thinking. Is it possible that sloppy writing is done, even with good thinking. Or perhaps excellent writing is developed, even with sloppy thinking.

In this paper, we study the writing of 200 students that attempts to test the theory that sloppy writing leads to sloppy thinking.

PREVIOUS RESEARCH

The original phrase came into wide use around 2005 (Clon, 2006), who observed sloppy writing in economics classes. Sloppy writing was observed in other economics classes (Druden and Ellias, 2003).

RESEARCH DESIGN

Two hundred students in two business statistics sections during one semester were given assignments to write reports on statistical sampling results. The papers were graded on a "sloppiness" factor using…

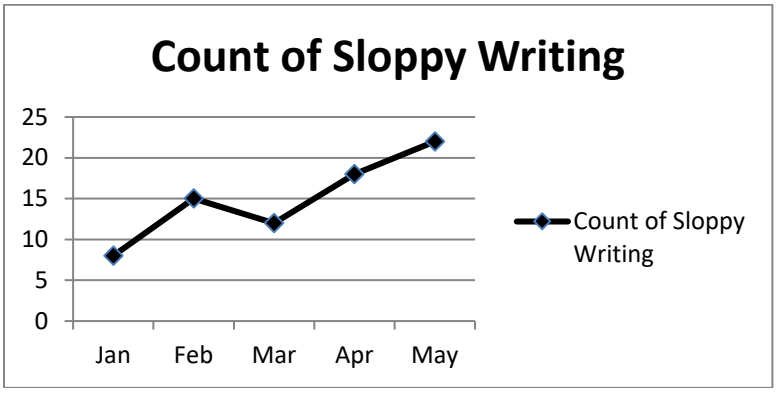
Data Collection (Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

Data Analysis(Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

DISCUSSION

The resulting statistical analysis shows a significant correlation between sloppy writing and sloppy thinking. As noted below in Figure 1, the amount of sloppy writing increases over the course of the spring semester.

Figure 1: Sloppy Writing During the Semester



The count results were compiled and shown in Table 1 below.

Table 1: Counts of Good and Sloppy Writing and Thinking (bold, 1 line after to table, left justify)

	Good Thinking	**Sloppy Thinking**
Good Writing	5	22
Sloppy Writing	21	36

*-Indicates significance at the 5% level)

As Table 1 shows conclusively, there is not much good writing nor good thinking going on.

CONCLUSIONS

The statistical analysis shows that there is a strong relation between sloppy writing and sloppy thinking, however, it is not clear which causes the other…

Future research will try to determine causality.

REFERENCES (title10 point, all caps, bold, align left, one line to first reference)
(1line spacing) (All references 8 point, indent second line 0.25 inch, justify left and right)

Clon, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics*. V. 14, No. 2, pp 211-233.
Devad, S. and Flotz, J. Evaluation of Factors Influencing Student Class Writing and Performance. *American Journal of Farming Economics*. V. 78, Issue 3, pp 499-502.
Druden, G. and Ellias, L. (1995). *Principles of Economics.* New York: Irwin.

(short bio section optional, can run longer than these examples; removed before sent to reviewers)

Peter J. Billington, Ph.D., is a professor of operations management at Colorado State University – Pueblo. His research interests include lean six sigma and innovative education.

Terri Dactil, Ph.D., is a professor of business communication in the College of Business at High Plains University, Alberta, Canada. His research interests include instructional methods to improve student communication skills.

Endnote: (do not use word footnote or endnote formatting to accomplish this; see comments above)

