ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

2012 REFEREED PROCEEDINGS

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March 2012
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ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

2012 Refereed Proceedings

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Beverly Oswalt, Proceedings Editor
University of Central Arkansas
Conway, AR
(501) 450-5331
boswalt@uca.edu

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Online Course Design – An Analysis of Student Feedback Related to Quality Matters™ Standards

Betty A. Kleen, Nicholls State University
Lori Soule, Nicholls State University

❖❖❖

Recipient of the 2012 Federation of Business Disciplines Outstanding Educator Award

Marcel M. Robles, Eastern Kentucky University

March 1, 2012
(Thursday)

8:30 a.m. – 10:00 a.m. Salon 816

SESSION A **Business Meeting and Distinguished Paper Presentation**

Session Chair: **Roslyn Lisenby-Turner**, Southern Arkansas University Tech, ABIS President

Yearly Business Meeting: Old and New Business of ABIS

2012 McGraw-Hill/Irwin Distinguished Paper Presentation

Online Course Design – An Analysis of Student Feedback Related to Quality Matters™ Standards
Betty A. Kleen, Nicholls State University
Lori Soule, Nicholls State University

10:00 a.m. - 10:30 a.m. Napoleon Exposition Hall

FBD Coffee Break

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Great Door Prize Drawings take place at **10:15 a.m.** in the Exhibit Area. *Must be present to win.*

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 1, 2012
(Thursday)

10:30 a.m. – 12:00 p.m. Salon 816

SESSION A **Addressing IT Issues in the Classroom**

Session Chair: **Ann Wilson,** Stephen F. Austin State University

Appropriate Use of Portable Technology in Academic, Professional and Social Settings: A Preliminary Study
Karen Hardin, Cameron University
Kimberly L. Merritt, Oklahoma Christian University

Business Practices and Procedures Regarding Smartphone Security
Michael York, BBA Student, Stephen F. Austin State University
Courtney Short, MBA Student, Stephen F. Austin State University
Ann Wilson, Stephen F. Austin State University

A Dozen Useful Websites for Educators
Marcel Robles, Eastern Kentucky University

1:30 p.m. – 3:00 p.m. Salon 816

SESSION A Investigating Security and Legal Issues in IT

Session Chair: Beverly Oswalt, University of Central Arkansas

Self-disclosure vs. Privacy in the Context of Online Social Networking – A Theoretical Review and Integrative Analysis
Zie Zhang, Midwestern State University
Xin Luo, The University of New Mexico

Legal Issues Surrounding Cloud Computing
Robert B. Mitchell, University of Arkansas at Little Rock

Are We Communicating or Instilling Trust Among our Stakeholders: An Examination of Post-Secondary Education Institutions Websites' Privacy Policy
Begona Perez-Mira, Northwestern State University
Margaret S. Kilcoyne, Northwestern State University
Brenda Hanson, Northwestern State University
Thomas Hanson, Northwestern State University
Charlie Penrod, Northwestern State University
Phil Habig, Northwestern State University
Sue Champion, Northwestern State University

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 1, 2012
(Thursday)

3:00 p.m. – 3:30 p.m. — Napoleon Exposition Hall

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3:30 p.m. - 5:00 p.m. — Salon 816

SESSION A **Updating Your Information Technology Program**

Session Chair: **Carla Barber**, University of Central Arkansas

A 2011 Course Syllabi Review of Introductory Computer Courses Required in Colleges of Business in the Southwestern Region of the U. S.
Betty A. Kleen, Nicholls State University
Sherry Rodrigue, Nicholls State University
Ronnie Fanguy, Nicholls State University

Comparative Results of Two Studies: New Technological and Social Media Needed by College of Business Majors and Courses Taught to Prepare Students for These Skills
Phyllis C. Bunn, Delta State University
Rebecca Hochradel, Delta State University

Help! My Students Failed a Problem-Solving Objective!
Daniel D. Friesen, University of North Texas at Dallas

Project Activities for Preparing Business Information Systems Educators
Randall McCoy, Morehead State University

5:30 p.m. – 7:00 p.m. — Napoleon Exposition Hall

FBD Meet and Greet Social

Everyone is invited to attend this FBD conference-wide social event. Visit with long-time friends and make new ones as you enjoy light appetizers and live music. A Cash Bar is available and a limited number of drink tickets will also be distributed. Stop by to relax and wind down from the day's conference activities before heading out to other association and cultural events, dinner, or the historic French Quarter.

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 2, 2012
(Friday)

7:30 a.m. - 8:30 a.m. — Oak Alley

ABIS and ABC-SWUS Joint Breakfast

All ABIS and ABC-SWUS members are invited to come and enjoy a great breakfast buffet!

8:30 a.m. - 10:00 a.m. **-- Meet with ABC-SWUS** — Oak Alley

SESSION A **Social and Electronic Media**

Session Chair: **Teresa T. Sekine**, Purdue University

Online, Face-to-Face, or Hybrid? Thoughts on Electronic Course Delivery
Paul Sawyer, Southeastern Louisiana University

Technology and the Millennial Learner: Implications for Instruction
Lisa Gueldenzoph Snyder, North Carolina A & T State University

What's New in E-Textbooks?
Carol Lehman, Mississippi State University
Debbie D. DuFrene, Stephen F. Austin State University

Social Media: Should Business Schools Engage or Not Engage?
Ashley K. Nelson, Tulane University

10:00 a.m. - 10:30 a.m. — Napoleon Exposition Hall

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ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 2, 2012
(Friday)

10:30 a.m. – 12:00 p.m. Salon 816

SESSION A **Building Pedagogical Solutions**

Session Chair: **Daniel Friesen**, University of North Texas at Dallas

Letting Go of My Legos: Engaging Students in Online Instruction
Matthew D. Lindsey, Stephen F. Austin State University
Betty S. Johnson, Stephen F. Austin State University

Your IS Classroom: Your Critical Questions that Lead to Students' Critical Thinking
Jim Larsgaard, Eastern Kentucky University

Strategies for Facilitating Successful Group Interaction in Online Courses
Kimberly L. Merritt, Oklahoma Christian University
Mike Estep, Cameron University
K. David Smith, Cameron University

Personal Technology: To Ban or Not to Ban? Is There a Balance?
Marsha Bayless, Stephen F. Austin State University
Timothy Clipson, Stephen F. Austin State University
Ann Wilson, Stephen F. Austin State University

1:30 p.m. – 3:00 p.m. Salon 816

SESSION A **Coordinating Trends in IT Use**

Session Chair: **Kimberly Merritt,** Oklahoma Christian University

HTML5: A Response to Markup Madness in the Wide World of Web Development
Carla J. Barber, University of Central Arkansas
Beverly Oswalt, University of Central Arkansas
Lea Anne Smith, University of Central Arkansas

A Review of Knowledge Management Techniques for Crisis and Relief Management
Jeffry Babb, West Texas A&M University
Sumana Sharma, Information Systems Research Institute

Doing an About Face on Facebook Use?
Susan Evans Jennings, Stephen F. Austin State University

An Innovative Solution for building Digital Forensics Skills
Joselina Cheng, University of Central Oklahoma
Michelle Hepner, University of Central Oklahoma

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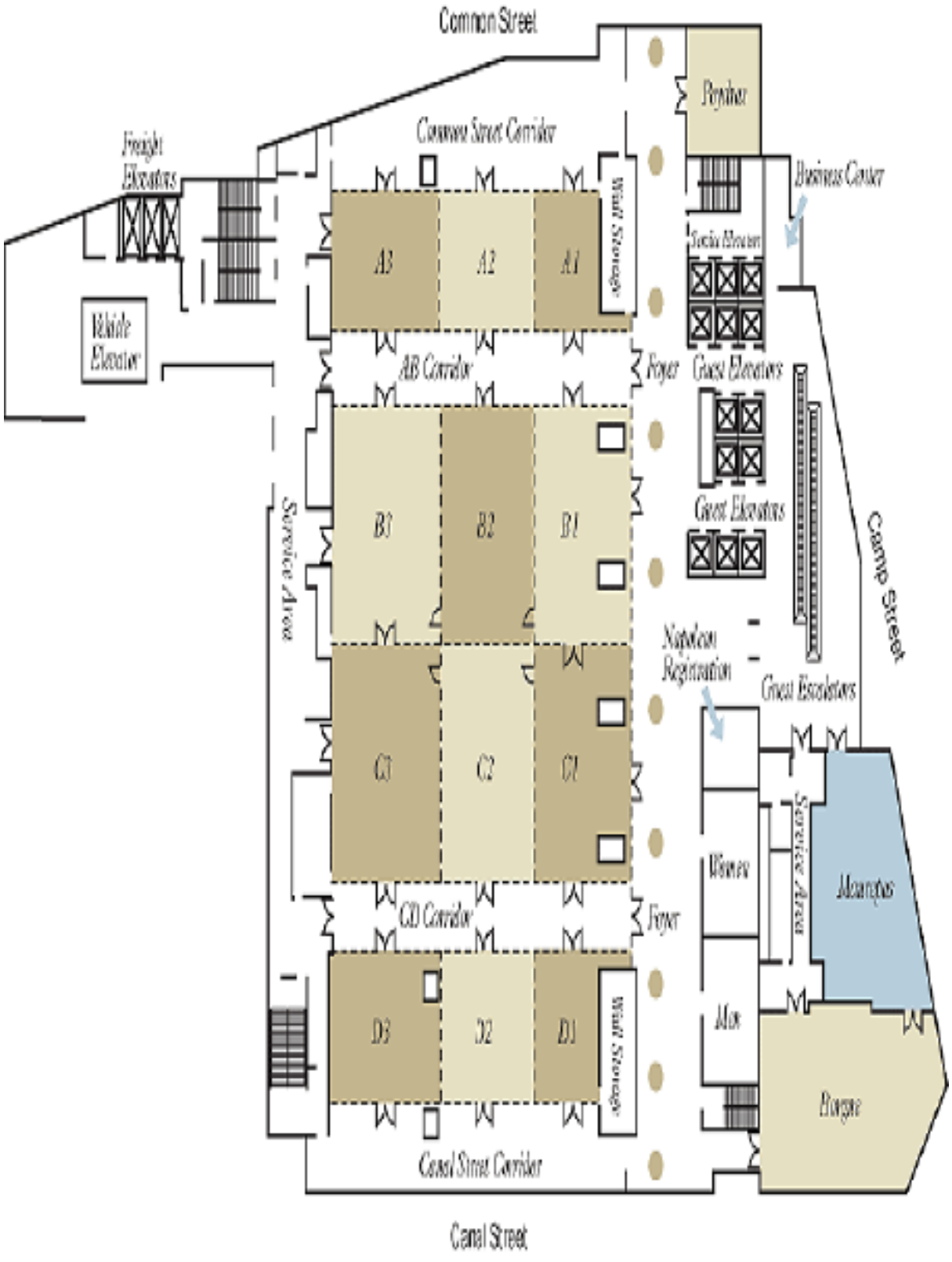

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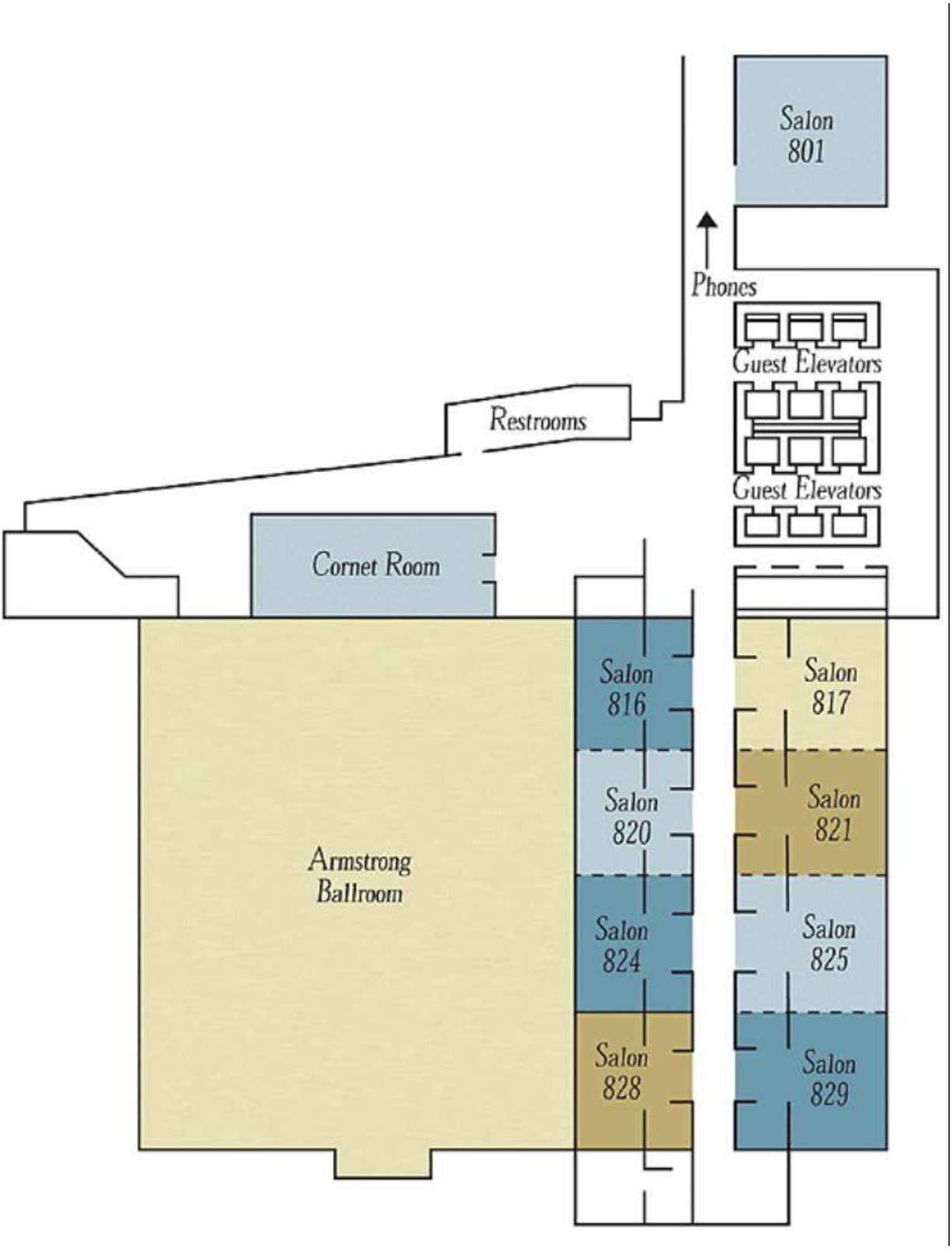

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ONLINE COURSE DESIGN – AN ANALYSIS OF STUDENT FEEDBACK RELATED TO QUALITY MATTERS™ STANDARDS

Betty A. Kleen, Nicholls State University
Lori Soule, Nicholls State University

ABSTRACT

Quality of online instruction is of concern for all stakeholders in online education. Because students represent a key stakeholder group, student feedback was gathered for three semesters related to two online courses offered at the authors' university. Essential Quality Matters™ standards provided the framework for the survey instrument since the authors' university has adopted the QM approach for assessing the quality of online course design. The survey specifically sought student opinions on whether the authors had met the QM standards for the courses. Highest ranking statements related to clear instructions on how to get started and grading policies. Minimum technical skills expected and activities fostering interaction ranked lowest over the three-semesters of the study. No significant differences were found based on gender, and little based on previous online course experience. The most differences were found based on age in the fall 2010 semester, with older students giving significantly higher ratings than younger students in 13 different Quality Matters standards.

INTRODUCTION

The 2010 Sloan Survey of Online Learning revealed approximately 5.6 million students enrolled in at least one online course during the fall 2009 semester ("Online education grows," 2010). This represents an increase of almost one million students from just the previous year. Colleges across the country are dealing with finding a good balance between face-to-face and online education. As stakeholders look at online courses, questions arise concerning such issues as the learning that transpires in online courses; the effectiveness of the course design; and the interaction of students with content, their instructors, and other students enrolled in the course. To address some of these concerns, frameworks have been developed that provide guidance in the effective design of online courses. Three such frameworks are promoted by Quality Matters™, the Sloan Consortium, and the North American division of International Association for K-12 Online learning.

A course syllabus is a standard requirement in higher education, providing information on course objectives, content to be covered, grading plans, schedules of activities and projects, etc. When instructors have the students face-to-face, they can add clarity of explanations, explain linkages from topic to topic and related activities, and immediately answer questions. Providing a clear framework for an online course, with materials effectively aligned for student understanding (and acceptance of value of activities) is not always easy. Time and again administrators at the authors' university (and many other universities) have noted it should not just be assigned textbook readings and quizzes/exams graded by the course management system that provide the full assessment of student learning. Beebe, Vonderwell, and Boboc (2010) believe it is important to use a framework that considers the differences

between face-to-face and online courses as higher education strives to provide quality coursework online. Hutti's 2007 study further revealed that the faculty, staff and student stakeholders of online coursework demonstrated strong cohesiveness in what they considered benchmarks of highest importance.

PURPOSE OF THE STUDY

This project will briefly review three nationally recognized frameworks for evaluating the quality of online courses. Based on the authors' personal experiences with their university's Quality Matters mandated approach to assessing online course quality, the authors collected additional feedback from their online students through surveys administered at the end of the course, over a three-semester timeframe; the survey items included those items the Quality Matters 2008-2010 rubric identifies as essential factors. In addition to simple statistics, analysis will be conducted to identify differences in responses by gender, age, and previous experience with an online course.

FRAMEWORKS FOR EVALUATING QUALITY OF ONLINE COURSES

A number of frameworks for evaluating the quality of online courses exist. This research takes a brief look at the Quality Matters™ rubric, the Sloan Consortium scorecard, and the North American division of International Association for K-12 Online Learning framework for evaluating quality online teaching.

The Quality Matters™ approach has evolved over the last ten years. Beginning in 2002, a consortium of 19 higher education institutions in Maryland developed a program that would provide a peer review method of research-based standards for evaluating course design of online courses (MarylandOnline, Inc., 2009). Because the focus of the program is course design, the review does not pass judgment on the academic content of the course. The method was named Quality Matters, and the original rubric has been used, modified, and updated since its inception, first with a 2006-2008 version, then a 2008-2010 version, and most recently a 2011-13 version that will be applied beginning October 2011. The 8 main standards as listed in the 2011-2013 rubric include the following:

- Course overview and introduction
- Learning objectives (competencies)
- Assessment and measurement
- Instructional materials
- Learner interaction and engagement
- Course technology
- Learner support
- Accessibility

The 2008-2010 rubric contained 17 standards deemed essential. In order to earn an official Quality Matters course designation, the course must meet all 17 of the "essential" standards (each essential is 3 points) and pass sufficient additional 2 point or 1 point standards to earn at least an 85% rating. An official QM review requires that a faculty member apply for an official review. The QM administrators then assign teams of three faculty members, including one outside the school and one having subject matter expertise to review and assess the quality of an online course. In an official review, all reviewers must have completed official QM reviewer training workshops. The 2011-2013 Rubric contains 41 specific standards across eight standards. ("Quality Matters Rubric Standards 2011-2013 edition with Assigned Point Values," 2011).

Even those with many years of teaching experience can benefit from an organized, collaborative review of how an online course is organized. Nankivell, Whittington, and Colwell (2007) state that a process of collaborative review offers benefits for course developers, faculty, students, and the institution as a whole. Pollacia and McCallister (2009), and Pollacia, Russell, and Russell, (2009), write that approaches such as QM have received national recognition for this approach to quality assurance in online education. A recent Quality Matters posting reports almost 9,000 individuals have been trained in the QM approach to course design. Additionally, they report over 1600 courses formally reviewed and 506 subscribers (some of these subscriptions are actually statewide subscriptions) ("Announcing FY12 Changes," 2011). The Quality Matters program recently announced that Blackboard Inc. has become a system subscriber and has adopted QM standards internally. As a result, Blackboard will recommend the QM standards for course design to its client institutions (currently among the thousands). ("Quality Matters Standards for Online Course Design Adopted by Blackboard," 2011).

A competing consortium is the Sloan-C, which describes itself as "a consortium of individuals, institutions and organizations committed to quality online education," with a focus on improving quality, scale, and breadth of online education. ("About Sloan-C," 2011). The Sloan "scorecard" includes 70 quality indicators. The scorecard was adapted from the Institute for Higher Education Policy's report "Quality on the Line: Benchmarks for Success in Internet-based Distance Education (2000). Using a scoring system different from QM, each indicator is scored from 0 to 3 points, with 0 point = "not observed," 1 point = "insufficiently observed," 2 points = "moderate use," and 3 points = "meets criteria completely." While a perfect score is 210 points (70 indicators x 3 points), those courses scoring at least 90% are considered exemplary. As long as a course scores at least 80%, it is labeled "acceptable," with some improvement recommended. Those scoring 70 – 79% are considered "marginal," 60 – 69% "inadequate," and below 60% unacceptable." ("A Quality Scorecard for the Administration of Online Education Programs," 2011). Using the Sloan-C framework, the school's online administrator evaluates a course for program evaluation in the following nine major areas:

- Institutional support
- Technology support
- Course development and instructional design
- Course structure
- Teaching and learning
- Social and student engagement
- Faculty support
- Student support
- Evaluation and assessment

A review of the Sloan-C website reveals that Blackboard and Compass are both Level 1 sponsors, which is a sponsorship level of $5,000 per year ("Corporate Sponsor Levels 2010-2011," 2011)

The North American division of International Association for K-12 Online Learning also offers a framework for evaluating quality online teaching. As the association's name reflects, the focus is guidelines for online teaching and instructional design at the K-12 level. The rating scale runs from 0 to 4; 0 = absent—component is missing; 1 = unsatisfactory—needs significant improvement; 2 = somewhat satisfactory—needs targeted

improvement; 3 = satisfactory—discretionary improvement needed; 4 = very satisfactory—no improvement needed. Thirteen major standard areas are listed below, with a total of 83 evaluation quality indicators.

- "The teacher meets the professional teaching standards established by a state-licensing agency or the teacher has academic credentials in the field in which he or she is teaching.
- The teacher has the prerequisite technology skills to teach online.
- The teacher plans, designs and incorporates strategies to encourage active learning, interaction, participation and collaboration in the online environment.
- The teacher provides online leadership in a manner that promotes student success through regular feedback, prompt response and clear expectations.
- The teacher models, guides, and encourages legal, ethical, safe, and healthy behavior related to technology use.
- The teacher has experienced online learning from the perspective of a student.
- The teacher understands and is responsive to students with special needs in the online classroom.
- The teacher demonstrates competencies in creating and implementing assessments in online learning environments in ways that assure validity and reliability of instruments and procedures.
- The teacher develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of learning goals.
- The teacher demonstrates competencies in using data and findings from assessments and other data sources to modify instructional methods and content and guide student learning.
- The teacher demonstrates frequent and effective strategies that enable both teacher and students to complete self- and pre-assessments.
- The teacher collaborates with colleagues.
- The teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment." ("National Standards for Quality Online Teaching," 2010)

As the above discussion reflects, no single framework for measuring online course quality exists. The three frameworks presented in this study do have significant commonality. What makes the QM approach unique is its use of a three-person review team that must include someone from another campus and someone who can serve as a subject matter expert.

The State Board of Regents for Higher Education in the authors' state has subscribed to Quality Matters™; and the university has required that those teaching online must complete the basic Quality Matters course design workshop (Simoncelli, 2010). Thus the authors have each completed the initial QM training course that focuses on course design and have critiqued their own courses. Subsequent to that training, each instructor has provided some modifications to the course design to strengthen its scoring when a QM rubric is applied. While both authors perceive their courses would achieve a

Quality Matters passing score if the courses were officially reviewed, student stakeholder opinions are also important.

DATA AND METHODOLOGY

Data for the current study were gathered with convenience sampling. A short instrument consisting of five demographic questions, nineteen statements based upon a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree), and two open-ended questions was administered to two online classes. The 4-point response scale was used specifically to prevent students from simply taking the "no opinion" or middle ground perspective in answering the questions. During the Spring 2010 semester, one class contained 28 students enrolled in a freshman level course, and the other class contained 22 students enrolled in a sophomore course. One hundred percent participation of students still participating in the classes in late April 2010 was achieved between the two classes, resulting in N = 50. During the Fall 2010 semester, one class contained 33 students enrolled in a freshman level course and the other class contained 30 students participating in a sophomore course. Ninety percent participation of students still participating in the classes in late November 2010 was achieved between the two classes, resulting in N = 57. During the Spring 2011 semester, one class contained 33 students enrolled in a freshman level course and the other class contained 21 students participating in a sophomore course. Eighty-one percent participation of students still participating in the classes in late April 2011 was achieved between the two classes, resulting in N = 44. For each semester, the freshman level course was an entry level computer literacy course and the sophomore course was a CIS course required of all business majors. Each student received a unique code which identified the student for the purpose of awarding participation points. These participation points represented less than 0.005 percentage points that the students were eligible to earn during the semester.

Independent Variables

Gender, age, previous online class experience, and number of hours in which enrolled were used as independent variables for the study.

Spring 2010. Thirty-two percent of the 50 respondents were male while 68% were female. Sixty-four percent were within the ages of 18-24 while the remaining 36% were ages 25 and older. Fourteen percent were freshmen, 22% were sophomores, 30% were juniors, and 34% were seniors (some non-business students leave their computer literacy class until senior year). Forty-eight percent reported they never had taken an online class before while 52% stated that they previously had taken an online class. Two percent were enrolled in 1-3 hours for the semester, 6% were enrolled in 4-6 hours, 32% were enrolled in 10-12 hours, 30% were enrolled in 13-15 hours, and 30% were enrolled in 16 or more hours.

Fall 2010. Thirty-nine percent of the 57 respondents were male while 61% were female. Seventy-five percent were within the ages of 18-24 while the remaining 25% were ages 25 and older. Three percent were freshmen, 32% were sophomores, 37% were juniors, and 28% were seniors. Sixty percent reported they never had taken an online class before while 40% stated that they previously had taken an online class. Three percent were enrolled in 1-3 hours for the semester, 3% were enrolled in 4-6 hours, 11% were enrolled in 7-9 hours, 25% were enrolled in 10-12 hours, 25% were enrolled

in 13-15 hours, and 33% were enrolled in 16 or more hours.

Spring 2011. Eighteen percent of the 44 respondents were male while 82% were female. Sixty-eight percent were within the ages of 18-24 while the remaining 32% were ages 25 and older. Seven percent were freshmen, 27% were sophomores, 34% were juniors, 30% were seniors, and 2% did not declare their classification status. Sixty-one percent reported they never had taken an online class before while 39% stated that they previously had taken an online class. Two percent were enrolled in 1-3 hours for the semester, 4% were enrolled in 4-6 hours, 14% were enrolled in 7-9 hours, 18% were enrolled in 10-12 hours, 30% were enrolled in 13-15 hours, and 32% were enrolled in 16 or more hours.

Correlations in the Independent Variables

Correlations in the independent variables were analyzed for each of the three semesters.

Spring 2010. The researchers used correlation tools to look for relationships between the pairs of independent variables and between the independent and dependent variables. Gender, age, and classification are positively correlated with first online class (.316, .364, and .330). Age is positively correlated to the dependent variables "A statement introduces the student to the purpose of the course and to its components" (.290), "The course learning objectives describe outcomes that are measurable" (.282) and "All learning objectives are stated clearly and written from the students' perspective" (.338). Classification is negatively correlated to the dependent variable "The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources" (-.294). First online class is positively correlated to the dependent variables "Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction" (.358) and "The tools and media support student engagement and guide the student to become an active learner" (.295).

Fall 2010. When correlations were run on fall 2010 responses, Age is positively correlated to several dependent variables. "A statement introduces the student to the purpose of the course and to its components" (.333); "Minimum technical skills expected of the student are clearly stated" (.300); "The course learning objectives describe outcomes that are measurable" (.429); "The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives" (.424); "Instructions to students on how to meet the learning objectives are adequate and stated clearly" (.381); "The instructional materials contribute to the achievement of the stated course and module/unit learning objectives" (.339); "The relationship between the instructional materials and the learning activities is clearly explained to the student" (.281); "The learning activities promote the achievement of the stated learning objectives" (.325); "Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)" (.279); "The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course" (.455); "The tools and media support student engagement and guide the student to become an active learner" (.522); "Navigation throughout the online components of the course is logical, consistent, and efficient" (.395).

The researchers speculate this positive relationship between age and several dependent variables is due to the maturity and experience of the older student. Having attended college for possibly two or more years, these older students have become exposed to various learning objectives, learning activities, instructional materials, student engagement, and course navigation, just to name a few. As a result, they have developed a standard that they expect to encounter in a course. The younger students are still struggling to understand what is expected of them and what they should expect from a course.

Spring 2011. Based on spring 2011 responses**,** Age is negatively correlated to the dependent variable "Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)" (-.343). The researchers speculate that the older students wanted to know exact times of day and days of week that the instructor would be available for contacting. This need could be a result of an older student having family and work responsibilities on top of attending school.

STATISTICAL ANALYSIS

The mean and standard deviation for each of the statements were computed for each of the three semesters (see Table 1). Based on spring 2010 respondents, the dependent variable "Instructions make clear how to get started and where to find various course components" had the highest mean (M = 3.64, SD = .525) while the dependent variable "Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction" had the lowest (M = 3.20, SD = .700).

Based on the fall 2010 respondents, the dependent variable "Navigation throughout the online components of the course is logical, consistent, and efficient" had the highest mean (M = 3.56, SD = .535) while the dependent variable "Minimum technical skills expected of the student are clearly stated" had the lowest (M = 3.25, SD = .763).

An analysis of fall 2011 responses reveals that the dependent variable "The course grading policy is stated clearly" had the highest mean (M = 3.50, SD = .629) while the dependent variable "Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction" had the lowest (M = 3.02, SD = .628).

Comparisons by Gender, Age, and Previous Experience with an Online Course

The researchers conducted additional tests on the responses from each of the three semesters. Independent samples t-tests were conducted to identify differences in responses by gender, age, and previous experience with an online course.

Spring 2010 Analysis. Relating to the 19 QM rubric questions on the survey to the data collected during the Spring 2010 semester, the researchers formulated hypotheses (H1-H19) about the differences in the mean of the dependent variables by **gender**. However, using independent samples t-test, none of the hypotheses were found to be statistically significant.

The researchers also formulated hypotheses, again tested using independent samples t-test, about the differences in the mean of the different dependent variables by **age**. As presented in Table 2, three hypotheses in

this grouping were found to be statistically significant. The first hypothesis was do persons 18-24 years of age feel the same about the statement *"A statement introduces the student to the purpose of the course and to its components"* as persons 25 years of age or older (H-21)? Persons 18-24 years of age had a mean of 3.31 while the persons 25 years of age or older had a mean of 3.61. Equal variances were assumed (sig. = .328) and the hypothesis (H-21) of equal means was rejected (sig. = .041).

For the statement, "*The course learning objectives describe outcomes that are measurable,"* persons 18-24 years of age had a mean of 3.25 while the persons 25 years of age or older had a mean of 3.56. Equal variances were assumed (sig. = .276) and the hypothesis (H-23) of equal means was rejected (sig. = .047). For the statement, "*All learning objectives are stated clearly and written from the students' perspective,"* persons 18-24 years of age had a mean of 3.34 while the persons 25 years of age or older had a mean of 3.72. Equal variances were assumed (sig. = .154) and the hypothesis (H-25) of equal means was rejected (sig. = .017).

Continuing with the same testing method of independent samples t-test, the researchers also formulated hypotheses about the differences in the mean of the different dependent variables by **online class experience**. Table 3 presents the two hypotheses that were statistically significant. The first hypothesis was do persons with online class experience feel the same about the statement *"Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction"* as persons without any previous online class experience (H-52)? Persons with online class experience had a mean of 2.96 while the persons having no online class experience had a mean of 3.46. Equal variances were assumed (sig. = .208) and the hypothesis (H-52) of equal means was rejected (sig. = .011). The other hypothesis related to online class experience analyzed responses to the statement *"The tools and media support student engagement and guide the student to become an active learner."* Persons with online class experience had a mean of 3.19 while the persons having no online class experience had a mean of 3.54. Equal variances were assumed (sig. = .995) and the hypothesis (H-55) of equal means was rejected (sig. = .038).

Fall 2010. Relating to the 19 QM rubric questions on the survey to the data collected during the Fall 2010 semester, the researchers formulated hypotheses (H1-H19) about the differences in the mean of the dependent variables by **gender**. However, using independent samples t-test, none of the hypotheses were found to be statistically significant. Likewise, none of the hypotheses were found to be statistically significant when tested for previous **online course experience.**

The researchers also formulated hypotheses, again tested using independent samples t-test, about the differences in the mean of the different dependent variables by **age**. Thirteen hypotheses were found to be statistically significant in this grouping. The first hypothesis analyzes response to the statement, "*Instructions make clear how to get started and where to find various course components."* Persons 18-24 years of age had a mean of 3.47 while persons 25 years of age or older had a mean of 3.79. Equal variances were not assumed (sig. = .001) and the hypothesis (H-20) of equal means were rejected (sig. = .031).

For the statement "*A statement introduces the student to the purpose of the course and to its components*," persons 18-24 years of age had a mean of 3.35 while persons 25 years of age or older had a mean of 3.79. Equal variances were not assumed (sig. = .019) and the hypothesis (H-21) of equal means were rejected (sig. = .005). For the statement, "*Minimum technical skills expected of the student are clearly stated*," persons 18-24 years of age had a mean of 3.12 while persons 25 years of age or older had a mean of 3.64. Equal variances were assumed (sig. = .243) and the hypothesis (H-22) of equal means were rejected (sig. = .023).

The fourth hypothesis related to the statement, "*The course learning objectives describe outcomes that are measurable."* Persons 18-24 years of age had a mean of 3.16 while persons 25 years of age or older had a mean of 3.79. Equal variances were assumed (sig. = .458) and the hypothesis (H-23) of equal means were rejected (sig. = .001). For the statement, "*The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives*," persons 18-24 years of age had a mean of 3.12 while persons 25 years of age or older had a mean of 3.71. Equal variances were assumed (sig. = .761) and the hypothesis (H-24) of equal means were rejected (sig. = .001).

The sixth hypothesis related to the statement "*Instructions to students on how to meet the learning objectives are adequate and stated clearly."* Persons 18-24 years of age had a mean of 3.19 while persons 25 years of age or older had a mean of 3.71. Equal variances were assumed (sig. = .656) and the hypothesis (H-26) of equal means were rejected (sig. = .003). For the statement, *"The instructional materials contribute to the achievement of the stated course and module/unit learning objectives*," persons 18-24 years of age had a mean of 3.26 while persons 25 years of age or older had a mean of 3.71. Equal variances were assumed (sig. = .395) and the hypothesis (H-30) of equal means were rejected (sig. = .010).

The eighth hypothesis related to the statement*, "The relationship between the instructional materials and the learning activities is clearly explained to the student."* Persons 18-24 years of age had a mean of 3.23 while persons 25 years of age or older had a mean of 3.71. Equal variances were assumed (sig. = .143) and the hypothesis (H-31) of equal means were rejected (sig. = .034). For the statement, *"The learning activities promote the achievement of the stated learning objectives,"* persons 18-24 years of age had a mean of 3.28 while persons 25 years of age or older had a mean of 3.79. Equal variances were not assumed (sig. = .044) and the hypothesis (H-32) of equal means were rejected (sig. = .002).

For the statement *"Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)*, persons 18-24 years of age had a mean of 3.21 while persons 25 years of age or older had a mean of 3.71. Equal variances were assumed (sig. = .068) and the hypothesis (H-34) of equal means were rejected (sig. = .036). For the statement, *"The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course,"* persons 18-24 years of age had a mean of 3.21 while persons 25 years of age or older had a mean of 3.79. Equal variances were assumed (sig. = .461) and the hypothesis (H-35) of equal means were rejected (sig. = .000).

For the statement, *"The tools and media support student engagement and guide the student to become an active learner,"* persons 18-24 years of age had a mean of 3.16 while persons 25 years of age or older had a mean of 3.86. Equal variances were assumed (sig. = .168) and the hypothesis (H-36) of equal means were rejected (sig. = .000). Finally, for the statement, *"Navigation throughout the online components of the course is logical, consistent, and efficient,"* persons 18-24 years of age had a mean of 3.44 while persons 25 years of age or older had a mean of 3.93. Equal variances were not assumed (sig. = .000) and the hypothesis (H-37) of equal means were rejected (sig. = .000).

Spring 2011. Relating to the 19 QM rubric questions on the survey to data collected during the Spring 2011, the researchers formulated hypotheses (H1-H19) about the differences in the mean of the dependent variables by **gender**. However, using independent samples t-test, none of the hypotheses were found to be statistically significant. The researchers also formulated hypotheses, again tested using independent samples t-test, about the differences in the mean of the different dependent variables by **online class experience**. None of the hypotheses were found to be statistically significant.

The researchers also formulated hypotheses, again tested using independent samples t-test, about the differences in the mean of the different dependent variables by **age**. The only hypothesis found to be statistically significant was do persons 18-24 years of age feel the same about the statement "*Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)"* as persons 25 years of age or older (H-34)? Persons 18-24 years of age had a mean of 3.43 while the persons 25 years of age or older had a mean of 2.93. Equal variances were assumed (sig. = .922) and the hypothesis (H-34) of equal means was rejected (sig. = .023).

Open Comments. Students were also invited to write open ended comments about what could be added to the course design to improve the course. A number of students wrote support statements for the clarity the instructors provided concerning expectations, objectives, and activities to be completed. The written comments did, as expected, contain an occasional complaint such as needing a longer time to complete timed quizzes regardless of which semester the data were collected. Other suggestions included the following that could improve the courses:

- Spring 2010
  - use of a "due date" tab
  - addition of an instant messaging system with the instructor available at a designated time to address questions (neither instructor had a specific chat time online, but did maintain set virtual office hours)
  - reorganization of contents in some of the folders in the course management system
  - increased instructor help with a particular unit
  - longer MP3 lectures from the instructor

- Fall 2010
  - estimated date when grades will be posted
  - describe how much work is actually involved in the course
  - a discussion board for each homework assignment where students can ask each other questions about things they do not understand

about the homework, instead of having to email the instructor
    - put more reminders about assignments because it is really easy to forget what is due

- Spring 2011
    - grading rubric for the lengthy homework assignments
    - have deadlines more accommodating to students who work; maybe later than (6:00PM) or on the weekend
    - weekly schedules of what assignments are due and what time they are due
    - for discussion board entries, maybe give different questions to students so answers are not so redundant or copied
    - take students' work schedules into consideration when scheduling quizzes, midterm, and final

CONCLUSIONS

The number of students enrolled in online education continues to grow nationwide, with almost a million more students in just the past year. Institutions continue to face questions concerning issues related to the learning that transpires and effectiveness of online course design. Several nationally recognized frameworks exist that address the quality of online courses, including the Quality Matters™ rubric, the Sloan Consortium scorecard, and the North American division of International Association for K-12 Online learning framework. While the frameworks have significant commonality of standards to be met, the Quality Matters approach involves a three-person review team approach that ensures not only a review by internal colleagues, but also someone with subject matter expertise and someone from outside the institution. The QM rubric forms the basis of the online course review process at the researchers' university.

Because students are an important stakeholder group in online education, the researchers surveyed their online students over a three-semester period to obtain the students' perspective of whether QM standards were being met in the online courses included in the study. A review of the survey findings and the written comments provided by students has helped confirm to the authors that they are addressing the various standards of the QM rubric successfully from the student stakeholder perspective. For each of the three semesters, response means for every "essential" Quality Matters standard was on the positive side of the scale. Two statements, "Instructions make clear how to get started and where to find various course components," and "The course grading policy is stated clearly," were in the top three in ranking over all three semesters. Likewise, the statements, "Minimum technical skills expected of the student are clearly stated," and "Learning activities foster instructor-student, content-students, and if appropriate to the course, student-student interaction," ranked near the bottom over all three semesters. Although the researchers phrased the interaction standard as it is phrased in quality matters, several types of interaction are included in the statement and may have contributed to lower scores. For other statements, semester-by-semester rankings were varied. For example, even though no changes were made in types of assessments from fall 2010 to spring 2011, the spring 2011 respondents ranked this standard as 14^{th}, as compared to being 5^{th} or 7^{th} in rank in the two previous semesters.

When analyzing the correlations, as a whole, the older students expected more out of the courses in terms of learning objectives, learning activities, instructional materials, student engagement, and course navigation. The older students appear to be more focused on their learning and are more experienced in thoroughly reading through documents such as the class syllabus. In addition, the older students wanted precise times of availability of the instructors. Some older female students had previous online course experience probably as a result of having to raise a family and/or work while in school. Students with online class experience were more understanding of the different interactions, were more likely to interact with others, and were more likely to use the tools and media available to them.

No significant differences were found based on gender, and little differences were found based on previous online course experience. The most differences were found based on age in the fall 2010 semester, with older students giving significantly higher ratings than younger students in 13 different Quality Matters standards. Caution should be used in interpreting these results as this semester represented the highest number of survey respondents and the lowest percentage of students over the age of 24.
Although a self-review process through the initial Quality Matters training and a review by a team of reviewers based on the QM rubric all provide support for instructors in designing a quality online course, additional feedback from the student perspective can shed additional light as to whether materials and explanations provided are meeting student needs and/or expectations.

RECOMMENDATIONS

The researchers' university recently switched to Moodle course management systems, which readily supports organization of materials by either weeks or modules. All materials and assignments can be grouped in ways different from the previous course management system, Blackboard. Repeating the study in future semesters, especially if any significant changes are made in navigation, objectives, instructional materials, or assessments, can provide feedback for continuous improvement in course design. Dividing the statement about instructor-student, content-student, and student-student interaction into three separate statements on the survey may also provide instructors with better understanding of student perspectives.

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Table 1. Mean and standard deviation of dependent variables, Spring 2010, Fall 2010, and Spring 2011

Statements	Spring 2010 N=50			Fall 2010 N=57			Spring 2011 N=44		
	Mean	STDV	Rank	Mean	STDV	Rank	Mean	STDV	Rank
Instructions make clear how to get started and where to find various course components.	3.64	.525	1	3.54	.537	2	3.36	.750	2
The course grading policy is stated clearly.	3.58	.642	2	3.47	.758	3	3.50	.629	1
Specific and descriptive criteria are provided for the evaluation of students' work and participation.	3.56	.501	3	3.39	.750	6	3.36	.613	2
The learning activities promote the achievement of the stated learning objectives.	3.54	.542	4	3.40	.678	5	3.16	.568	13
The instructional materials contribute to the achievement of the stated course and module/unit learning objectives.	3.52	.505	5	3.37	.587	7	3.20	.701	10
The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources.	3.52	.580	5	3.37	.645	7	3.14	.632	14
The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives.	3.50	.505	7	3.26	.613	16	3.14	.594	14
The course incorporates American Disabilities Act standards and reflects conformance with institutional policy regarding accessibility in online and hybrid courses.	3.50	.505	7	3.33	.636	11	3.25	.615	7
The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course.	3.50	.614	7	3.33	.557	11	3.20	.594	10
All learning objectives are stated clearly and written from the students' perspective.	3.48	.544	10	3.26	.695	16	3.05	.645	18
Instructions to students on how to meet the learning objectives are adequate and stated clearly.	3.48	.544	10	3.32	.602	14	3.36	.613	2
Navigation throughout the online components of the course is logical, consistent, and efficient.	3.48	.544	10	3.56	.535	1	3.23	.642	9
Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)	3.44	.577	13	3.33	.787	11	3.27	.694	6
A statement introduces the student to the purpose of the course and to its components.	3.42	.499	14	3.46	.569	4	3.30	.734	5
The relationship between the instructional materials and the learning activities is clearly explained to the student.	3.42	.538	14	3.35	.711	9	3.07	.587	17
The course learning objectives describe outcomes that are measurable.	3.36	.525	16	3.32	.631	14	3.25	.615	7
The tools and media support student engagement and guide the student to become an active learner.	3.36	.598	16	3.35	.551	9	3.18	.582	12
Minimum technical skills expected of the student are clearly stated.	3.28	.701	18	3.25	.763	19	3.11	.655	16
Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction.	3.20	.700	19	3.26	.552	16	3.02	.628	19

Table 2. Spring 2010 Independent Samples t-test grouped by age, N=50

Hypothesis	Met Test Assumption	Test Outcome	Sig. Level
H_o: Mean of *"A statement introduces the student to the purpose of the course and to its components"* for persons 18-24 years of age = Mean of "A statement introduces the student to the purpose of the course and to its components" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.041
H_o: Mean of *"The course learning objectives describe outcomes that are measurable"* for persons 18-24 years of age = Mean of "The course learning objectives describe outcomes that are measurable" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.047
H_o: Mean of *"All learning objectives are stated clearly and written from the students' perspective"* for persons 18-24 years of age = Mean of "All learning objectives are stated clearly and written from the students' perspective" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.017

Table 3. Spring 2010 Independent Samples t-test grouped by previous online course experience, N=50

Hypothesis	Met Test Assumption	Test Outcome	Sig. Level
H_o: Mean of *"Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction"* for persons with online course experience= Mean of "Learning activities foster instructor-student, content-student, and if appropriate to the course, student-student interaction" for persons with no online course experience	Yes, equal variances assumed	Reject H_o	.011
H_o: Mean of "*The tools and media support student engagement and guide the student to become an active learner"* for persons with online course experience= Mean of "The tools and media support student engagement and guide the student to become an active learner" for persons with no online course experience	Yes, equal variances assumed	Reject H_o	.038

Table 4 on next page

Table 5. Spring 2011 Independent Samples t-test grouped by age, N=44

Hypothesis	Met Test Assumption	Test Outcome	Sig. Level
H_o: Mean of *"Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)"* for persons 18-24 years of age = Mean of "Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.023

Table 4 Fall 2010 Independent Samples t-test grouped by age, N=57

Hypothesis	Met Test Assumption	Test Outcome	Sig. Level
H_o: Mean of "*Instructions make clear how to get started and where to find various course components*" for persons 18-24 years of age = Mean of "Instructions make clear how to get started and where to find various course components" for persons 25 years of age or older	No, equal variances not assumed	Reject H_o	.031
H_o: Mean of "*A statement introduces the student to the purpose of the course and to its components"* for persons 18-24 years of age = Mean of "A statement introduces the student to the purpose of the course and to its components" for persons 25 years of age or older	No, equal variances not assumed	Reject H_o	.005
H_o: Mean of *"Minimum technical skills expected of the student are clearly stated"* for persons 18-24 years of age = Mean of "Minimum technical skills expected of the student are clearly stated" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.023
H_o: Mean of "*The course learning objectives describe outcomes that are measurable"* for persons 18-24 years of age = Mean of "The course learning objectives describe outcomes that are measurable" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.001
H_o: Mean of "*The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives"* for persons 18-24 years of age = Mean of "The module/unit learning objectives describe outcomes that are measurable and consistent with the course-level objectives" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.001
H_o: Mean of *"Instructions to students on how to meet the learning objectives are adequate and stated clearly"* for persons 18-24 years of age = Mean of "Instructions to students on how to meet the learning objectives are adequate and stated clearly" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.003
H_o: Mean of "*The instructional materials contribute to the achievement of the stated course and module/unit learning objectives"* for persons 18-24 years of age = Mean of "The instructional materials contribute to the achievement of the stated course and module/unit learning objectives" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.010
H_o: Mean of "*The relationship between the instructional materials and the learning activities is clearly explained to the student"* for persons 18-24 years of age = Mean of "The relationship between the instructional materials and the learning activities is clearly explained to the student" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.034
H_o: Mean *of "The learning activities promote the achievement of the stated learning objectives"* for persons 18-24 years of age = Mean of "The learning activities promote the achievement of the stated learning objectives" for persons 25 years of age or older	No, equal variances not assumed	Reject H_o	.002
H_o: Mean of "*Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)"* for persons 18-24 years of age = Mean of "Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade posting, etc.)" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.036
H_o: Mean of *"The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course"* for persons 18-24 years of age = Mean of "The tools and media support the learning objectives, and are appropriately chosen to deliver the content of the course" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.000
H_o: Mean *of "The tools and media support student engagement and guide the student to become an active learner"* for persons 18-24 years of age = Mean of "The tools and media support student engagement and guide the student to become an active learner" for persons 25 years of age or older	Yes, equal variances assumed	Reject H_o	.000
H_o: Mean of *"Navigation throughout the online components of the course is logical, consistent, and efficient"* for persons 18-24 years of age = Mean of "Navigation throughout the online components of the course is logical, consistent, and efficient" for persons 25 years of age or older	No, equal variances not assumed	Reject H_o	.000

A 2011 COURSE SYLLABI REVIEW OF INTRODUCTORY COMPUTER COURSES REQUIRED IN COLLEGES OF BUSINESS IN THE SOUTHWESTERN REGION OF THE U.S.

Betty A. Kleen, Nicholls State University
Sherry Rodrigue, Nicholls State University
Ronnie Fanguy, Nicholls State University

ABSTRACT

Computer literacy requirements in colleges and universities continue to vary from expectations of this literacy as a resident skill of incoming students to schools requiring one or more courses of varying content. This study investigates the actual syllabi of computer literacy courses required by colleges of business in the five-state region encompassing Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Findings revealed about three-fifths of schools were AACSB accredited. Of the 64% of schools requiring computer literacy courses of their business majors, almost 90% required a three-credit course. Arkansas and Louisiana averaged the smallest number of students per section, with 24.5 and 24.91 students respectively. The most popular topics covered in computer literacy courses are spreadsheets, database management systems, word processing, and presentation software, and this trend is fairly consistent across all states.

INTRODUCTION

A recent review of online course catalogs of 274 public universities across the U.S. revealed that less than 50% of the schools specified computer literacy competency in their liberal arts or general education core coursework; however, over 60% of the business schools within those institutions do include a computer literacy course within their bachelor's degree curricula (Kleen, Rodrigue, and Fanguy, 2011). A related earlier study of public universities in the five-state region including Arkansas, Louisiana, New Mexico, Oklahoma, and Texas (Kleen and Rodrigue, 2011) found that the majority of colleges of business in public universities in the southwestern region of the U.S. do have a curriculum that includes a course focusing on computer literacy and/or competency within the four-year business degrees.

Both of these studies recommended expanding the research to include a review of actual syllabi from computer literacy course offerings. In this paper, we aim to provide the results of this expanded research. Since the current study examines actual syllabi rather than website course descriptions from university catalogs, the authors provide a much richer analysis of the content of computer literacy course offerings. The analysis focuses on identification of commonalities and/or differences in content and focus that exist among various schools.

THE UNIVERSITY COMPUTER LIT DEBATE

The content of post-secondary computer literacy courses has been an issue for many years. However, a review of Kieffer's 1995 study concerning computer literacy requirements for all students shows that

many of the 1995 major topic areas are still included in many of today's literacy courses.

Many of us have heard arguments numerous times, perhaps from our own administrators, that today's students do not need a computer literacy course because they come to the university already computer literate. However, the research reveals mixed findings on students' computer literacy competency when coming to the university environment. For example, Hindi, Miller, and Wegner's (2002) study of freshmen and sophomores living in Kansas revealed that students had worked with word processing and computer concepts before entering the university, but reported lesser coverage of databases and spreadsheets. Hoffman and Vance (2005) found that many of the students in their survey reported learning many of the computer literacy tasks on their own (although this study did not actually measure their competency in performing these tasks). Within that same relative time period, Case, MacKinnon and Dyer (2004) found that less than two percent of students who took a computer literacy assessment test scored high enough to pass the test.

McLennan and Gibbs' ten-year longitudinal research (2008) revealed students in 2008 were less competent in productivity software such as spreadsheets and databases than those students tested ten years earlier. A computer self-efficacy ten-year study by Karsten and Schmidt (2008) found that students in 1996 actually had higher computer self-efficacy than those studied ten years later. In 2009 Kilcoyne *et al* found that students averaged only 42% on a mastery of technology test administered. In 2010, Dufrene, Clipson, and Wilson found that students self-reported "stronger than moderate skills in word processing, file management, presentation applications, and spreadsheet applications."

As this very brief review illustrates, research study findings have very mixed results. More recently than any of the above studies, MIT professor Sherry Turkle (as cited in Grush, 2011) believes that students today do not possess sufficient technological literacy.

Hungerford, Baxter, LeMay, and Helms (2011) are among the various authors currently researching computer literacy content in schools of business. They used a survey technique to gather information from AACSB schools on their computer literacy requirements, including structure and content of computer literacy. Their research (based on 92 schools responding to items on the questionnaire), found that the majority of business schools required a computer literacy course designed specifically for business. Most schools reported very low percentages of people attempting and passing a test-out exam. Spreadsheets averaged the most coverage of any of the listed topics, but a wide variety of coverage was evident in the results. Sixty-nine schools reported some database coverage in the course, with only 16 devoting more than 20% of the course to that topic. Little attention was given to social media within the course.

Hindi, Miller, and Wegner pointed out another important aspect of choosing computer literacy course content: "Given differences among high-school curriculums and competency levels of [high school] graduates, determination of the most appropriate content for introductory computer-literacy courses will continue to be a challenge for colleges" (2002, 146). To best serve students, we must continuously consider adjustments in content to address weak skill areas and better prepare students for the job market.

With the continued discussion concerning computer literacy, appropriate content, and students' lack of competency identified in numerous studies, a close examination of current content in such courses in the five-state region is of value to college of business faculty for planning and course design purposes. Specific examination of course syllabi may provide even more detailed information than closed-end survey questions used by Hungerford, Baxter, LeMay, and Helms (2011).

PROBLEM AND RESEARCH METHOD

This study identifies and analyzes specific content of required introductory computer literacy courses in colleges of business within public universities in the five-state region encompassing Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. All public universities offering such a course that were identified in the earlier study by Kleen and Rodrigue (2011) were contacted by email. Individual, personalized email messages were sent to department heads and departmental secretaries (where identifiable) that identified the specific course the researchers were investigating. Participants were asked to provide a copy of a current course syllabus and report information concerning number and size of computer literacy course section offerings. Initial and follow-up emails were sent to business schools that require computer literacy of their students. Information for all non-responders was then further pursued via telephone calls until the researchers exhausted all reasonable avenues of obtaining a response. The researchers also used websites of AACSB and ACBSP to identify which schools were accredited by which agency.

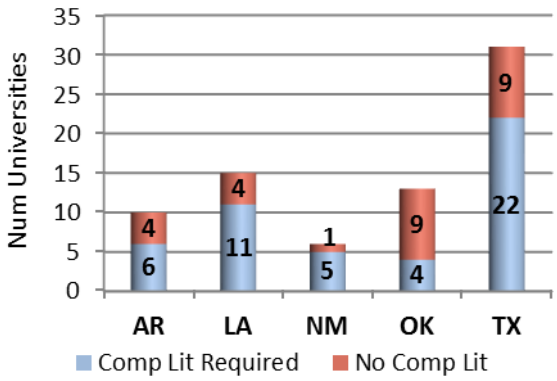
Specific information gathered provided answers to the following questions:

1. Are the schools requiring computer literacy accredited?
2. How many sections of the course are offered by the department teaching it?
3. How many students are served by each of those class sections?
4. What are the commonalities and differences in content addressed in the courses?

POPULATION OF INTEREST

As the authors examine the public universities within the Southwest Region, figure 1 depicts that the largest portion (41%) are found in Texas. Arkansas, Oklahoma, and Louisiana each have between 10 and 15 universities. The smallest number of universities (<10%) in this region is found in New Mexico.

Figure 1: COB Computer Literacy Requirement by State



For this population of universities, the researchers are interested in examining the college of business computer literacy requirements. Of the universities in the Southwest region, 64% require computer literacy within the university's college of business. This portion varies by state. New Mexico has the highest proportion of their universities requiring computer literacy at

83% (5 out of 6). On the other hand, only 4 of Oklahoma's 13 universities (31%) require a computer literacy course of their business students.

Table 1 presents an analysis of the 75 universities in the Southwest region and compares their computer literacy requirements and accreditation status. Of the 47 universities that have business schools with computer literacy requirements, a high percentage was accredited. However, of the 28 universities without requirements, the split of accredited versus non accredited was a closer split.

Table 1: Analysis of Accreditation and Computer Literacy Requirement for all Universities Reviewed

	Accredited		Not Accredited	
	#	%	#	%
Computer Lit Req	40	53.33%	7	9.33%
No Computer Lit Req	16	21.33%	12	16.00%

Hours of Computer Literacy Required

Overall, 36% of business schools in the Southwest Region do not *require* any specific computer literacy course. Of the remaining 64%, the amount of computer literacy is depicted in figure 2. Overwhelmingly, schools require 3 hours of computer literacy. However, 8.3% require twice that amount (6 hours), and a small portion (4.2%) requires only 2 hours.

Recent research (Hungerford, Baxter, LeMay, and Helms, 2011) found that the majority of reporting AACSB schools require a computer literacy course designed for business students. However, one is still left to wonder about the details of this requirement and the form that it takes at various universities.

ACCREDITATION

As depicted figure 3, the majority (79%) of the business schools that require computer literacy are accredited. AACSB accreditation is held by 69%, while a much smaller portion (10%) is accredited by ACBSP.

Figure 2: Hours of Computer Literacy Required in Business Schools

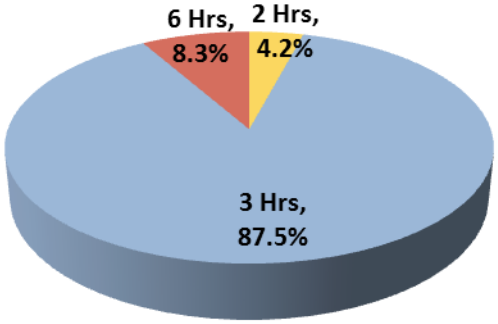


Figure 3: Business Schools Requiring Computer Literacy by Accreditation

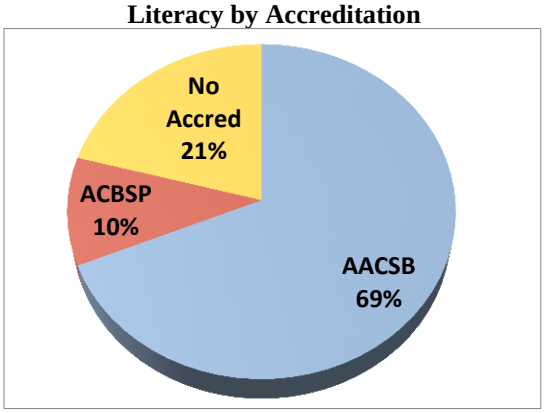
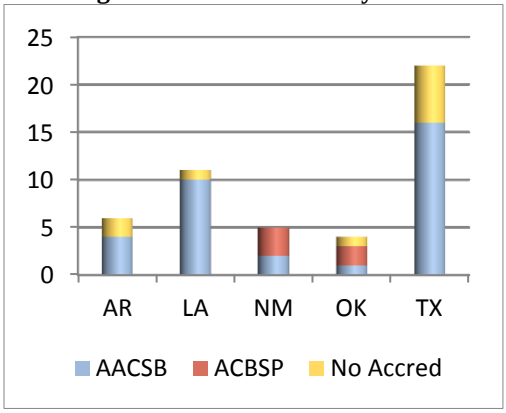


Figure 4 explores this issue in more depth by illustrating the breakdown of accreditation by state. The majority of the business schools requiring computer literacy within each state are accredited. Sixty-seven to seventy-five percent of business schools within the study from Arkansas, Texas, and Oklahoma are accredited. Over 90% of the

schools from Louisiana and 100% of the schools from New Mexico within the study are accredited.

Among the schools in the study, AACSB accreditation is much more prevalent than ACBSP accreditation. While AACSB accreditation is held by schools in all five states, ACBSP accreditation is held only by schools within New Mexico and Oklahoma.

Figure 4: Accreditation by State



RESPONSE RATE

The business schools requiring computer literacy were the population of focus for this research project. The authors now present an analysis of the computer literacy course section offerings and of the topics covered in these courses.

Due to the strong effort put forth to gather the necessary data for this study, a very high response rate of 91.7% was obtained. Table 2 shows the response rate broken down by state. In Louisiana and Oklahoma, the authors received responses from 100% of business schools requiring computer literacy. All schools in the population are included in the study with the exception of one school from each of Texas and Arkansas and two from New Mexico.

SECTION OFFERINGS

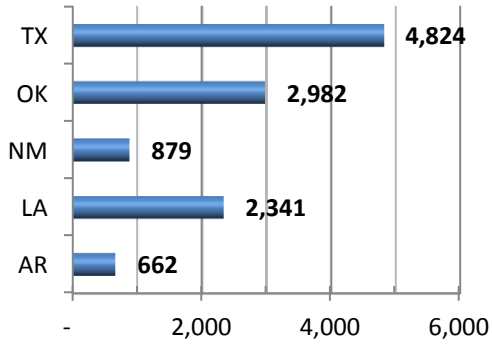
Computer literacy courses required of business students indicate drastic variations in the number of sections offered, section size, and the total number of students served per semester. Table 4 found at the end of the paper shows some of these details. A summary is depicted in figure 5.

As reported by our respondents, schools in Texas serve over 4,800 students per semester, while Louisiana and Oklahoma serve between 2,000 and 3,000 students. In New Mexico and Arkansas, fewer than 1000 students take the computer literacy courses required of business majors each semester.

Table 2: Response Rate

State	Bus Schools Req Comp Lit	Business Schools Responding	Response Rate
Arkansas	6	5	83.3%
Louisiana	11	11	100.0%
New Mexico	5	3	60.0%
Oklahoma	4	4	100.0%
Texas	22	21	95.5%
Overall	**48**	**44**	**91.7%**

Figure 5: Number of Students Taking Computer Literacy per Semester



It is of little surprise that Texas services the largest number of students and New Mexico and Arkansas service among the lowest. This pattern mimics the sheer number of

business schools requiring computer literacy (in figure 1). One thing that the authors do find surprising, however, is that Oklahoma has the second highest number of students taking required computer literacy courses. This is particularly interesting given that it has the fewest number of business schools that require computer literacy.

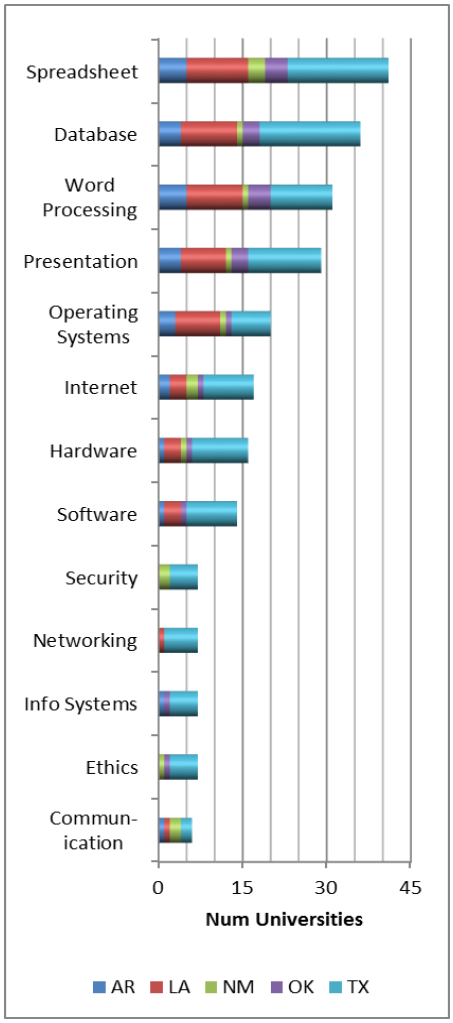
Many schools offer computer literacy courses in a laboratory setting. In these cases, the class size is limited by the number of computers available for students. Sometimes administrators push for larger labs as a way to reduce the number of instructors needed to service their students. While a larger lab certainly allows for more students to enroll in the class, it drastically changes how the instructor is able to interact with his or her students—making effective teaching much more difficult. It takes a special skill set to effectively convey the necessary knowledge and skill set required for student success. Some schools are pushing class size to new limits. For example, one large Texas university and a large Oklahoma university each offer only one section of computer literacy (and it is required for all of their business students). The classes are offered online and have a maximum enrollment of 450 and 800, respectively.

We urge the reader to interpret these numbers with caution. In some cases these computer literacy courses, while being required for the business school's students, also service other segments of the university as well. Thereby, a comparison of the actual relationships among section size and number of sections is distorted.

Topics Covered

Table 3 (found at the end of the paper) examines which topics are covered within computer literacy courses by state. This information is summarized within Figure 6. The most popular topics covered in computer literacy courses are spreadsheets, database management systems, word processing, and presentation software. This trend is fairly consistent across all states. The authors understand that spreadsheet skills are a very powerful tool in the hands of business students, and it is not surprising that this topic is consistently the most popular topic covered in required computer literacy courses among all states.

Figure 6: Computer Literacy Topics Covered



The topics of databases, word processing, and presentation software follow next—in

that order. This group of topics comprises the next most popular set for all states with one exception—New Mexico. In New Mexico, the Internet, security, and communication topics are covered more frequently than databases, word processing, and presentation software.

Less popular, but still covered by approximately 30-45% of business schools are the topics:

- Operating Systems
- Internet
- Hardware/Software

The remaining topics are covered less often, but are still worth mentioning:

- Ethics
- Information Systems
- Networking
- Security
- Communications

CONCLUSIONS AND RECOMMENDATIONS

This research project has included an investigation of current syllabi of computer literacy courses provided by instructors or department heads at public universities in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Approximately three-fifths of the schools are AACSB accredited, and 64% of schools did require a computer literacy course of their business majors. Number of students per section ranged from an average of 24.5 in Arkansas to some schools reporting very big sections of 450 to 800 students. The most popular topics covered in the computer literacy courses for business students included spreadsheet, database, word processing, and presentation software. This trend was fairly consistent across all five states.
While the findings may well confirm what many faculty who teach the course would suspect, these documented findings may be of value to faculty who face the challenge of administrators suggesting the elimination of a computer literacy course. As earlier suggested by Hindi, Miller, and Wegner (2002), determining content in computer literacy courses will undoubtedly remain a challenge into the future. The reality is that the technology and software are ever changing, suggesting that those who received earlier computer literacy coursework in high school may not be current in their computer literacy, especially software literacy for business tasks, when they reach the university.

The business school at the authors' university is currently implementing a "technology assessment" related to AACSB expected assessment of student learning outcomes. This assessment will NOT be done at the end of the required computer literacy course. Instead, it will be conducted in higher-level business core coursework.

A strategy such as assessing the use of technology in higher-level business courses can help ensure that computer usage is infused further in the curriculum. Heinrichs and Lim's (2010) research supports this idea, as they concluded that the tools need to be infused into the advanced curriculum to enhance information literacy. Likewise, Johnson, Bartholomew, and Miller (2006) also assessed that students were neither retaining nor advancing key computer literacy course skills and established a six-step change management plan to address this in their higher-level business courses.

A final recommendation is that the status of computer literacy requirements continues to be monitored every few years. Knowing what is or is not the trend can support curriculum planning and design.

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Table 3: Computer Literacy Section Analysis

State	Schools Reporting	Sections of Computer Literacy				Students per Section			# of Seats
		Total	Min	Max	Avg	Min	Max	Avg	Total
Arkansas	5	27	2	7	5.4	27	35	29.4	794
Louisiana	11	94	6	39	8.55	20	54	24.91	2,341
New Mexico	3	26	2	10	8.67	24	65	56.33	1,465
Oklahoma	4	14	1	5	3.50	20	800	213.00	2,982
Texas	21	86	1	11	4.10	25	450	58.76	5,054

Table 4: Computer Literacy Topics Covered

	Arkansas	*Louisiana*	*New Mexico*	*Oklahoma*	*Texas*	*Total*
# of Schools:	***5***	***11***	***3***	***4***	***21***	***44***

Topics	#	%	#	%	#	%	#	%	#	%	#	%
Spreadsheet	5	100%	11	100%	3	100%	4	100%	18	86%	41	93%
Database	4	80%	10	91%	1	33%	3	75%	18	86%	36	82%
Word Processing	5	100%	10	91%	1	33%	4	100%	11	52%	31	70%
Presentation	4	80%	8	73%	1	33%	3	75%	13	62%	29	66%
Operating Systems	3	60%	8	73%	1	33%	1	25%	7	33%	20	45%
Internet	2	40%	3	27%	2	67%	1	25%	9	43%	17	39%
Hardware	1	20%	3	27%	1	33%	1	25%	10	48%	16	36%
Software	1	20%	3	27%	0	0%	1	25%	9	43%	14	32%
Ethics	0	0%	0	0%	1	33%	1	25%	5	24%	7	16%
Info Systems	1	20%	0	0%	0	0%	1	25%	5	24%	7	16%
Networking	0	0%	1	9%	0	0%	0	0%	6	29%	7	16%
Security	0	0%	0	0%	2	67%	0	0%	5	24%	7	16%
Commun-ication	1	20%	1	9%	2	67%	0	0%	2	10%	6	14%

NOTES

ARE WE COMMUNICATING OR INSTILLING TRUST AMONG OUR STAKEHOLDERS: AN EXAMINATION OF POST-SECONDARY EDUCATION INSTITUTIONS WEBSITES' PRIVACY POLICY

Begona Perez-Mira, Northwestern State University
Margaret S. Kilcoyne, Northwestern State University
Brenda Hanson, Northwestern State University
Thomas Hanson, Northwestern State University
Charlie Penrod, Northwestern State University
Phil Habig, Northwestern State University
Sue Champion, Northwestern State University

ABSTRACT

The purpose of this study was to determine the number of higher education institutions that currently have privacy policies in place and the effectiveness of these privacy policies. As a result, this study offers suggestions for the correction of privacy concerns such as lack of trust and confusing terminology.

The basis for this study is because every website user should be entitled to privacy regarding his or her personal information. To ensure this takes place every website should have an effective and reliable privacy policy. Higher education institutions are in a position to acquire personal information exceeding the information normally requested on other types of websites. Because of this, higher education institutions should have privacy policies in place that not only protect the users' private information but also ensure every user that this information will be protected and deemed completely private.
The methodology for this research study was an extremely thorough data collection effort reaching into over 2,000 U.S. higher education institutions determining which of these institutions have privacy policies in place and examining these privacy policies. The ease of access and the privacy policy terminology was studied and the data analysis results determined the percentages related to existing privacy policies and the percentages related to the effectiveness of these policies.

Several concerns were uncovered resulting in proposed solutions to help correct these concerns. It was also determined that further research is needed to analyze the content of the privacy policies that are currently in use by these higher education institutions.

INTRODUCTION

Trust has been an important factor in the individual usage of e-commerce websites. One of the basic pillars of creating trust on a website is assuring the user that his or her privacy is protected. E-commerce websites utilize privacy policies and privacy seals to assure the users that their privacy will be protected. Good privacy policies state the amount of information captured by the website about the user and his or her environment, and most importantly, what the website owner plans to do with that information.

Higher Education institutions are starting to capture more and more personal information from the users that visit their websites. Some of the very visible examples are pages that

provide "more information" on the university via postal mail, alumni websites, or even newsletters. Probably the least visible example is the client data information that gets collected when an individual visits a website. In the majority of the cases, data is collected that accounts for the length of the visit, the pages visited, and the originating IP address of the client computer. This information, even though it seems meaningless for the user, can become a great marketing tool for the higher education institutions.

We believe that it is important to collect personal and usage information from the user, but at the same time, it is imperative that we follow the historical research perspective of e-commerce websites in terms of privacy and trust. We believe that all higher education institutions that are currently collecting personal or usage information should provide its users with a privacy policy that follows the guidelines presented in the e-commerce research. Therefore, concerns or issues and proposed solutions are addressed.

ISSUE #1: Lack of trust in e-commerce sites

Velmurugan (2009) states that one of the main successful factors for an e-commerce business is the positive projection of trust via a well-developed website that contains not only quality products and content, but also the use of privacy seals and a privacy policy. Moreover, once the transaction has been completed, the website needs to take all the necessary steps to ensure that the entire user's private data is secured, well maintained and safe.

Patton and Josang (2004) express that some of the factors affecting trust in e-commerce from the consumer point of view are security risks, privacy issues, and lack of reliability in e-commerce processes.

ISSUE #2: Privacy concerns

Cavoukian and Crompton (2000), Cranor et al. (2000) and Tedeschi (2000) state privacy is the major concern for people using the internet. Culnan (1993), Culnan and Amstrong (1999), Hoffman et al, (1999), Phelps et al. (2000) all suggest that consumers are much less concerned about utilizing the Web and providing information if the necessary steps are taken by the stakeholders involved to assure their privacy.

Web users are not only concerned about their personal information, but also about their web browsing history. According to Bowie and Jamal (2006) and Earp et al. (2005), web sites can also collect indirect information about a user as he or she navigates a website by using a small file called a "cookie". This pattern of browsing behavior can be extremely useful in terms of website marketing with or without being paired with personal identifiable information. This pattern of browsing can be used for targeted advertisements (ads). For example, the visited website places a cookie in the user's computer signaling that the user has visited a bookstore. When the user visits another website that contains ads, the ad aggregator can check the cookies in the user's computer and see that he or she recently visited a book store. Then the ad aggregator will place a bookstore ad on the page; hence the ads will favor the user's browsing history. Bowie and Jamal (2006) and Earp et al. (2005) believe that collecting this indirect information also breaks the privacy of the user and as such, it should be disclosed in the website's privacy policy.

Issue #3: Confusing Language on Privacy Policies

The majority of the subjects surveyed by Mass Insight Corporation (2001) affirm that they have seen the privacy policies presented by websites, and 69% have at least read one online privacy policy. However, Culnan and Milne (2001) also find that users consider privacy policies too long and contain confusing language.

Turow et al. (2005), Hochhauser (2003), and Jensen and Potts (2004) state the majority of the surveyed web users that read privacy policies on the web consider those privacy policies difficult to understand. Moreover, Turow (2005) also presents that web users tend to think that their privacy is protected just by seeing the web link to a privacy policy on the website.

PROPOSED SOLUTION #1: P3P

According to Cranor et al. (2002), one major attempt to solve privacy issues on the Internet and hereby increase the possibility of user trust in the Web is the W3C's Platform for Privacy Preferences (P3P) Project . P3P allows websites to encode their privacy practices in standard XML-based format that is readable by web browsers. P3P encodes information such as data being collected, data being shared, how data is being used, kept, and maintained.

PROPOSED SOLUTION #2: Self-Regulation by Fair Information Rules and Privacy Statements

According to the Federal Trade Commission (FTC), fair information practices outline the privacy guidelines for a self-regulatory system. These practices attempt to find the balance between the need of the commerce companies of utilizing consumer information, and the consumer's right of privacy. These rules are grounded in five main aspects: a clear notice of the firm's information practices, a choice given to the consumer on the future uses of the collected information, access to the personal data in order to correct any possible issues with it, assurance of security in the transmission and/or maintenance of the data, and finally a method in place to assure the compliance of the company with the fair information practices. (1998)

Hui et al. (2007) describe how the FIP guidelines focus mainly providing sufficient notice, choice, and access mechanisms about the data being collected, reducing the amount of data collected to what is completely necessary to carry out a transaction, and securely protecting the data after the transaction is complete.

Culnan and Bies 2003 and Milne and Culnan (2004) recommend companies follow the self-regulation practices provided by the Fair Information Practices (FIP) and communicate privacy, information, and commitment policies to their stakeholders. Hui et al. (2007) conclude that privacy statements seem to provide a higher level of user trust than privacy seals because they tend to induce users to disclose their personal information.

Andrade, Kaltcheva, and Weitz (2002) study the effect of providing a comprehensive privacy policy on the user's willingness to provide information on the Web. Their study supports that the completeness of the provided privacy policy as well as the reputation of the company do influence the concern over web disclosure of personal information.

Culnan (2000) affirms that by being consistent with the fair information practices, a firm can signal to the consumer its commitment to fair policies and rejection of opportunistic behavior. Since these

practices reduce the possibility of unfair disclosure, it increases the visible trustworthiness of the company and compels users to disclose their information.

Tsai et al. (2007) maintain that web sites that provide accessible privacy information strongly reduce the information asymmetry gap between websites and their users. Once the asymmetry is reduced, the trust in those websites increases and users are more prone to maintain a positive information flow with the website.

PROPOSED SOLUTION #3: Trust Seals

Patton and Josang (2004) list a number of trust seals that have been developed to provide self-regulation a more visible face. They mention TRUSTe, which after auditing a website's present privacy policy allows the website to post the seal if the Web site does comply with the specific standards required. Other seals are the BBBOnline, which also provides a reliability program, and the CPA WebTrust seal. Studies that review the efficacy of these web trust seals on increasing the user trust are not providing definite results (Cheskin Research & Studio Archetype/Sapient, 1999; Cheskin, 2000, Hui et al., 2007).

RESEARCH QUESTIONS

As we have seen in the preliminary discussion, trust issues and privacy concerns are important to all web users, not only e-commerce users. Any internal or external data collection, use, maintenance, and security procedures utilized by a website should be clearly disclosed to the user in the form of comprehensive, easy to access, and easy to read privacy policies. We believe that higher education institutions should also follow these business practices closely. For this reason, our study attempts to analyze the state of the privacy policies on higher education websites. Specifically, we want to examine the following:

- How many higher education institutions have privacy policies on their websites?
- Does the use of privacy policies on the website differ?
- For those higher education websites that have privacy policies, are they easily accessible?
- For those higher education websites that have privacy policies, what is the content of online privacy statements?
- For those higher education websites that have privacy policies, do they address the FIP?

RESEARCH METHODOLOGY

According to Milne and Culnan (2002), one of the ways that self-regulatory effectiveness can be measured is by utilizing web surveys based on the privacy policies posted by organizations. This web survey methodology has been utilized in different studies and based on different web groups. In 2000, the Center for Democracy and Technology surveyed 100 financial institutions to examine the privacy policies posted as well as their compliance with the Gramm-Leach-Bliley financial modernization act (CTD 2000). The Federal Trade Commission conducted 4 different web survey sweeps during 1996, 1998, 1999, and 2000 (FTC 1996, 1998, 1999, 2000) to analyze the state of the privacy self-regulation in US popular and .com Web sites. Adkinson, Eisenach, and Lenard (2002) surveyed 85 different websites to study the use of third-party cookies and the existence of a P3P privacy policy.

Manoharan and Fudge (2012) surveyed government municipality websites to examine security and privacy in two areas: privacy policies and user authentication. Liu and Arnett (2002) examined Fortune 500

websites to study their privacy policies in terms of presence/absence, content, and their relation with the web user's concerns. Therefore, we used this particular research methodology.

Our methodology involved an exhaustive data collection effort by the researchers. A total of 2153 US higher education websites were visited and examined by the researchers from April 2011 through June 2011. The complete list was divided among the seven researchers and each visited 307 Web sites. After the examination, 9 Web sites were eliminated from the list due to various reasons (i.e. page not loading or university closed). The researchers were tasked with the following:
1) Examine the main higher education web page to locate a link to the privacy policy. Record the presence/absence of a privacy policy.
2) If the link to the privacy policy was present, the researcher clicked on the link to visit the page. On the privacy policy page, the researcher downloaded the text and took a screen capture of the privacy policy.
3) If the link to the privacy policy was not present, the researcher then utilized the search box (if provided, if not a search was conducted in Google) to enter the "Privacy policy" search terms. If the results provided a link to the university's or college's privacy policy, the researcher would follow the link to download the text and take a screen capture.
3) To measure how deep the privacy policy was on the Web site, the researchers recorded the number of clicks made to reach the privacy policy.
4) Finally, the researchers were encouraged to comment on their experience if appropriate.

DATA ANALYSIS AND RESULTS

Data analysis and the results addressed the following questions:
Question 1: How many higher education institutions have privacy policies on their websites?
Question 2: For those higher education websites that have privacy policies, are they easily accessible?
Question 3: For those higher education websites that have privacy policies, do they address the FIP?

A total of 2,153 websites belonging to higher education institutions in the United States and its territories were examined. Nine websites were eliminated due to errors on the page or university closures. Out of those 2,144, 909 higher education websites had a posted privacy policy (42%). When we calculated by the different states, territories, or district, Colorado was the state with the highest percentage of higher education websites that present a privacy policy. Two territories (Guam and US Virgin Islands) and a state (Wyoming) did not provide any privacy policy on their higher education websites (see Table 1 & Graph 1)

Out of those states that presented privacy policies, those that had to be found by using the search engine capabilities of the website or a Google search were also examined. The results appear on Table 2 and Graph 1. Finally, the depth of the privacy policy was calculated using the amount of clicks that the user had to complete in order to reach the privacy policy. Results appear on Table 3.

DISCUSSION

Have you ever received a non-solicited ad while browsing the web? How is your data

used online? We believe that providing a complete Privacy Policy for all higher education website users should be a priority. However, results indicate that ONLY 42% of the higher education institutions' websites in the US and its territories provide a privacy policy on their website. This number may be considered appropriate, but if higher education institutions want to utilize their websites to collect information directly or indirectly from their users, those numbers should definitely be higher. We are trying to expand the knowledge and awareness of our students and other stakeholders in terms of sound electronic documentation design. We would not be doing our job, if our own websites do not model this design. Moreover, privacy policies should be considered by all our stakeholders, not only our students, to make sure their data is properly stored, secured, utilized, and ultimately destroyed. In comparison with e-commerce websites, higher education institutions' websites seem to be in their infancy. In 1999, 48.3% of e-commerce websites surveyed presented a privacy policy, in 2000 65.5% and in 2001, 76.6% of surveyed e-commerce Web sites provided a privacy policy to all their users (Milne and Culnan 2002). With this fast increase, it is not impossible to think that by 2011; almost all e-commerce Web sites present a privacy policy to their users.

Moreover, the fact that in many of the examined cases, the privacy policies could only be found by completing a search of the website is against the Fair Information Practices recommendations. These recommendations specifically require that privacy policies should be visible and accessible to the user. In the majority of the cases where search engines were not necessary, the preferred privacy policy link location seemed to be at the bottom of the home page and normally in very small font (FTC 1999).

Finally and also continuing with the FIP recommendations, the privacy policy needs to be visible and accessible to the user. If the privacy policy is deeply buried in the website, users will not be able to find it with ease. In our case, we used search engines to find the privacy policy. Indexes closer to 1 signify a higher percentage of privacy policies found on the home page of the higher education website. Indexes closer to 2, signify that the use of search engines was necessary to find the majority of the privacy policies. Only four of the states received a perfect depth index of 1 (Alaska, Nevada, New Hampshire, and Vermont). In our opinion, the majority of university or college websites need to do a better job of placing the privacy policy on a visible and easy to locate area of the website.

FURTHER RESEARCH

Further research is needed to analyze the content of the privacy policies found on university and college Web sites. The administration of these higher education institutions need to be aware of the content that is being placed on those privacy policies to make sure they follow the Fair Information Practices recommendations by the Federal Trade Commission.

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Table 1: Percentage (%) of Higher Education Websites with Privacy Policies

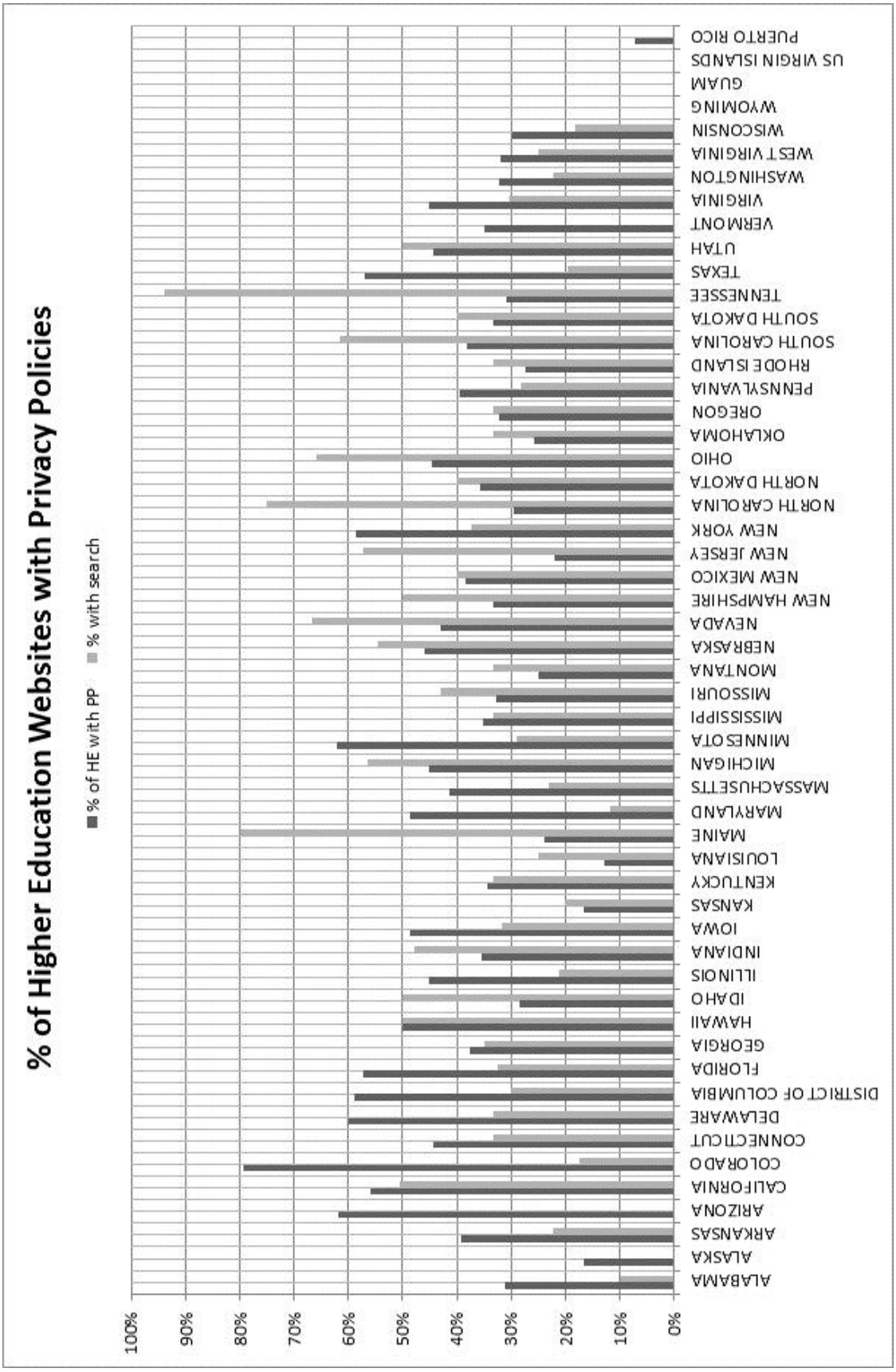
ALABAMA	31%	LOUISIANA	13%	OKLAHOMA	26%
ALASKA	17%	MAINE	24%	OREGON	32%
ARKANSAS	39%	MARYLAND	49%	PENNSYLVANIA	40%
ARIZONA	62%	MASSACHUSETTS	41%	RHODE ISLAND	27%
CALIFORNIA	56%	MICHIGAN	45%	SOUTH CAROLINA	38%
COLORADO	79%	MINNESOTA	62%	SOUTH DAKOTA	33%
CONNECTICUT	44%	MISSISSIPPI	35%	TENNESSEE	31%
DELAWARE	60%	MISSOURI	33%	TEXAS	57%
DISTRICT OF COLUMBIA	59%	MONTANA	25%	UTAH	44%
FLORIDA	57%	NEBRASKA	46%	VERMONT	35%
GEORGIA	38%	NEVADA	43%	VIRGINIA	45%
HAWAII	50%	NEW HAMPSHIRE	33%	WASHINGTON	32%
IDAHO	29%	NEW MEXICO	38%	WEST VIRGINIA	32%
ILLINOIS	45%	NEW JERSEY	22%	WISCONSIN	30%
INDIANA	35%	NEW YORK	59%	WYOMING	0%
IOWA	49%	NORTH CAROLINA	30%	GUAM	0%
KANSAS	17%	NORTH DAKOTA	36%	US VIRGIN ISLANDS	0%
KENTUCKY	34%	OHIO	45%	PUERTO RICO	7%

Table 2: Percentage (%) of Privacy Policies Found by using Search Engines

ALABAMA	10%	KENTUCKY	33%	NORTH DAKOTA	40%
ALASKA	0%	LOUISIANA	25%	OHIO	66%
ARKANSAS	22%	MAINE	80%	OKLAHOMA	33%
ARIZONA	0%	MARYLAND	12%	OREGON	33%
CALIFORNIA	51%	MASSACHUSETTS	23%	PENNSYLVANIA	28%
COLORADO	17%	MICHIGAN	57%	RHODE ISLAND	33%
CONNECTICUT	33%	MINNESOTA	29%	SOUTH CAROLINA	62%
DELAWARE	33%	MISSISSIPPI	33%	SOUTH DAKOTA	40%
DISTRICT OF COLUMBIA	30%	MISSOURI	43%	TENNESSEE	94%
FLORIDA	33%	MONTANA	33%	TEXAS	20%
GEORGIA	35%	NEBRASKA	55%	UTAH	50%
HAWAII	50%	NEVADA	67%	VERMONT	0%
IDAHO	50%	NEW HAMPSHIRE	50%	VIRGINIA	30%
ILLINOIS	21%	NEW MEXICO	40%	WASHINGTON	22%
INDIANA	48%	NEW JERSEY	57%	WEST VIRGINIA	25%
IOWA	32%	NEW YORK	37%	WISCONSIN	18%
KANSAS	20%	NORTH CAROLINA	75%	PUERTO RICO	0%

Table 3: Privacy Policy page Relative Depth

ALABAMA	1.1	KENTUCKY	1.416667	NORTH DAKOTA	1.4
ALASKA	1	LOUISIANA	1.25	OHIO	1.710526
ARKANSAS	1.111111	MAINE	1.8	OKLAHOMA	1.333333
ARIZONA	1.076923	MARYLAND	1.117647	OREGON	1.444444
CALIFORNIA	1.529412	MASSACHUSETTS	1.333333	PENNSYLVANIA	1.283019
COLORADO	1.304348	MICHIGAN	1.608696	RHODE ISLAND	1.666667
CONNECTICUT	1.333333	MINNESOTA	1.483871	SOUTH CAROLINA	1.692308
DELAWARE	1.333333	MISSISSIPPI	1.333333	SOUTH DAKOTA	1.2
DISTRICT OF COLUMBIA	1.3	MISSOURI	1.571429	TENNESSEE	2
FLORIDA	1.395349	MONTANA	1.333333	TEXAS	1.52459
GEORGIA	1.869565	NEBRASKA	1.181818	UTAH	1.5
HAWAII	1.5	NEVADA	1	VERMONT	1
IDAHO	2	NEW HAMPSHIRE	1	VIRGINIA	1.391304
ILLINOIS	1.234043	NEW MEXICO	1.4	WASHINGTON	1.222222
INDIANA	1.521739	NEW JERSEY	1.571429	WEST VIRGINIA	1.25
IOWA	1.526316	NEW YORK	1.527473	WISCONSIN	1.272727
KANSAS	1.4	NORTH CAROLINA	1.8125	PUERTO RICO	1.3


% of Higher Education Websites with Privacy Policies
% of HE with PP
% with search
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
ALABAMA
ALASKA
ARKANSAS
ARIZONA
CALIFORNIA
COLORADO
CONNECTICUT
DELAWARE
DISTRICT OF COLUMBIA
FLORIDA
GEORGIA
HAWAII
IDAHO
ILLINOIS
INDIANA
IOWA
KANSAS
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LOUISIANA
MAINE
MARYLAND
MASSACHUSETTS
MICHIGAN
MINNESOTA
MISSISSIPPI
MISSOURI
MONTANA
NEBRASKA
NEVADA
NEW HAMPSHIRE
NEW MEXICO
NEW JERSEY
NEW YORK
NORTH CAROLINA
NORTH DAKOTA
OHIO
OKLAHOMA
OREGON
PENNSYLVANIA
RHODE ISLAND
SOUTH CAROLINA
SOUTH DAKOTA
TENNESSEE
TEXAS
UTAH
VERMONT
VIRGINIA
WASHINGTON
WEST VIRGINIA
WISCONSIN
WYOMING
GUAM
US VIRGIN ISLANDS
PUERTO RICO

NOTES

BUSINESS PRACTICES AND PROCEDURES REGARDING SMARTPHONE SECURITY

Ann Wilson, Stephen F. Austin State University
Michael York, Stephen F. Austin State University
Courtney Short, Stephen F. Austin State University

INTRODUCTION

Smartphones are having a transformational effect on the way that users access, use, and store information. Smartphones have essentially blurred the line of what is considered a phone, becoming the pinnacle multi-tasking devices of today's world. Current smartphones have their own dedicated operating system, Bluetooth capabilities, GPS, WiFi, constant network connection, PC connectivity, and are internet enabled, leading them to have similar security risks as that of a computer. Businesses are now worrying about the information employees are storing on these devices and want to find new ways to protect it (Schiller, 2011). Smartphone capabilities used for business application will be investigated for their potential vulnerabilities due to lack of employees' precautions and smartphone usage.

REVIEW OF LITERATURE

The first precaution employees and employers can take when using a smartphone for business use is to educate themselves in the areas that a virus can infect the phone. These areas include multimedia messaging system (MMS), Bluetooth, internet, syncing/docking, and peripherals. MMS messages are sent over the provider's cellular network, typically virus free, to exchange media files. However, Töyssys and Helenius (2006) note that, "malicious software can spread via MMS messages by attaching a copy of itself and sending it to some device capable of receiving MMS" (p. 111). Cheng, Wong, Yang, and Lu (2007) reaffirm this by pointing out that "the most well-known virus of such a kind is CommWarrior" (p. 259). Cabir, the first smartphone virus, was spread via Bluetooth (Töyssys, 2006, p. 111). However, a weakness of spreading the virus by the means of Bluetooth is that it must be in discoverable mode, which often times out, and the user must accept and install the incoming file. Similar to computers, smartphone users have the risk of downloading a virus from the internet that is masquerading as a game or some other application the user may find enticing. Since current smartphones are nearly always connected to the internet, it only amplifies the seriousness of the issue because it allows the virus to be in constant communication with the host. The Crossover virus was spread through syncing, when, "smartphones are connected to a computer in order to synchronize calendar events and new contacts," notes Cheng et al. (2007, p. 260). However, for this type of attack to succeed, the user's computer first must be infected. The final way a smartphone can be infected is through peripherals or removable media.

The more likely threat regarding smartphones is data confidentiality, with "Pointsec Mobile Technologies [estimating] that 60 percent of security breaches occur from device theft or loss, 25 percent due to network intrusions and viruses, and 15 percent from social engineering tricks" (Carson, 2006, p. 12). Data can be

compromised in a variety of ways such as "theft, inadvertent publishing, fraud, and uncontrolled employee behavior" (Collins and Vile, 2007). Unfortunately, this is where the biggest problem is for employers – the onus is on the employees for the greater part of data security.

To help prevent a breach in data, Allyson Garrone (2011) recommends the following: "define use-case requirements, create a mobile device security policy, enforce strong passwords, perform remote wipe, encrypt memory, enforce use of a virtual private network (VPN), perform regular backups, perform 'over the air' upgrades, remove residual application data, evaluate third-party products, and perform user education" (p. 3). The variety of smartphone OS's in use, such as Android OS, iOS, Windows Mobile OS, and Blackberry OS, make it challenging for IT departments to implement a single system due to the lack of compatibility with all devices. To aid with this dilemma, employers can issue employees a BlackBerry or a Windows Mobile device, as "most analysts agree that [these devices] provide the best inherent level of security" (Nelson and Simek, 2011). However, even if employers choose to take this route, they must be aware that employees may use their personal devices for business purposes, which are not likely to be as secure; furthermore, it begins to raise legal issues on how much control employer's can have access to these personal devices, even for security reasons.

This research indicates that with several possible infection methods, an anti-virus program for an employee's smartphone seems like a wise choice. However, the program has the challenge of working within the capabilities of the smartphone, while not hogging too many resources or draining battery life. It is perhaps due to these current limitations and drawbacks, that more users don't have an anti-virus program installed on their smartphone. In addition to an anti-virus program, the requirement of using a PIN to access the cell phone seems like a necessary precaution. Unfortunately, the annoyance of inputting a PIN before using the smartphone for anything typically deters most users from utilizing this long existing feature. To help discourage undesired use of smartphones, companies should utilize policies regarding business and personal smartphone usage regarding business information.

PURPOSE

The purpose of this paper is to examine real or perceived vulnerabilities and the lack of precautions that lead to security breaches resulting from increased availability and use of smartphones for business applications.

DESIGN OF THE STUDY

Alumni of a mid-size Texas public university will be asked to complete an anonymous online questionnaire asking the following questions:

1. Provide demographic information (gender, age, industry).
2. Do you have a smartphone?
3. What is your smartphone primarily used for?
4. Which type of smartphone operating system (OS) do you use?
5. How many years have you had a smartphone?
6. Does your company have a usage policy regarding a business-issued smartphone?
7. Does your company have a usage policy regarding a personal smartphone for business?

8. Have you ever, to your knowledge, had private information stolen while using your smartphone?
9. How concerned are you about having private information stolen from your smartphone?
10. Are you aware of any smartphone viruses?
11. Have you ever had a virus on your smartphone?
12. Do you use an anti-virus program on your smartphone?
13. What features on your smartphone(s) do you use the most?
14. Do you download apps on your smartphone?
15. Have you downloaded any apps to increase functionality on your smartphone(s) to aid in business tasks?
16. How often do you read the User Agreement license for the apps you download?
17. How concerned are you about getting a virus on your smartphone?
18. How concerned is your employer about getting a virus on your smartphone?

FINDINGS

The total number of respondents that screened into the survey was 29. In some isolated cases, answers were left blank. The results of the administered survey questionnaire are summarized as follows:

Gender:

Male	24 (70.6%)
Female	10 (29.4%)

Age:

18-25	4 (11.4%)
25-35	9 (25.7%)
36-45	8 (22.9%)
46-59	6 (17.1%)
60 or older	8 (22.9%)

Industry:

Education
Electronics/Computer/Software
Financial Services/Insurance
Healthcare/Pharmaceuticals
Management Consulting
Real Estate/Construction
Sales/Sales Promotion
Sports
Telecommunications
Television
Legal
Energy
Wholesale Distribution
Accounting
Oil and Gas
Manufacturing
Retired

Do you have a smartphone?

Yes	29 (82.9%)
No	6 (17.1)

What is your smartphone primarily used for?

Personal use	4 (13.8%)
Business use	0 (0.0%)
Both	25 (86.2%)

OS on smartphone?

Blackberry	6 (21.4%)
iPhone	22 (78.6%)
Android	3 (10.7%)
Other	0 (0.0%)

Years owning smartphone:

<1 Year	2 (6.9%)
1-2 Years	7 (24.1%)
2-5 Years	16 (55.2%)
>5 Years	4 (13.8%)

Company policy for business-issued smartphone?

Yes	8 (30.8%)
No	18 (69.2%)

Company policy for personal smartphones for business usage?

Yes	11 (40.7%)
No	16 (59.3%)

Private information stolen from smartphone?

Yes	0 (0.0%)
No	28 (100.0%)

Concern of private information stolen from smartphone

Not at all	3 (10.7%)
Not very	8 (28.6%)
Neutral	1 (3.6%)
Somewhat	11 (39.3%)
Very	5 (17.9%)

Aware of any smartphone viruses?

Yes	5 (17.9%)
No	23 (82.1%)

Had a virus on smartphone?

Yes	0 (0.0%)
No	28 (100.0%)

Use an anti-virus program on smartphone?

Yes	1 (3.6%)
No	27 (96.4%)

Most used features on smartphone (top 5)

E-mail	27 (96.4%)
Texting	26 (92.9%)
Camera	22 (78.6%)
Internet	22 (78.6%)
Calendar	21 (75.0%)

Download apps on your smartphone?

Yes	26 (92.9%)
No	2 (7.1%)

Downloaded apps to increase smartphone functionality for business tasks?

Yes	14 (53.8%)
No	12 (46.2%)

How often do you read the User Agreement license for apps?

Never	11 (42.3%)
Rarely	10 (38.5%)
Sometimes	3 (11.5%)
Often	1 (3.8%)
Always	1 (3.8%)

Concern of getting virus on smartphone:

Not at all	6 (21.4%)
Not very	8 (28.6%)
Neutral	2 (7.1%)
Somewhat	7 (25.0%)
Very	5 (17.9%)

Employer concern of smartphone virus:

Not at all	5 (18.5%)
Not very	7 (25.9%)
Neutral	7 (25.9%)
Somewhat	3 (11.1%)
Very	5 (18.5%)

The following significant findings were found:

Operating system regarding concern of private information stolen:
100% of Android OS users claimed to be at least somewhat concerned. 83% of Blackberry OS users claimed to be at least somewhat concerned. iOS users are split between being concerned and not concerned.

Operating system regarding concern of getting a virus:
100% of Android OS users are at least somewhat concerned. 67% of Blackberry OS users are at least somewhat concerned. 54% of iOS users are at most not very concerned, with 32% being at least somewhat concerned.

Length of owning smartphone and concern of private information stolen:
67% users that had the phone at least 5 years are not very/at all concerned. 100% users that had a smartphone less than a year are somewhat concerned. 71% of users that have owned a smartphone between 1-2 years are at least somewhat concerned. Users that owned a smartphone between 2-5 years are split.

Length of owning smartphone and concern of getting a virus:
67% of users that owned a smartphone at least 5 years are not at all concerned. All other users are split nearly 50/50 regarding concern.

Gender regarding private information stolen from smartphone:
72% of males are at least somewhat concerned, while only 33% of females are.

Gender regarding concern of getting a virus:
78% of women are not very or at all concerned of getting a virus. Men are nearly split regarding their concern.

Age regarding concern of getting a virus:
80% of respondents that are 60 or older are at least somewhat concerned. 67% of 26-35 and 36-45 users are not very or at all concerned. Users in the 18-25 demographic are split 50/50.

Age regarding concern of private information stolen:
Users of the 18-25 and 36-45 demographic are split 50/50. 80% of users over the age of 60 are at least somewhat concerned. 67% of users aged 26-35 are at least somewhat concerned.

SUMMARY OF RESULTS

Employees are becoming reliant on smartphones for business usage. The increased number of business smartphone users increases the likelihood of companies' data and information being exposed. Despite the increased risks, businesses at large have yet to implement policies for smartphone usage. While the lack of policies may seem counterintuitive, no respondents reported information stolen or viruses on their smartphone. One could assume that companies do not want to invest resources into areas that are of no immediate concern. While employers themselves do not seem concerned about private information being stolen, over half of respondents are at least somewhat concerned over the respective issues. Respondents are minimally aware of smartphone viruses, and employers could use the opportunity to utilize smartphone usage and security awareness programs. These programs could inform employees of proper smartphone usage and risks and security measures to protect data on smartphones.

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NOTES

A DOZEN USEFUL WEBSITES FOR EDUCATORS

Marcel M. Robles, Eastern Kentucky University

Several websites exist that can facilitate creating online presentations, converting web pages to PDF format, sharing and collaborating, taking virtual tours, and capturing entities beyond screen capture.

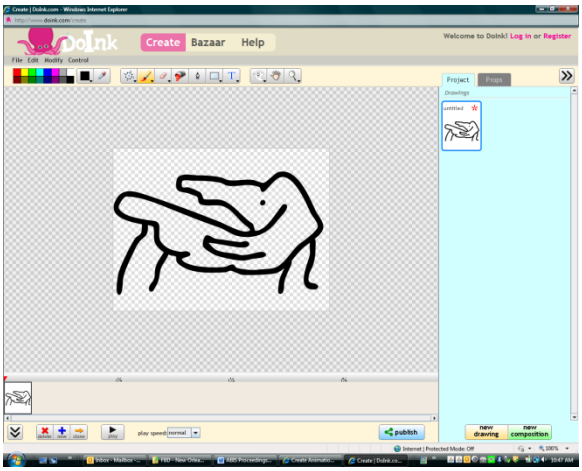
PURPOSE OF THE STUDY

This paper summarizes a dozen websites that can help educators use technology to their advantage—to be more creative in the classroom, to learn more knowledge, to share more information, and to have more resources available for both teachers and learners.

REVIEW OF THE WEB SITES

DoInk is a free platform that allows you to create user-friendly and cloud-based flash-style animations (.swf file extension). DoInk allows you to create moving words, shapes, people, and images that can then be imported into a presentation (e.g., PowerPoint, Prezi) or even YouTube or Facebook. Additionally, a form of kinetic typography can be created to visualize a verse, poem, or story. An account and a quality illustration can be created in less than an hour, so DoInk could even be used for an in-class computer lab assignment. Once an animation or illustration is created (see Figure 1), it can be downloaded as an swf file, embedded in a website, or linked to it. The student's own artwork can be downloaded into DoInk as well.

Edistorm provides online brainstorming and planning. It is a free, cloud-based program that utilizes a large blank canvas and virtual Post-it notes (see Figure 2)—similar to the tools used for brainstorming with a chalkboard or whiteboard in the classroom. You can create a "storm" in a minute before class and invite the entire class to see it via e-mail. Perhaps you need a list of topics for students to write a persuasive speech.



Students can add, edit, and delete ideas from their computers that are visible on the canvas to the group. During class time, the canvas can be displayed on a big screen with a data projector. Students can then vote on the ideas. Edistorm sorts the virtual Post-it notes by vote tally. Using the large screen during class, the instructor can sort the ideas and initiate class discussion on emerging

patterns and interesting speeches. The instructor also gets an email from Edistorm with a report listing student names along with their ideas and comments.

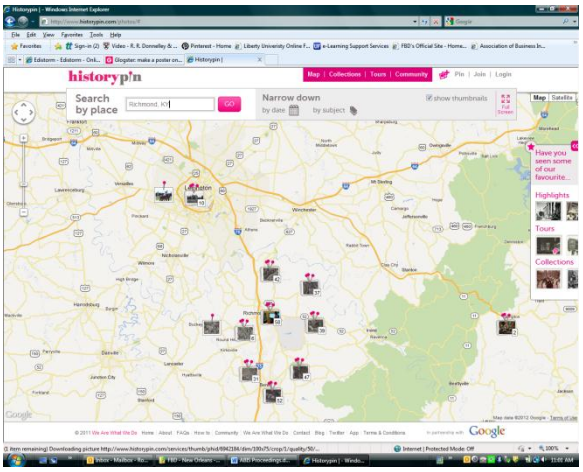
Glogster allows you to create glogs, which are virtual poster boards that allow you to incorporate visuals, text, video, and audio files on one page—and share them with others. Glogster can be used for students to display their work on a project or as a visual portfolio. One possibility might be for English composition classes to use Glogster to introduce visual rhetoric. Students could also use this program to present videos, photos, and audio files.

Google Docs is a web-based collaborative, inexpensive data storage service that allows users to create, share, and edit single documents (or groups of files) online while collaborating in real-time with remote users. The privacy options can be customized to be completely open or closed. Everything is saved in the Google cloud so it can be accessed or downloaded from anywhere. The most recent improvements in Google Docs for 2011 include the following features:

- Character-by-character collaboration, including new transitions, animations, and themes
- Page numbers and pagination in documents, providing visual page breaks on the screen
- Comments in Google documents, including collapsible discussions, better email notifications, and more detailed discussion pane
- Android app available in 48 languages
- Comment-only access in documents that allows others to view and comment without editing your doc
- New printing options, such as one-click CloudPrint from a mobile device
- Improved accessibility, including screen reader support and shortcuts, so more navigable for blind users

Google Sites is a free and easy way to create and share webpages, collect all of your information in one place, and control who can view and edit your information. The program also lets you create a website for communicating with large groups. Several pre-built templates are available for you to get started, or you can create your own page from scratch. A big advantage is that multiple editors can change the same site, so your whole class could design the website together as a project; and then share the site with the company, who can also edit the site from that point. This site is user-friendly. Additionally, photos are easily embedded from YouTube or Picasa or Google Docs.

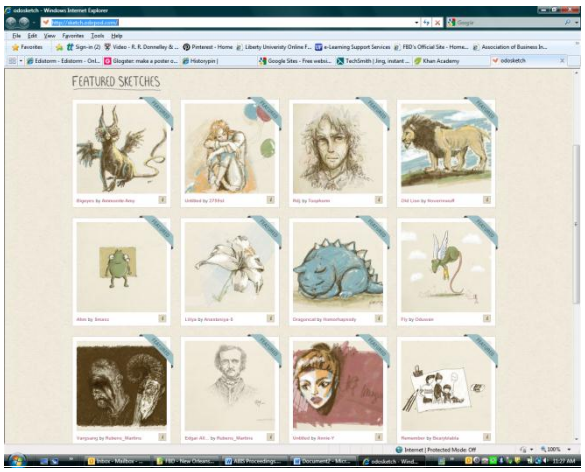
Historypin is an online collection of photographs, videos, audioclips, and stories that are organized on the map by the place they were recorded. As users upload files to the map, they are able to date them and write a synopsis of what is happening in the photo (see Figure 3). You can create a collection of photographs to tell a story digitally, using both written and oral communication, while filming a virtual tour. Students could also view photographs of the time and place of the setting of a book. Writing topics could be generated as students actually see the objects the author mentions, or students can witness the damage occurred by a natural disaster.



Jing provides a simple way to capture sound, images, and video files for instant sharing or as an swf file on your computer. Jing is similar to Print Screen, but also has the ability to crop out unwanted parts of the image. While Print Screen allows you to capture images, it is difficult to create usable jpeg files, everything on the desktop is copied, and the image is saved as a low-resolution file suitable only for online or very low-quality printed documents. Jing allows you to highlight sections, write on an image, and draw arrows (see Figure 4)--which are excellent tools for demonstrating new software to students (e.g., how to upload or edit files). You can also capture simple flash animated advertisements for student research purposes, live edits of meetings being conducted online, or record yourself and have the video file available for students to download.

Khan Academy provides a lot of knowledge resources on its site, making it an excellent reference for your students. You can learn almost any subject for free. Khan Academy has a library of over 2,700 videos covering everything from arithmetic, physics, finance, and history. With several practice exercises, you can learn what you want, when you want, and at your own pace. Not only can students watch videos on YouTube geared just for them, but also teachers can develop lesson plans and use the videos in their teaching. The current focus of this site is on many levels of math, science, humanities, and test prep.

Odosketch provides users with several digital pencils, colors, and a "sheet of paper" to draw illustrations that can then be shared as a file on a website or blog. The result is an animation of the drawing in progress; and if you prefer a standard, still-frame jpeg-like version of the drawing, you can take a screen capture of the finished drawing to paste into another file. Similar to creating clip art in Microsoft Paint and Google Drawing (which even allows collaboration), Odosketch provides a simple way for students to use more of their artistic abilities to create enhanced drawings (see Figure 5).



Picnik provides most of the basic options in photo editing, including black and white, sepia shading, red-eye fix, cropping, resizing, and rotating. It also offers several fun effects, including textures, fonts, shapes, frames, and stamps. The biggest advantages of Picnik are that it is free and accessible. It works easily in any browser, no downloading is involved, and no registration is required. You can either type in the web address or open the pictures from Facebook, Flickr, Picasa, or other storage area, such as your hard drive or jump drive.

Prezi is presentation software that allows a smoother, more animated, and dimensional transition between slides than PowerPoint (which is linear). The Wizard is user-friendly and videos are easy to embed. Prezi allows you to visualize ideas with panning and zooming, importing media, and adding storylines. You also have the ability to present online or offline. *Prezi Meeting* allows teams to work on the presentation at the same time; and because Prezi is cloud-based, it can be accessed and changed from any computer. Completed presentations can be embedded into a website or downloaded as a flash (.swf) file.

Teacher Website Builder allows you to create your own website easily, with little or no technical knowledge. This user-friendly software provides pre-designed themes if you prefer--or a blank canvas if you want to be more creative. Many features are available, and changes are easy to update. With your own teacher website, you can disseminate information quickly and easily to your students, upload assignments, and provide supplemental learning resources.

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Google Sites - http://sites.google.com

Historypin - http://www.historypin.com/

Jing - http://www.techsmith.com/jing/free/

Khan Academy - http://www.khanacademy.org/

Odosketch - http://sketch.odopod.com/

Picnik - www.picnik.com

Prezi Presentation Software- http://prezi.com/

Teacher Website Builder - http://www.teacherwebsite.com/ or http://www.educatorpages.com/

HELP! MY STUDENTS FAILED A PROBLEM-SOLVING OBJECTIVE!

Daniel D. Friesen, University of North Texas at Dallas

ABSTRACT

In this paper, I relate and examine the sequence of events that led to the title situation as well as possible solutions.

INTRODUCTION

This paper is about the curricular, degree program objective of inculcating problem-solving abilities into students who are seeking a bachelor of business administration degree (BBA) at our university. Since this objective is not being met, it is appropriate to organize the paper as a problem-solving exercise. Problem-solving is defined as "the process of identifying a difference between the actual and desired state of affairs and then taking action to resolve the difference" (Anderson, Sweeney, Williams, & Martin, 2008). These authors define the problem-solving process thusly:

1. Identify and define the problem.
2. Determine the set of alternative solutions.
3. Determine the criterion or criteria that will be used to evaluate the alternatives.
4. Evaluate the alternatives.
5. Choose an alternative.
6. Implement the selected alternative.
7. Evaluate the results to determine whether a satisfactory solution has been obtained.

Clearly, there is an imperative to solve this problem. Middleton (2002, p 67) summarizes by stating "the need to solve complex and often ill-defined problems is a requirement of current workplace settings." Other researchers echo problem-solving as a workplace requirement (Peterson, 2006; Davidson, Slotnick, & Waldman, 2000). Along with several other topics, critical thinking and problem-solving have been the subjects of education policy in the USA for approximately three hundred years (Snyder & Snyder, 2008).

(1) Identify and Define the Problem

Problem Background. I teach at a branch campus that is in the process of becoming a free-standing university. Indeed regional accreditation by Southern Association of Colleges and Schools (SACS) is the final step. SACS calls for academic assessment on a degree program-by-program basis. Since the main campus is accredited by SACS, we are afforded regional accreditation until we achieve our own. Changes to degree program content are not allowed until accreditation is accomplished; thus the assessment criteria and methods in place on the main campus have been adopted here. There is some latitude in how we assess but not in what we assess. Tracdat—a thin-client software—is used to manage objectives, assessments, and recommendations.

As required by SACS, degree programs must have a coordinator: I am assigned the coordinator role for the BBA in General Business. The following degree programs share the problem-solving objective: General Business, Entrepreneurship, Finance, and Organizational Behavior / Human Resources. Assessments occur at the end of the semester in the BBA program's capstone course that is common to all BBA programs. I do not teach this course.

Problem Description. Our problem-solving objective is assessed in two parts. The objective reads: "Problem Solving: Students will demonstrate the ability to apply knowledge to address complex business situations." The following results were obtained:

Method 1: Seven test-embedded questions were used to assess problem-solving skills with the criterion that 70% of students will score at least 70% on the questions.

- May 2011: Thirteen students took the test (all volunteers). Since 81% scored at least 70% on the questions, this criterion was met.
- December 2011: Since 64% scored at least 70% on the questions, this criterion was not met.

Method 2: General Business students were assigned a presentation to communicate their strategy for "winning" a competition based on a business simulation. The criterion was that at least 70% of the students will meet or exceed expectations using a rubric adapted from Washington State University's Integrated and Critical Thinking Rubric (9/25/06) and California State University—Chico's Business Critical Thinking / Problem Solving Rubric (Spring 2007). Our rubric is shown in Appendix 1. The following results were obtained:

- May 2011: Eighteen students gave presentations but only 50% met or exceed expectations; therefore, the criterion was not met.
- The simulation was not used during the December 2011 assessment.

Instructor / Assessor comments. The capstone course instructor noted the following regarding the failed objective from May 2011 (Goktan, B. personal e-mail):

> Students did not meet expectations in terms of synthesizing the problems at hand and making appropriate business recommendations. This may be due to the complexity of the simulation used in the course. Students need to understand how decisions in one area affect decisions in others. In the future, more time needs to be spent explaining the simulation and the inter-relation of decisions in each functional area to students.

Problem scope. The question of problem scope is always an important one. I have approached the situation—my students failed to meet a problem-solving objective—as a classroom or pedagogical issue. There are other approaches that could be considered. The appropriateness of the objective seems apparent. There is some supporting evidence that problem-solving is best assessed at the major level (Marshall, 2007). At any rate, modifying the objective at this point in our accreditation process is not an option. Of course, our assessment methods could be questioned. Problem-solving skills are thought to be difficult to assess (Davidson, Slotnick, & Waldman, 2000). Our methods and rubrics were provided by accreditation officers and faculty from the main campus. Although modifications could be made to our methods, it seems more prudent to proceed from the standpoint of a necessary pedagogy change. Changing both pedagogy and assessment method would confound the source of the problem. The pedagogical/andragogical literature is rich

with suggestions about how to teach problem-solving. It is there that we turn next.

(2) Determine the set of Alternative Solutions

Several alternative pedagogical solutions are discussed here including: case methods, problem-based learning, client projects, and other coursework assignments.

Case method. One of the more often-mentioned teaching strategies in conversations and reports about improving problem-solving is the case method. Arling, Deeter, and Eggers (2010) incorporated case method elements into their systems analysis course project. They report that the case method is an active learning approach that encourages problem-solving. Student feedback indicated "substantial or exceptional progress … to improve thinking, problem-solving, and decision making" (p. 419-420).

In the accounting discipline, development of problem-solving has long been a goal in the advanced coursework. Instructors seem to prefer case study analysis for developing problem-solving and other professional skills (Hassall & Milne, 2004; Ballantine & Larres, 2004).

Problem-based learning. In the business communication area, Pennell and Miles (2009), define problem-based learning (PBL) as a technique where students respond to an instructor-provided problem by iteratively cycling through three questions: (1) what do we know?, (2) what do we need to know?, and (3) how will we learn it? This approach is almost entirely student driven although the instructor does present the concepts that are relevant after the problem is solved. Bigelow (2004) implemented a PBL approach to developing skills in solving unstructured problems in a junior-level management course. One group of authors notes that problem-solving and teamwork skills should be taught simultaneously, since they are more often used simultaneously in the business world (Goltz, Histapelto, Reinsch, & Tyrell, 2008).

Client projects. In the business communications discipline, Seifert (2009) notes the perceived strong link between "good writing and good problem-solving." She recommends using client projects in graduate courses; specifically she assigns students to identify and communicate recommendations to problems that are, possibly, unknown to external clients.

In the information systems discipline, Arling, Deeter, and Eggers (2010) note that client projects are one of the two most often used methods for "providing students with real-world experiences." These authors received positive feedback from students regarding the pedagogical usefulness of the client project approach. Also relevant to information systems education is this idea from Harris, Lang, Oates, and Siau (2006): study in the topic area of systems analysis and design develops the problem-solving skills of students.

Weber and Englehart (2011) note several advantages to client projects, which they refer to as service learning. First, service learning allows students to integrate knowledge obtained from the various functional areas. Real-world application using active learning is an advantage. The possibility character development is a significant advantage as well.

Other coursework assignments. Williams and Reid (2010) relate anecdotes of improved problem-solving abilities in a quantitative business analysis course by changing the homework structure.

Specifically, they added assignments that required students to write persuasive memorandums that document student recommendations for problem solutions.

Using limited-scope, experiential learning projects, Walk (2011) assigns systems analysis / problem-solving tasks in her operations management course. She uses a technique named Documented Problem Solving. She notes that the original teaching environment was economics education; however the method should adapt well to different academic disciplines. The anecdotal evidence is positive. One innovation is the use of a free wiki site for the purpose of student collaboration and presentation of work.

Of course it is difficult to discuss problem-solving without mentioning Bloom's learning taxonomy. Nentl and Zietlow (2008) discuss how to inculcate higher order learning, or greater analytical thinking, i.e. the sorts of cognitive activity required for problem-solving. They note that incorporating business simulations as part of course assignments may be an effective strategy for moving into the higher levels of Bloom's taxonomy. Another effective approach from these researchers is making assignments to produce (high quality) secondary research.

(3) Choose Criteria to Evaluate the Alternatives

Choosing among the alternatives presented in the previous section is difficult. There are many stakeholders and important aspects to consider. For instance, the associate provost in charge of accreditation efforts recommended implementing the case method across the upper division BBA curriculum; that is, have students purchase a set of business cases that could be used in numerous classes. Faculty members expressed little enthusiasm for this suggestion. What will work for our student population is an important consideration, as is the input from the main campus.

I am tentative about recommending to my peers that they need to change what they teach in their classes. Selecting an alternative with which I am comfortable implementing, in the classes available to me, becomes an important concern. I teach sophomore- and junior-level statistics courses; these seem like appropriate places to affect change.

An important consideration is the limitation on classroom time. Inculcating skills can be more time consuming that providing content. Skills require practice and, often, mistakes will be made during the learning process (Fels, 1974). New techniques for thinking will have to be taught (Peterson & Lunsford, 1998). In describing impediments to teaching problem-solving skills, Snyder and Snyder (2008) elaborate on the ease of covering large amounts of content in relatively little time versus the significantly more time-consuming task of inculcating critical thinking processes. Resistance by students must be overcome.

(4) Evaluate the Alternatives

While I will admit to an attraction to the case method, incorporating a case method approach or a PBL approach would require significant revision to the content of my courses. Incorporating a client project is an option that would be appreciated by University administrators. We are in the process of developing a first-year experience that includes a service learning component, so it does not seem prudent to embark on a client project initiative at this time. Certain of the alternative coursework projects could be implemented without significant course revision in my classes.

(5) Choose an Alternative
At this point in time, I have elected to incorporate the memorandum project described in Williams and Reid (2010). The experiential learning projects described by Walk (2011) and the use of business simulations described by Nentl and Zietlow (2008) are also candidates.

(6) Implement the Selected Alternative
At this time, only the memorandum assignments are under development for implementation.

(7) Evaluate the Results
Using the language of learning objective assessment, here we would "close the loop." In the absence of substantial changes to the problem-solving objective and assessment methods, the feedback mechanism is in place.

CONCLUSION

Exploring ways to improve student outcomes is rewarding although there are a large number of options for doing so. There are a large number of stakeholders to consider: program assessment ends up being everyone's business.

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Appendix 1

Guide to Assessing Students' Business Critical Thinking/Problem-Solving Abilities

University of North Texas

College of Business

Spring 2009

(Adapted from Washington State University's Integrated and Critical Thinking Rubric, 9/25/06; and California State University, Chico

Business Critical Thinking/Problem Solving Rubric, Spring 2007)

Learning Goal	Objective	Desired Traits
Problem Solving	Demonstrate the ability to apply knowledge to address complex business situations	Identifies the main problems and issues at hand using all available relevant information. Suggests possible alternative solutions and develops criteria for evaluating those solutions. Uses the appropriate analytical tools (both qualitative and quantitative) to evaluate proposed alternative solutions. Makes appropriate recommendations for action using sound business judgment.

Number of students who scored:

Trait	Below Expectations	Meets Expectations	Exceeds Expectations
Demonstrates Factual Knowledge			
Identification of main problems issues at hand using all available relevant information			
Synthesis of problems and issues at hand			
Makes appropriate recommendations for action using sound business judgment			
Overall			

NOTES

HTML5: A RESPONSE TO MARKUP MADNESS IN THE WIDE WORLD OF WEB DEVELOPMENT

Carla J. Barber, University of Central Arkansas
Beverly Oswalt, University of Central Arkansas
Lea Anne Smith, University of Central Arkansas

INTRODUCTION

The pace of the development of Internet technology, mobile devices, and social media has been dizzying. The pace of the changes plus the multiple platforms and purposes of software development has brought about a mixture of markup languages (HTML4, XHTML1, DOM2HTML, and JavaScript).

There is a new software tool, HTML5, which has been developed to respond to the confusion of the markup languages needed to program the various Internet and mobile devices that are currently on the market and those under development.

EVOLUTION OF HTML

HTML5 is a language for structuring and presenting content for the World Wide Web, a core technology of the Internet originally proposed by Opera Software. It is the fifth revision of the HTML standard (created in 1990 and standardized as HTML4 as of 1997) and as of September 2011 is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.). HTML5 is intended to replace not only HTML4, but XHTML1 and DOM2HTML (particularly JavaScript) as well.

Following its immediate predecessors HTML 4.01 and XHTML 1.1, HTML5 is a response to the observation that the HTML and XHTML in common use on the World Wide Web is a mixture of features introduced by various specifications, along with those introduced by software products such as web browsers, those established by common practice, and the many syntax errors in existing web documents. It is also an attempt to define a single markup language that can be written in either HTML or XHTML syntax. It includes detailed processing models to encourage more interoperable implementations; it extends, improves and rationalizes the markup available for documents, and introduces markup and application programming interfaces (API) for complex web applications.

In particular, HTML5 adds many new syntactical features. These features are designed to make it easy to include and handle multimedia and graphical content on the web without having to resort to proprietary plugins and APIs. Other new elements are designed to enrich the semantic content of documents. New attributes have been introduced for the same purpose, while some elements and attributes have been removed. Some elements have been changed, redefined or standardized. The APIs and document object model (DOM) are no longer afterthoughts, but are fundamental parts of the HTML5 specification. HTML5 also defines in some detail the required processing for invalid

documents, so that syntax errors will be treated uniformly by all conforming browsers and other user agents.

MIGRATING FROM HTML4 TO HTML5

HTML5 integrates programs that previously worked independently and caused confusion when a mixture of HTML4, XHTML, XML, Flash, and JavaScript had to be used to create the desired design and functionality for a web page. A discussion of the differences in HTML5 and previous versions of HTML would surely contain the following observations:

1. Web pages no longer need to look (and act) like web pages. The rise of Flash over the last years has largely been an attempt to overcome "limitations" of what HTML allows. Flash was initially often focused on animations and cool visual effects. But then entire sites got rolled into Flash, allowing for different types of navigation and page organization, richer programmatic access to the individual pieces of a web page, and the ability to avoid the quirkiness of JavaScript

2. Web pages no longer need to represent one person/organization's content. Even though web programmers and designers have been pulling in images from other sites for years, web pages are still largely homogenous in terms of the asset ownership. A web page today really has one person's content, images, pages, media, and the like. Even sites like Vimeo and YouTube are more often used as extensions of a private repository than an actual free medium for world access.

3. Web pages can function intelligently and easily across display devices. It's no secret that MOBILE is the banner under which HTML5 most often flies. But the story really isn't that HTML5 has great mobile support; rather, it's that mobile is no longer a problem child. In other words, the story is that what works on a desktop browser pretty much works on a phone.
HTML5 has a really good shot at interconnecting all the devices.
(McLaughlin, pp. 3-4)

Simplified Syntax

One of the most notable differences between HTML 4 and HTML 5 is that now the syntax is simplified – web developers will certainly love this! The syntax in HTML 5 is compatible with HTML4, but still there are many improvements. The doctype declaration is much shorter and is just <!doctype html>. Transitional and loose variations of the doctypes are not supported anymore – you need to stick to XHTML syntax or HTML in strict mode.

New Elements

The new elements in HTML 5 are the most notable introduction. These new elements are intended to better meet the requirements of Web 2.0 sites and to simplify development. It is not possible to list all the new elements and attributes because the list is very long and if you are interested in the complete list, check the page at the W3 Consortium (http://dev.w3.org/html5/html4-differences/). Here are some of the new elements and attributes, which can be considered the most important:

<article> – This attribute is used to separate articles, blog posts, and other text content. With so many blogs and article sites, this element is extremely useful.

<header> and **<footer>** – These new elements are used for the header and footer of the page and they can replace the elements we use today to identify many elements, including headers and footers.

Since headers and footers are present on almost any page, it is good that now they have an element of their own.

<nav> – Similar to <header> and <footer>, <nav> is a dedicated element for the navigational items that we presently put in .

<audio> and **<video> –** Audio and video content is so common and so Web.20-like that it is really great that they made it easier to use audios and videos on a page. The <audio> and <video> elements make it easier to embed audios and videos, respectively.

In addition to the new elements in HTML 5, many new attributes to existing elements are introduced, but their list is even longer than the list of elements. In any case, before you start coding in HTML 5, take a look at the list of new attributes for the elements you most frequently use to see if there are changes.

Modified Elements and Attributes

Some of the fundamental attributes in HTML, such as <a>, <b>, or <i> have been modified. It might take you some time and a lot of effort to learn the new meanings. Here are some noteworthy changes:

<a> – When the <a> element is used without an <href> attribute, this is a placeholder for a link.

<b> – The new function of the <b> element is rather vague. It is not **bold** but it is still a way to mark a chunk of text as different from the rest. You can use it for keywords, product names, etc.

<hr> – The <hr> element is now a type of break (a paragraph-level thematic break, to be more precise).

<i> – The <i> element also marks a chunk of text as different from the rest but its usage is very diverse. You can use it for names, idioms, technical terms, etc. Pretty vague again – I guess if you continue to use <b> and <i> the way you are used to, this will be a mistake. If you want to have bold and italicized text, you should put them in the stylesheet instead. While this change may not be convenient for sure, it needs to be followed. Maybe for search engine optimization (SEO) these tags are now more useful because they are a way to mark a chunk of text as important without making the text as bold and italicized, but until we get used to the new meanings of the elements, there will be problems. The <mark> and elements can be used as well to mark and emphasize special parts of the text.

There are many other changes to existing attributes and elements but they are more evolutionary than revolutionary and will hardly cause so much turmoil in the community.

Deleted Elements and Attributes

In addition to the elements and attributes that changed from HTML 4 to HTML5, there are some elements and attributes that are no longer with us. Some of them will hardly be missed because they haven't been used much and were just cluttering the language, while others could have stayed. Here are some of the elements and attributes that didn't make it into HTML5:

Elements better handled via CSS. The first group of deleted elements includes some very popular elements, such as <font>, , <big>, and <u>. These elements are no longer supported in HTML5 because their place is in the style sheet. This change could cause a bit of turmoil when you really

want to use these elements in your html rather than in your style sheet.

No more frames. The <frame>, <frameset>, and <noframes> elements were so 1990-ish that it is great we got rid of them. Frames were cool 10 year ago, but since they caused so much trouble and were a SEO and useability penalty, many designers avoided them, even though these elements were not excluded from the HTML specification. This is good riddance for sure and these elements will hardly be missed.

Elements rarely used. There are many elements that were present in the old specification but were not commonly used, so they have been removed completely. They include <acronym>, <applet>, <isindex>, and <dir>.

As you can see, there are some differences between HTML 4 and HTML5 but they are not that fundamental – that is, you won't have to re-learn HTML from scratch. Still, it might take some time and effort to get used to the changes, especially the modified elements and attributes. The good news is that HTML5 eases many aspects of HTML development and this alone is enough to justify the update.

HTML5 RESOURCES

HTML5: what is it?
Explained: Full lowdown on HTML5 and why it's important for the web
http://www.techradar.com/news/internet/web/html5-what-is-it--1047393

Why HTML5 is worth your time
Eric A. Meyer on HTML5's future and the skills developers need to acquire
http://radar.oreilly.com/2010/03/why-html5-is-worth-your-time.html

6 Reasons Why HTML5 is More than Just Another Web Toolkit
http://www.softwarequalityconnection.com/2011/04/6-reasons-why-html5-is-more-than-just-another-web-toolkit/

5 reasons why HTML5 will be huge
Kevin Anderson Aug 5, 2011
http://www.firstpost.com/tech/5-reasons-why-html5-will-be-huge-55191.html

20 Things I learned about Browsers and the Web
http://www.20thingsilearned.com/en-US/html5/1

What is HTML5?
Once you really understand HTML5, you'll change the way you think about the web.
http://radar.oreilly.com/2011/07/what-is-html5.html

Seriously, what is HTML5?
http://darcyclarke.me/thoughts/seriously-what-is-html5/

What is HTML5?
http://news.discovery.com/tech/what-is-html5-111007.html

What is HTML5
The Newest Version of HTML
http://webdesign.about.com/od/html5/qt/what_is_html5.htm

Should I learn HTML5?
http://html5tutorial.net/general/should-i-learn-html-5.html

How HTML5 Works
http://www.howstuffworks.com/html-five.htm

Learn HTML 5
http://html5tutorial.net/general/learn-html-5.html

AN INNOVATIVE SOLUTION FOR BUILDING DIGITAL FORENSICS SKILLS

Joselina Cheng, University of Central Oklahoma
Michelle Hepner, University of Central Oklahoma

ABSTRACT

An innovative pedagogy is presented for educating a new generation of digital forensics specialists. Digital forensics is a branch of forensic science involving the collection and analysis of legal evidence from digital media. A set of multimedia-based learning modules called *eTutor* is created by a collaboration of top-ranking forensics professionals, senior faculty, and experienced National Science Foundation (NSF) grant researchers who share forensics expertise, experience, resources, and technological infrastructures. The resulting innovative pedagogy will be evaluated by comparing *eTutor* students against a student control group who are engaged in a conventional learning environment by traditional pedagogy. Learning in both groups will be quantitatively measured and statistically analyzed using digital forensics assessments that include pretests and posttests. Learning satisfaction surveys will help qualitatively measure student learning experiences in both groups and compare for statistically significant differences.

INTRODUCTION

Although advances in information technology present new opportunities for traditional brick-and-mortar higher education and K-12 institutions to deliver education digitally, research shows that text-based learning materials do not sufficiently address the Net generation's auditory, visual, and kinesthetic learning styles in a hybrid classroom (Cheng, 2009a, 2009b, & 2009c). A hybrid setting includes the components of the face-to-face classroom attendance and web-based learning resources. While the literature is filled with e-learning studies; addressing students' learning styles with innovative technology to teach and learn digital forensics disciplines in the global e-learning environment remains under explored (Alshare, Kwun, & Grandon, 2006; Britt, 2006; Cao, 2005; Lessen & Sorensen, 2006; Moallem, 2008; Zhang, 2004). The *eTutor* project is designed to discover how the use of advanced technology and innovative pedagogy can improve science education. The project's mission is to develop web-based digital forensics learning resources that are more engaging for, responsive to, and effective with a diverse range of teachers and students.

This project incorporates information communication technology (ICT), multimedia, and mobile technology into the design and development of a web-based tutoring system (*eTutor*). *eTutor* is based on research that suggests multimedia-based learning modules better address different learning styles (e.g., students with physical or learning disabilities) and are more accommodating of students with barriers to learning (e.g., English as a second language) by providing students with global access to educational content repeatedly without time and location constraints (Cheng, 2008, 2009a, 2009b, 2009c, 2010). *eTutor* will use iPads, functioning as an intelligent digital book (eBook), in a hybrid classroom. A hybrid setting includes the components of (a) face-to-face classroom attendance and (b) web-based learning resources that can be

accessed via the Internet by students without time and location constraints.

BACKGROUND

This project leverages research in the areas of digital forensics and cyber learning in an effort to address the deficit in conferred degrees in digital forensics. In addition, we hope to increase the attraction and participation of minorities in technical fields which can help resolve an ever increasing gap between the demand and supply of technical professions in the United States (Burke & Mattis, 2007).

DIGITAL FORENSICS

Digital forensics, also known as computer forensics, is a branch of forensic science involving the scientific collection, preservation, documentation, examination, and analysis of legal evidence from compromised digital media. Cyber security has become a national priority due to increasing cyber crimes that use the Internet, network, or computer-related equipment as media to commit illegal activity in a technology-rich society (Attack trends, 2010; Choo, 2008; Department of Defense, n.d.; Wei, Sprague, Warner, & Skjellum, 2010). Digital forensics has become an indispensable tool for law enforcement to solve these crimes (Nelson, Phillips, Enfinger, & Steuart, 2010). As a result, digital forensics now ranks as the second-fastest growing profession in the United States, due to the rising demands for digital examiners and forensics professionals (National Research Council, 2009; US Bureau of Labor Statistics, 2010; U.S. Census Bureau, 2010; Weiser, Biros, & Mosier, 2008).

According to the Oklahoma Employment Security Commission (2009), the occupation of forensic science technicians, which includes computer forensics, is projected to increase with an annual growth of 30.8 percent by 2016. The occupation of computer systems analysts (**Appendix A**), which also includes digital forensics professionals, is expected to increase by 25.2 percent, for an average of 190 job openings annually. However, in 2010, only 29 forensics degrees, a growth rate of less than 1 percent from 2009, were conferred by Oklahoma universities and colleges (Oklahoma Employment Security Commission, 2009). Oklahoma's demographics suggest a diverse population to build an equitable digital forensics workforce. Oklahoma has the second-greatest number of Native Americans in the country. Oklahoma is also the home to a rapidly growing Hispanic population that increased from 11,762 (2% of total population) in 1990 to 33,364 (6% of total population) in 2009 (Oklahoma State Regents for Higher Education, 2009).

To respond to the intensive demand and to build a diverse and equitable workforce in Oklahoma and the nation, the Forensics department at the University of Central Oklahoma (UCO) is undergoing the accreditation process to launch a digital forensics degree. Introductory courses will be available for concurrent enrollment by high school and college student in 2014. This project will use innovative technology to deliver a quality digital forensics education via the Internet to better prepare students to compete in technology-rich societies.

CYBER LEARNING

The current knowledge-based, global economy requires new methods of delivering education, which enriches the traditional methods of knowledge

acquisition and distribution in the traditional higher education and K-12 institutions (Chen, Gupta, & Hoshower, 2006; Picciano, 2006). Advanced technology further enhances education delivery and knowledge acquisition in an e-learning environment when learners and instructors are at a distance from one another but are connected by technological media (Saba, 2005). Web-based learning content offers students a flexible schedule so that they attend school or access educational content without time or location constraints (Prepare & Inspire K-12 Education in STEM for America's future, 2010; Oklahoma Department of Education, 2010; U.S. Department of Education, n.d.).

According to a survey study conducted by the Association to Advance Collegiate Schools of Business, 60% of full-time, higher education faculty were involved in hybrid/online course creation, update, and delivery through Internet and course management systems such as WebCT/Blackboard that allow students to access learning modules via the Internet without time or location constraints (Singh & Bernard, 2004; Trees, 2000). The demand for online education has more than tripled in the last five years from "483,113 in 2002 to 1,501,005" (Romano, n.d., A06).

Likewise, the K-12 e-learning landscape is growing rapidly. Florida's virtual high school (FVHS) is a successful entity that provides quality online education. Forty-five states will be following FVHS's model by expanding supplemental web-based learning in the next decade (U.S. Department of Education, n.d.; Oklahoma Department of Education, n.d.).

eTutor will explore how the use of innovative technology can affect student learning outcomes and satisfaction by promoting participation in cyber teaching and learning of digital forensics in a hybrid classroom. This innovative approach is suitable for use with academic year classroom instruction, after-school programs, and summer programs. iPads will function as intelligent eBook devices with embedded links to engage learning modules.

Research objectives (Obj.) and activities (Act.) that are designed to support the project goal are presented as follow:

Obj.1: Determine the effect of the use of eTutor on student learning outcomes

Act.1: Test *eTutor* with iPad and administer Digital Forensics Assessment to participants by 4/1/2012.

Obj. 2. Determine the effect of the use of eTutor on student satisfaction with learning.

Act.2: Test *eTutor* with iPad and administer Learning Satisfaction Survey to participants by 4/1/2012

THEORETICAL FRAMEWORK

As the demand for using advanced technology to deliver educational content electronically continues, faculty in higher education and K-12 are expected to provide students with global access to web-based course content and resources (Alshare, Kwun, & Grandon, 2006). Although advanced technology offers traditional institutions an innovative strategy to deliver educational content, institutional administrators and teachers have tremendous responsibilities to ensure the quality of online education is technologically, contextually, and pedagogically addressed when migrating learning modules to WebCT/Blackboard course site.

Technological frameworks

Web-based training aids employees in acquiring new skills needed to compete in the global economy, because skills learned today are soon obsolete (Brown, 2010; Galagan, 2001; Munzer, 2002; Pantazis, 2002; Salopek, 2003; Schank, 2002). Global companies such as IBM, GE, and Motorola incorporate information communication technology (ICT) to deliver web-based training modules to employees in divisions across continents without time and location constraints (Elswick, 2002; Huynh, Umesh, & Valacich, 2003). By exposing both teacher and students to ICT and other advanced technologies and innovative tools, *eTutor* can increase the participant's technical competency and increase their ability to compete in technology-rich and knowledge-based global societies (Brown, 2010; Huynh, Umesh, & Valacich, 2003).

eTutor is also based on the theoretically framework of technology mediated learning (TML) and a multimedia learning framework to improve teaching and learning effectiveness in the hybrid and cyber classrooms. TML is defined as "an environment in which the learner's interaction with learning materials such as readings, assignments, and instructions are mediated through ICT" (Alavi & Leidner, 2001, p. 2). TML is often implemented in the form of computer-assisted instruction, computer-based training, Web-based instruction, or Web-based training.

Multimedia learning is the delivery of information in a computer-based presentation by integrating several mediums of communication such as text, graphics, video, animation, and sound as the Internet supports the delivery of full-motion audio and video to personal computers (Zhang, 2004). Studies also show that multimedia-based learning modules can entice learners to pay full attention through the vividness of presentation, sound, and hands-on activity to maximize the learner's ability to retain information and learning outcomes (Chute, 2002; Moallem, 2008**;** Nugent, Soh, Samal, Person, & Lang, 2005; Roblyer, Davis, Mills, Marshall, & Pape, 2008; Syed, 2001; Yu, Wang, & Che, 2005; Zhang, 2004).

Technology mediated and multimedia learning also cultivates an active and multi-sensory learning environment to better address student auditory, visual, and kinesthetic learning styles (Cao, 2005; Weston & Barker, 2001; Zhang, 2004). The use of these frameworks produces empirical evidence that teaching effectiveness and student learning outcomes are improved over traditional settings (Cheng, 2009; Folkers, 2005; Hogan & McKnigh, 2007; Moallem, 2008; Picciano, 2006; Sandman; 2009; Turkmen, 2008).

Contextual frameworks

Technology is rarely a solution without rich and current content. The rapidly growing and emerging digital forensics profession encompasses multiple disciplines (i.e., biology, chemistry, earth science, and technology) as well as a variety of career paths. The multi-disciplinary nature of digital forensics also aligns with Brown's assertion (2010) that science, technology, engineering, and mathematics (STEM) professionals are not going to have a fixed, single career in the next decade. To address this challenge, *eTutor* modules will be designed to model lifelong learning. Subject knowledge must be easily modified to enable curriculum updates with the rapidly changing pace of an emerging profession such as digital forensics. *eTutor* modules can be accessed by first time college students or professionals returning to update their skills but without the time and location constraints typical of a university setting.

Likewise, *eTutor* provides an ideal solution for the unemployed to develop new skills and professional knowledge outside a traditional classroom setting.

Pedagogical frameworks

Since technology is only a tool and content knowledge alone is not enough to transform education, great teachers must be able to call on a repertoire of methods and reformed pedagogy (Brown, 2010). Teaching in the global learning environment requires different pedagogical strategies than those used in the traditional face-to-face (F2F) classroom (McKnight, 2004). Despite the fact that web-based teaching and learning have gained momentum and now account for a significant proportion of course offerings in higher education, pedagogical guidance is needed for faculty making the transition from the traditional classrooms to hybrid and cyber classrooms. This type of teaching guidance is very limited (Mollam, 2009, Cheng, 2010). Educators often undergo the pragmatic process by unlearning past teaching habits and philosophies. To overcome such a problem with sound pedagogy, *eTutor* is based on the constructive and active learning framework.

TYPES OF LEARNING

Constructive Learning

Incorporating cognitive and constructive learning theories into *eTutor* learning modules can help students learn autonomously as the teaching practice transitions from knowledge transmission to knowledge construction (Folkers, 2005; Waterhouse, 2005; Yu, Wang, & Che, 2005). Cognitive and constructive learning underlines the importance of goal setting and the types of feedback that can motivate students to learn (Bellefeuille, 2006). Cognitive and constructive learning also aids the development of students' self-regulatory skills to manage course workload and succeed in the e-learning environment (Whipp & Chiarelli, 2004).

Active Learning

For teachers to transition pedagogy from lecture-based to learner-centered, *eTutor* learning modules are designed with a hands-on, problem solving, inquiry-based, and project-driven (HPIP) approach to foster active learning (Brzovic & Matz, 2009; Chanlin & Chan, 2007). The HPIP learning environment can foster students' critical thinking where learners "become more actively engage in the learning process" (Waterhouse, 2005, p. 37). Teachers become facilitators who also encourage students to think creatively and critically by applying learned concepts to solve a real-world cyber crime with digital evidence (Artino, 2008; Gonzalez & Salmoni, 2008; Juniu, 2006; Snow-Renner & Lauer, 2005). Research shows that incorporating HPIP with innovative technology to create multimedia-based learning modules can enhance teaching and learning effectiveness in the hybrid and online settings (Cheng, 2008, 2009, 2010; Tangdhanakanond, Pitiyanuwat, & ***Archwamety***, 2006; Waterhouse, 2005).

ETUTOR PILOT STUDY

In this study, the researchers will use digital forensics software to create *eTutor* multimedia-based learning modules that are animated with sound, graphics, and hands-on demonstrations captured using *Camtasia*. The multimedia-based learning modules are designed to address students' visual, auditory, and kinesthetic learning style and to be accessed by students via the Internet. Learners need a Web browser, a *RealPlayer*, and a sound card to hear the narration of the *eTutor* streaming video. **Appendix B** shows two steps in an *eTutor* multimedia-based

learning module that illustrates step-by-step instructions for recovering digital evidence and solving a cybercrime using the forensic toolkit.

The research design of this study is quasi-experiment. The research method of the proposed study is quantitative. Table 1 presents the instrument design and statistical methods in relation to the research objectives.

Table 1. ***Analytical Methods***

Measurable Objective (Obj.)	**Data Collection Method & Instruments**	**Data Analysis Method**
Obj. 1 Learning outcomes	Digital Forensics Assessment	Multivariate analysis of variance (MANOVA)
Obj. 1.2 Learning satisfaction	Learning Satisfaction Survey	T-test

TARGET POPULATION

The target population of the quasi-experiment study includes (1) college students who are enrolled management information systems (MIS 3263) courses and digital forensics courses (FRSC 4463/5463) and (2) high school students who are enrolled at Oklahoma Christian School during the 2011-2012 academic year. A computer program will be used to select a sample of 100 underrepresented population from the pool of volunteers. Participants will be randomly assigned to two groups: (1) the control group will receive text-based lectures and (2) the treatment group will be provided with iPad which will be used as an intelligent eBook to access text-based forensic content and *eTutor* learning modules.

INSTRUMENTS

Researchers will develop *Digital Forensics Assessment* (DFA) and *Learning Satisfaction Survey (LSS)*, as shown in the **Appendices C and D**, are designed to collect quantitative data. The pilot test is to establish the validity and reliability of instruments that will be used to assess *eTutor* learning. These instruments will be revised based on feedback from the pilot group. Instrument modification based on reliability and validity testing is an important step since the development process is a series of cycles through design, development, testing, and redesign, leading to final instruments that yield reliable and valid data (Cobb, Confrey, deSessa, Lehrer, & Schauble, 2003; Lamberg & Middleton,2009; Shadish, Cook, & Campbell, 2002; Shadish, Cook, & Campbell, 2002; Shaffer, 2010).

Research Questions

Both DFA and LSS instruments are designed to collect quantitative data. The DFA instrument will consists of closed-ended, multiple-choice questions that can provide the researchers with interval data. DFA will be administered to both groups as pretests and posttests. The objective of the pretests is to establish the baseline of prior forensics knowledge. The objective of the posttests is to determine any knowledge that is gained by students after reviewing discipline-specific contents. The score differences from the pretests and posttests will form the basis to compare differences in student learning outcomes for both groups. Likewise, the LSS survey instrument also consists of closed-ended questions that can be answered by participants with pre-defined Likert-type scales (i.e., *strongly disagree, disagree, undecided, agree, and strongly agree*). Data to be derived from both DFA and LSS will form the basis for

answering the following research questions (RQ).

RQ1: What is the effect of *eTutor* on student learning outcomes as measured by the *Digital Forensics Assessment*?

RQ2: What is the effect of *eTutor* on student learning satisfaction as measured by the *Learning Satisfaction Survey*?

RESEARCH HYPOTHESES

Pilot test data will be downloaded and imported into the Statistical Package for the Social Sciences software. Multivariate analysis of variance (MANOVA) will be performed to determine the statistical significance at the 95% confidence level if the use of *eTutor* has positive effects on student learning outcomes. Student satisfaction data will be derived from the survey instrument that can be answered with pre-defined likert-type scales. T-test will be performed to determine at the 95% confidence if the use of *eTutor* learning modules affect student satisfaction with learning positively.

H_1: The use of *eTutor* has a positive effect on student learning outcomes.
H2: The use of *eTutor* has a positive effect student satisfaction with learning.

Project Development & Timeline
The following sections present a sequence of activities for the design, development, and pilot test of *eTutor* technology

Planning Phase
The PI will submit the Internal Review Board application will be submitted and the approval will be anticipated by August 10, 2011. One undergraduate research assistant will be hired. All project personnel will complete the human subject training and become certified. Other planning activities include project staff meetings and technical trainings on how to use the *Camtasia*, forensics toolkit, and the statistics software.

Design and Development Phase
Researchers will collaborate with representatives from AT & T Digital Evidence and Cyber Security and Edmond Police to determine what digital forensics toolkit and free software to be included in the design and the development of *eTutor* learning modules. Researchers will use *Camtasia*, a screen capturing software by TechSmith, to create five *eTutor* multimedia-based learning modules. *eTutor* modules will provide participants with step-by-step instructions on how to perform digital examination by (1) downloading forensics tool kit, (2) recovering digital photo, (3) examining the hidden email header, (4) restoring data from digital devices after files have been deleted, and (5) searching criminal records on databases. *eTutor* modules will be streamed by using a free commercial server (Screencast.com) which works with the *Camtasia* software and can be downloaded to iPads.

Recruitment & Pilot Testing Phase
Researchers will recruit from the target population as previously described. Table 2 outlines timeline for pilot testing eTutor.

Table 2. ***Timeline for eTutor Modules***

Target Dates	Module Number
2/1/2012	1. Downloading forensics tool kit.
2/14/2012	2. Recovering digital photo
3/1/2012	3. Examine the hidden email header.
3/12/2012	4. Restore data from digital devices
3/31/2012	5. Searching criminal records on databases

Data Analysis Phase
Researchers will analyze the data and present the aggregated findings of learning outcomes and satisfaction as shown in **Appendix E**.

Project Evaluation
Researchers will use a mixed method (both quantitative and qualitative) to perform summative evaluation and determine the *eTutor* pilot project effectiveness. The summative evaluation will verify that the data collected by the project to answer its research questions and hypotheses are credible, and, as needed, will determine if identified threats to the internal and external validity of the findings are justifiable and what changes need to made to the instruments. **Appendix F** presents the rubrics to assess the project effectiveness in terms of processes and deliverables. The summative evaluation will be submitted as part of the final project report.

Project Dissemination
The findings will become available at the PI's and website at the completion of the study. A paper with pilot test findings will also be submitted to the Oklahoma Research Day, Intellectbase International Consortium (IIC) Academic Conference, and the Digital Forensics, Security, and Law Conference for presentations (see Budget and Justification section for travel details). A paper will also be submitted to the *International Handbook of Academic Research and Teaching*, *the Journal of Digital Forensics, Security and Law*, the *Journal of Information Systems Technology & Planning*, the *Journal of Research on Technology in Education*, and the *Journal of Digital Learning in Teacher Education* for publishing in peer-reviewed journals.

SCOPE AND LIMITATIONS

The scope of the proposed grant is limited by several factors. First, the study will employ convenience sampling and the pilot test size is very small. ***Contingence:*** In the event of voluntary withdrawals, the lack of commitment to participate in all five modules, or any foreseeable national events, researchers will either recruit more volunteers to maintain the pilot test sample size or reduce the number of *eTutor* modules to stay within the project scope, resource, and timeframe. Second, all pilot test participants will come from two institutions in the state of Oklahoma. Third, *eTutor* testing procedures will be conducted in one semester. The scope, sample size, geographic boundary, and time constraints of the study may hinder the researcher's ability to generalize the results to a larger population.

LEADERSHIP IMPLICATION & SIGNIFICANCE OF THE STUDY

According to the United States Census, Oklahoma ranked in the bottom one third of all states for educational attainment (Oklahoma Department of Education, n.d.). As the result, the *Brain Gain 2010* is an initiative that provides Oklahoma institutions with funding to develop innovative course content that encourage working adults to continue education and

complete college (Oklahoma State Regents, 2003). The findings can provide faculty members and institutional administrators with guidance for incorporating advanced technology and innovation to improve education, raise the number of conferred degree holders, and increase the intellectual capital in Oklahoma (Bauman & Graf, 2003; De Simone, 2006).

The project challenges the traditional method of professional development, teaching, and learning in higher education with an automated Web-based tutoring builder system. The *eTutor* pilot program allows top-ranked forensics professionals, well-published senior faculty, and resourceful partners to pilot an innovative model. Sharing forensics expertise, experience, and technological infrastructures maximize opportunities of exploring innovative teaching strategies for the cyber classroom. Project findings will provide significant knowledge for using innovative technology to enhance teaching and learning in the cyber classroom. The knowledge can also contribute to the discovery of a transformative model that allows higher education institutional administrators, policy makers, and the research community to better support educators and inspiring students in order to build up a pipeline of digital forensics workforce.

The *eTutor* project has the potential to transform training, teaching, and learning in global technology-rich societies. By integrating research and education, impacts from the project include cultivating a collaborative partnership among researchers, digital forensics professionals, higher education, and K-12 stakeholders, enhancing an automated web-based tutoring system for availability 24/7 over the Internet, creating and collaborating on innovative pedagogy for and with teachers using the latest technological media, engaging a tech-savvy generation in cyberlearning, and attracting an underrepresented population into the highly skilled and rewarding digital forensics profession using an automated web-based tutoring system.

SUBSTAINABILITY & EXTERNAL FUNDING

At the conclusion of the one-year pilot test study, the *eTutor modules and website* will be maintained by the UCO Forensics Science Institute (FSI). FSI will hire a part-time technician who is a full-time student at UCO with a major or a minor in computer science, management information systems, or forensics. The funds for maintaining the project website will come from the Forensics Department student fees from the enrollment of digital forensics courses.

Broader Impacts: The knowledge gained from this study becomes increasingly important as more digital forensics professionals are needed for the rapidly growing number of cyber crimes. The project is designed to maximize innovative methods by providing K-12 teachers and students with an array of resources to improve the traditional methods of teaching and learning with cyber teaching and learning in order to promote and better prepare students for the emerging digital forensics and intensive ICT workforce of the future.

The *eTutor* model can also be applied and implemented with advanced technology by teachers for other science, technology, engineering, and mathematics (STEM) disciplines. Potential sources of external grants listed in the *Community of Science* database include the NSF Innovative Technology Experiences for Students and Teachers, the Department of Defense Cyber

Crime Center, The Department of Education, and the Innovation in Participatory Learning Awards by MacArthur Foundation. Future studies are recommended to extend the pilot test findings by executing subsequent phases of research with larger population, higher institutional sponsorship, and longer timeframe.

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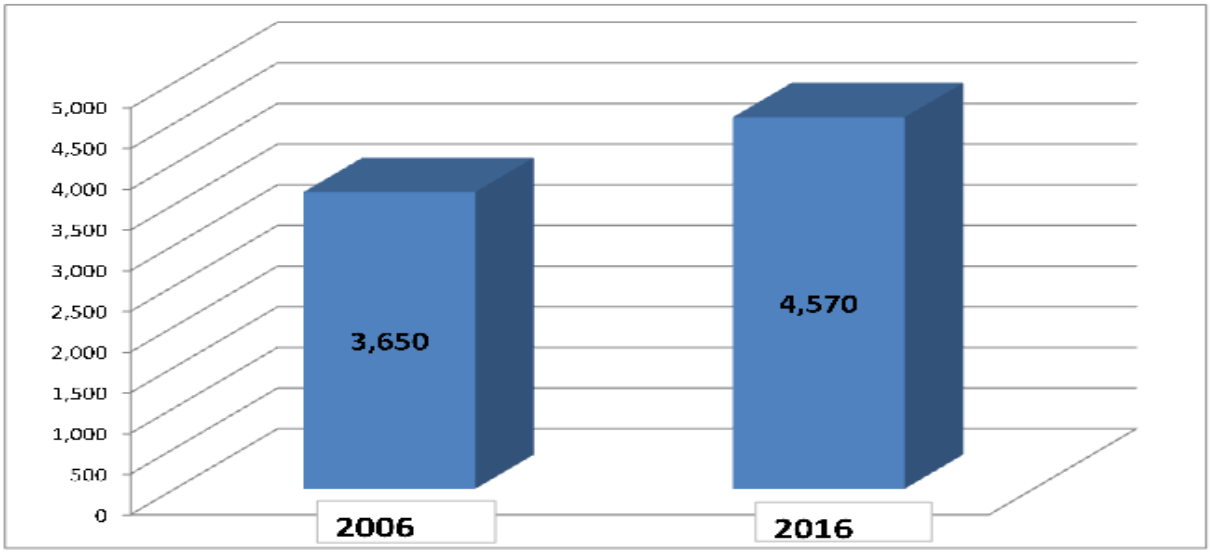
Appendix A –
Projected job growth for digital forensics in Oklahoma



Appendix B –
eTutor module: Introduction to the Digital Forensics Toolkit

Step 1. Launch Forensics Toolkit (FTK)	Step 2. Start FTK Imager
	

Appendix C -
Excerpt of Digital Forensics Assessment (DFA) for Pretest and Posttest

eTutor Module #1: Digital Forensics
1. How might a computer be involved in a crime? A) As a target. B) As a container of evidence. C) As a tool. D) All of the above.
2. Data in this type of memory is lost when the computer is turned off. A) ROM. B) CMOS. C) RAM. D) Flash drive.
3. Most computer hardware settings are stored in _____. A) Complementary Metal Oxide Semiconductor (CMOS) B) Random access memory (RAM) C) ROM D) All of the above
4. The triad of computing security includes which of the following? A) Detection, response, and monitoring B) Vulnerability assessment, detection, and monitoring C) Vulnerability assessment, intrusion response, and investigation D) Vulnerability assessment, intrusion response, and monitoring
5. Policies can address rules for which of the following? A) When you log on to a company network from home B) the Internet sites you can or cannot access C) the amount of personal e-mail you can send D) Any of the above
6. Who should have access to a secure container? A) Only the primary investigator B) Only the investigators in the group C) Only senior-level management D) None of the above
7. The manager of a computer forensics lab is responsible for which of the following? A) Necessary changes in lab procedures and software B) Ensuring that staff members have sufficient training to do the job C) Knowing the lab objectives D) None of the above

Appendix D -
Excerpt of Learning Satisfaction Survey (LSS)

Digital Consent Section					
1 = Strongly disagree 2 = Disagree 3 = Neutral/No opinion 4 = Agree 5 = Strongly agree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I enjoyed learning the digital forensics content.					
2. I enjoyed the method of digital forensics material delivery.					
3. The digital forensics learning modules address my preferred learning style.					
Demographic Data					
10. Age	Numeric value				
11. Gender	1=Male 2=Female				
12. Are you a college student?	1=Yes 2=No				
13. Preferred learning style	1=Auditory (listening) 2=Visual (seeing) 3=Kinesthetic (hands-on)				
14. Classification	0=High School 1=Freshman 2=Sophomore 3=Junior 4=Senior				
15. Level of technical skills	1=Beginner 2=Intermediate 3=Advanced				
16. Ethnicity	1=White 2= African American 3=Hispanic 4=American Indian 5=Asian 6=Other				

Appendix E -
Score Improvement in Relation to Group Affiliation and Preferred Learning Styles

Group	Learning Styles	Learning Outcomes Pretest/Posttest/Gain	Satisfaction with Learning Pretest/Posttest/Gain
Treatment	Auditory Visual Kinesthetic		
Control	Auditory Visual Kinesthetic		

Appendix F -
Matrix for Process and Deliverable Evaluation

	Description	Met	Partially Met	Not Met
Process	How effective is *eTutor* development and testing process			
	How effective is participant recruitment process			
	How effective is the resources sharing process with collaborators			
	How effective is the execution of contingency in dealing with challenges			
Product	Five *eTutor* modules developed and tested			
	Findings posted on the PI's and NYHOS's Web sites			
	Preliminary findings incorporated into grant proposal to DR K-12			
	A proposal to DR K-12 and other external funding sources			
	Submit a paper for conference presentation & Research Day			
	Submit a paper for journal publication			

LEGAL ISSUES SURROUNDING CLOUD COMPUTING

Robert B. Mitchell, University of Arkansas at Little Rock

Cloud computing, a form of IT outsourcing, continues to gain popularity as a technological approach to controlling IT costs and increasing technological agility. Forrester Research projects that the cloud computing market will reach $241 billion in 2020, more than 500 percent growth over 2011 (Dignan, 2011).

Cloud systems provide real-time access to shared resources located anywhere on the globe. The on-demand service represents a major paradigm shift from traditional ways of providing IT system infrastructure and service. These systems vary in types of services provided: BPaaS (BusinessProcess as a Service), SaaS (Software as a Service), Paas (Platform as a Service), and IaaS (Infrastructure as a Service). Cloud systems can be public, private, or hybrid. Yet no matter what the cloud architecture looks like, an organization's specific requirements must be integrated into a well-designed cloud strategy (Five myths of cloud computing, 2011).

In this paper the term "cloud computing" is defined as follows:

> Cloud Computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the datacenters that provide those services. The services themselves have long been referred to as Software as a Service (SaaS). The datacenter hardware and software is what we will call a Cloud. When a Cloud is made available in a pay-as-you-go manner to the general public, we call it a Public Cloud; the service being sold is Utility Computing. We use the term Private Cloud to refer to internal datacenters of a business or other organization, not made available to the general public. Thus, Cloud Computing is the sum of SaaS and Utility Computing, but does not include Private Clouds (Armbrust, et al., 2009, p. 1).

This paper does not directly address private clouds.

As with any emerging IT system, an analysis not only of strategic value but also of risks must be undertaken to assure overall value creation is achieved. When entering into a contract with a cloud service provider, organizational uncertainty exists regarding gains and losses that may be experienced in the relationship.

THEORETICAL FRAMEWORK

Many IT risk management methods have been developed and applied to IT outsourcing over the years (i.e., Barki *et al*., 1993; Kern *et al*., 2002). These assessment frameworks have been developed to facilitate evaluation of IT risk factors, potential consequences, and mechanisms for addressing areas of conflict. The Bahli and Rivard (2003) outsourcing risk framework is one reputable perspective; it is based on two theories frequently applied to IT outsourcing risk analysis: Transaction Cost Theory and Agency Theory.

Transaction Cost Theory: Risk analysis must consider that (1) clients have incomplete knowledge and limited ability in evaluating outsourcing suppliers and managing contract relationships (bounded rationality) and (2) service providers act out of opportunism (both in self-interest and in exaggeration/untruth) in order to maximize their success.

Agency Theory: Each participant in the outsourcing arrangement has a separate profit motive/"agenda" (noncongruent goals). Only with difficulty and at cost can the provider (agent) of the outsourcing services be monitored by the outsourcing firm (principal).

The framework described by Bahli and Rivard (2003) has applicability to evolving cloud computing relationships since such contractual arrangements must be carefully monitored by the organization to assure that the service provider is performing ethically and in the interest of the organization.

PROBLEM STATEMENT

One area of risk analysis that is continually evolving is that of legal issues impacting relationships between cloud service providers and organizations. Such issues likewise have implications for global business decision making and ethical behavior in managing relationships.

This paper analyzes legal issues impacting outsourcing risks in the cloud environment, with implications for global and ethical issues management. Legal risks add complexities as each participant in the outsourcing relationship seeks to accomplish his/her own profit motive—Agency Theory—while increased costs are incurred—Transaction Cost Theory—from restrictions, controls, and behaviors in the operating environment.
The service provider's profit motive must not stand in the way of meeting contractual obligations (stated or implied). The increasing number of legal issues in the cloud environment, however, confounds the outsourcing relationship and adds risks in meeting the organization's expectations.

LEGAL RISKS FACING USERS OF CLOUD COMPUTING RESOURCES

Organizations considering outsourcing to public cloud providers must evaluate the many legal issues relating to such outsourcing relationships and the resulting ethical responsibilities of outsourcing providers in the global environment: confidentiality, privacy, and data protection; regulatory compliance; and intellectual property (Rosenbaum & Bruce, 2010).

Issues such as the following must be evaluated as part of the risk management process that an organization must develop to achieve value in the cloud computing outsourcing relationship.

Conflicting U.S. state and country laws and regulations. The myriad of laws that impact data in a cloud system vary among legal jurisdictions. An organization must know where the corporate data is residing in order to be clear regarding laws that may impact its data flow and security (Agarwal, 2010).

Data storage in countries with fewer legal protections. Countries vary in laws that regulate where various types of data can be stored. An organization may be restricted in using or simply not allowed to use cloud resources in certain countries (Cunningham, 2010).

Indemnification by insurance company. Insurance company policies vary in coverage for losses or interruption of data caused by disasters, such as earthquakes, terrorist attacks, floods, to name a few, for various global storage locations.

Lower legal standards regarding search and seizure of data. Data stored in the cloud is subject to a less stringent legal standard relating to search and seizure. The data may even be obtained without a search warrant (Lemos, 2009).

Personal data subject to varied laws/regulations. Organizations in almost all 50 states are required to contact residents of the state when a data breach has been experienced. The cloud service provider must work with the organization in meeting the legal regulation. Similar legislation is being considered in the European Union. However, regulations such as the USA Patriot Act require that in certain circumstances personal information be provided to the U.S. government without notification of the cloud customer (Bowen, 2011).

Restrictive data export regulations. In varying global locations, laws do prohibit organizations from transferring personal information into a jurisdiction that does not provide an equal level of protection for personal data. For example, cloud providers who want to conduct business in the European Union must meet specific requirements of the European Union Data Privacy Directive in order to transfer data outside of the European Union (Bowen, 2011).

Unclear jurisdiction/legal governance over data. The place of jurisdiction is very relevant should conflict arise between an organization and a cloud service provider. What country's court system is involved may not be evident (Agarwal, 2010). In addition, an organization may find difficult accessing from cloud providers information needed during litigation, since multiple copies of data are often created, stored, and transmitted. What constitutes a "record" of evidence? A cloud providers' use of third party subcontractors complicates the jurisdiction issue (Dlodlo, 2011; Ward and Sipior, 2010).

Unclear security of nonpublic personal information (financial regulations, HIPPA, etc.). Cloud infrastructures may provide a level of security well beyond that financially feasible at a local deployment. However, both the outsourcing vendor and customer have a shared responsibility to assure a high level of reliability and security. Meeting the demands of relevant acts and standards is an additional issue. Depending upon the customer's industry, the outsourcing provider must be compliant with regulations/laws such as Health Insurance Portability and Accountability Act (HIPAA), for medical sector, or Payment Card Industry Data Security Standard (PCI DSS), for financial industry, for United States firms. Other countries have similar requirements (Patterson, 2011). Who is responsible for compliance, though, may depend upon the relationship of the parties in question: B2B, B2C, or a combination. If multiple parties and multiple jurisdictions exist, responsibility may be blurred for delivering data, content, application programs, etc.

The restrictive use and transfer of personal and personally identifiable data is governed by an increasing number of laws throughout the world. The European Unions' Data Protection Directive restricts the export of personal information of EU citizens and residents outside of the EU. "Laws and

regulations in the United States, European Union and throughout the world create a patchwork quilt of obligations, disclosure requirements, restrictions, responsibilities and liabilities that global and multinational companies will need to navigate in a cloud environment" (Rosenbaum and Bruce, 2010, p. 4).

To make the situation even more complex, an organization may not know at any one time where its cloud-based data is even being stored—on one or more servers across state lines or national boundaries. What laws govern? The laws of some countries give the power to confiscate data stored within its borders (Rosenbaum and Bruce, 2010).

Unclear warranties for software licenses. Unclear paradigms for software licensing are evolving. McAlpine (2010) warns that service will be provided with no warranty; no level of performance will be guaranteed. Cloud service providers will seek to reduce their liability to cloud customers.

Varied Intellectual property rights and protection of trade secrets. Intellectual property rights vary among countries. Data passing through a country, enroute to a secure destination, may have no protected security. Wiretapping or the intentional "taking" of data within the country may be legal; the country may have the right to censor. Thus an organization must assure that it is performing due diligence on the security and reliability of cloud service providers.

A cloud service agreement may allow the provider to "see" or "use" the data (Rosenbaum and Bruce, 2010). On the other hand, an organization may have in its data privileged information (such as that protected under an attorney-client relationship) of other businesses. What if that information is disclosed via the cloud service? Would the cloud service provider protect the organization? To what extent (Agarwal, 2010)? As a cloud customer, what are reasonable contractual components that will assure the organization has performed due diligence in contract negotiations to protect its intellectual property rights?

Warranties and indemnities to protect the customer. Often the form contracts with cloud providers are designed to protect the provider and not the customer. For example, if a data security breach is experienced, the provider may classify the damages to the customer as incidental and consequential and thus exclude it from recovery under the form contracts and standard terms of many cloud providers (Peterson, 2011).

CONCLUSION

As reflected in this paper, the complexity of the outsourcing environment demands that organizations be extremely diligent in negotiating contracts for cloud computing. The contract will ultimately determine whether the organization will be treated fairly and ethically by the cloud service provider. Kristin Lovejoy, director of security, governance, and risk management at IBM, summarized this implication of the responsibility well: "Ultimately, the consumer of the services is responsible for maintaining the confidentiality, integrity, and availability of data . . . ." (Schwartz, 2008).

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PROJECT ACTIVITIES FOR PREPARING BUSINESS INFORMATION SYSTEMS EDUCATORS

Randall McCoy, Morehead State University

ABSTRACT

[This is a work in progress]. The problem that this study deals with is to determine the student-centered, cooperative, project-oriented activities that might be employed in the business information program for undergraduate programs. This study uses a Delphi instrument to determine the general needs for the preparation of business information systems graduates for the 21st century. It is anticipated that twenty-three experts (or more) nominated by the National Association for Business Teacher Education (NABTE) and the Association of Information Technology Professionals (AITP) are contributing to the data. The study will consist of three rounds of a Delphi instrument transmitted over the World Wide Web. An instrument is being developed from the responses generated by the first round, the second round will involve rating the statements, and the third round will be used to determine consensus on items.

INTRODUCTION

It has long been recognized that occupational educators must be involved in curriculum development that considers jobs for tomorrow and what the changing work place will demand (Marshall, 1993) (Conn, English, Hall, 2011). Due to the need to teach computer applications in our schools and the rate at which technology advances are developing new uses for computers, it is important for our curriculum planners to have timely information pertaining to the future computer competencies needs of teachers. "Educators are facing tremendous challenges in identifying, developing, and designing a curriculum that will prepare undergraduates for work in the next century." (Hunt & Perreault, 1999). Also, it should be noted that emerging information systems technologies should provide an avenue for prospective employers who have a partnership in information systems education, "It is important that educators, parents, and employers learn about opportunities in information security so that these opportunities may be communicated to IT professionals at all stages in preparation, from middle school through post-graduate study and professional development in a productive career." (Woszczynski & Shade, 2010).

PROBLEM AND PURPOSE

The problem is to determine the student-centered, cooperative, project-oriented activities for business information systems classes needed by business educators for the 21st century. The purpose of this study, therefore, is to determine the general needs for the preparation business and information systems educators.

Based upon the past models of competencies that are cited in the literature needed by business teachers, the following question guides the research:

> What student-centered, cooperative, project-oriented activities are necessary for a business and information systems educator to effectively integrate into the classroom, and will provide them with

those fundamental skills and attitudes that can enable them to both apply and adapt their skills to the twenty-first century?

Based upon the question, a panel of experts will provide valuable advice to guide curriculum.

THEORETICAL PERSPECTIVE

The theory used in this study to explain the development of curriculum was developed by Robert Mager (1962), who provided a programmed text that demonstrated how to specify instructional objectives by behavior observable in a learner. Known as the "father of criterion-referenced instruction," Mager offered steps involved in defining outcome, accomplishment, and competence (Stoneall, 1992). It is Mager's theory of performance-based objectives that supports defining competencies needed by business and information systems teachers.

The theoretical definition of competencies was important to this study for guidance. John Raven (1984) described the word competency in the following way:

> The word "competency" is used to encompass a motivated pattern of knowledge, skills and abilities deployed to undertake a valued activity. Because values and motivation are so important it is not possible to substitute "knowledge," "skills," or "attitudes" on their own for this word (p. 402).'

The data achieved in this study will enhance academic success for an undergraduate student population enrolled in an Information Systems undergraduate degree program who plans to become educators in business information system. The author(s) believe that the data collected will be analyzed to determine future needs for competencies need in the field of business information systems.

PROCEDURES

This study will be completed in four phases, the first of which involves identifying a national panel of experts followed with three rounds of communication using a modified Delphi instrument.

The term Delphi comes from a reference to the oracle at Delphi, a place in ancient Greece through which it was believed that the gods answered questions and gave advice concerning the future. In research, the Delphi technique is an organized research methodology for correlating views and information pertaining to an area of strategy and for allowing respondents with such views an opportunity to react and assess differing viewpoints. The technique was introduced in 1958 through "Project DELPHI" which was sponsored by the United States Air Force and directed by the Rand Corporation to obtain the most reliable consensus of a group of experts concerning predictions of alternate national defense futures (Dalkey & Helmer, 1963, p. 458).

Three characteristics distinguish the Delphi technique from other methods of group interaction: (1) confidentiality, (2) iteration with controlled feedback, and (3) statistical group response. Because the originator of the original input statement was not identified in the study, the opinion was not associated with a particular person, and with confidentiality assured, the panelists had more freedom to alter opinions and were not swayed by the credentials of fellow participants. The number of rounds of review of responses depends upon a consensus of the panel, therefore, though the study was designed for three iterations, a

third would not add value if consensus was met during the second round. The statistical account used in this study was the provision of the median score for each item during second round of the panel along with the individual panelist's rating for comparison.

Initial identification of the pool of experts used in this study will be based on the following criteria: (1) active professional involvement in business information systems education and (2) active in publication and/or presentation of computer-related educational research in the area of information systems.

A nomination form was solicited to each of the National Association of Business Teacher Education (NABTE) affiliated schools, from which one prospective panel member was identified and nominated from these criteria by representatives from each prospective school. From 97 nominations, 49 prospective panelists were selected (to date) after an extensive review of their related research and presentations. These prospective participants were invited first by electronic mail and a telephone contact will be used to follow-up with the nominees. Among the prospective panelists, (to date) 25 agreed to participate in the study. After the panelists received the instructions for the first round of the study, four members withdrew from the panel due to time constraints, bringing the final number of panelists to 21 participating experts (it is hoped that the follow-up will generate more participants). The follow-up also included suggestions from the panelists to include Information Systems Educators; therefore the Association of Information Technology Professionals was included in November 2011 for prospective panelists. Among the prospective panelists, (to date) 14 agreed to participate in the study.

DATA COLLECTION AND ANALYSIS

The data collection of the study involves three rounds of communications. The first round of communication includes a cover letter and the instructions needed to complete the iteration. These items were transmitted both by telephone and electronic mail to a link to the website survey to all participants on the same day. To develop the second round instrument, the responses of the first round will include statements, which will be compared for similarity and collapsed into a survey containing statements representing the collective views of the panelists concerning competencies needed by information systems educators in the year 2013.

During the second round of communication, the experts used in the study will rate the importance of each competency according to a 5-point scale. A rating of 1 indicates that the panelist felt the item was not important, 2 that the item is somewhat important, 3 that the item is moderately important, 4 that the item is important, and 5 that the activity is very important. The panelists are also encouraged to make comments to explain their answers.

An electronic mail version of the second round will be sent to each of the panelists along with a telephone follow-up (if necessary) of the same questionnaire on the same day. The third round of the procedure involves a communication of the instrument in revised format, which provides each panelist's previous response along with the median of the collective responses given by the panel. The inclusion of the group and individual responses from the previous round provides each panelist an opportunity to modify the rating of each item based upon the group response.

Descriptive statistics including the Pearson product-moment correlation coefficients and the number of responses for each rating given for both the second and third rounds of communications will be used. The correlations indicate a consensus of the panel for statements about future computer competencies that may be included in business information systems education curriculum. Additionally, composite scores will be calculated for each item in the second and third rounds by adding the individual responses.

FINDINGS AND CONCLUSIONS

Findings and conclusions of the study will be completed at the conclusion of the study. It is hoped that the study will be completed before April 30, 2012, and will be reported at the 2013 conference proceedings, as well as submitted to the JRBIS, Journal of Research of Business Information Systems.

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A REVIEW OF KNOWLEDGE MANAGEMENT TECHNIQUES FOR CRISIS AND RELIEF MANAGEMENT

Jeffry Babb, West Texas A&M University
Sumana Sharma, Information Systems Research Institute

ABSTRACT

The stream of crisis and relief management research is witnessing a growing popularity amongst information systems researchers whose research addresses various aspects of crisis and relief management. ISCRAM[1], the International community on Information Systems for Crisis Response and Management, is dedicated to conducting research related to the area of crisis management, from an information systems perspective. This paper focuses on crisis and disaster management from the perspective of knowledge management (KM) research in the information systems area. Based on a review of extant IS literature, we present an overview of prominent issues in crisis and relief management. This paper focuses on those issues that can be addressed through KM techniques and presents a position on research that can forward this KM perspective regarding crisis and relief management.

OVERVIEW OF ISSUES IN CRISIS AND RELIEF MANAGEMENT

Crisis and relief management is a compelling application of knowledge management techniques as the availability of information among many agencies has risen dramatically. Primarily, this paper presents an overview of the issues in crisis and relief management research from an information systems and knowledge management perspective. The central issues in this area were identified through a survey of information systems literature related to crisis and disaster management. The identified issues are presented in tabular form in Table 1. In the table we present the issues identified, cites the source from literature that addresses the issue, and provide a brief summary of the main finding/proposed solution of the given study. Our summary does not include sources that only mention critical issues as a passing reference or in an indirect manner. The principle issues in crisis and relief management have been divided into four broad categories: organizational issues, issues related to crisis decision making, issues related to design of crisis management systems, and issues related to training of crisis personnel.

REVIEW OF KNOWLEDGE MANAGEMENT TECHNIQUES AND METHODS FOR CRISIS & RELIEF MANAGEMENT

It is generally accepted that management of crises and disasters is a complex activity. Knowledge management techniques and systems can play a vital role in addressing several of the issues in crisis and relief management outlined above. Even though the type of information and knowledge required for making decisions is unique to a particular crisis situation, the processes of acquiring, storing, managing and retrieving this information and knowledge could

[1] Official web site located at http://www.iscram.org/index.php?option=com_frontpage&Itemid=1

benefit from existing KM techniques. Presented below are various issues in crisis and relief management that can be addressed through KM concepts and techniques. The issues and relevant techniques based on the literature are summarized in Table 2. In the subsequent section, we provide a detailed discussion of the each of the issues and the relevant KM tools/techniques for addressing each of the issues.

DIRECTIONS FOR FUTURE RESEARCH

Crisis and Relief management research is a growing concern across a variety of disciplines. Given the highly interdisciplinary nature of crisis management research, there is an impending need for researchers across disciplines to collaborate with one another in furthering this research. Several of the crisis and relief management issues discussed in this essay require not just application of KM techniques but contributions from other areas such as computer science and telecommunications etc. in order to be completely addressed. Also, research in this area can really progress only when researchers truly understand the nature of crisis knowledge management. This requires close collaboration with humanitarian relief agencies (both governmental and non-governmental, so that their needs and issues may be properly understood and effectively addressed. There are several areas within crisis and relief management research would benefit from KM research:

- Capturing of tacit knowledge of crisis experts, decision makers and actors
- Design and implementation of Crisis DSS
- Analysis of applicability of current ontology development methodologies to the context of crisis organizations and their possible refinement
- Deepened understanding of factors that affect knowledge sharing in crisis situations
- Security of knowledge bases

CONCLUSION

In the information systems domain, crisis and relief management research is steadily progressing. However a lot still needs to be done. This paper highlights the issues in crisis and relief management research that could be addressed using knowledge management techniques. It describes relevant KM techniques that could be used in addressing the issues identified. Finally, the essay suggests areas that could be explored in future research. Undoubtedly, knowledge management concepts and techniques can play a pivotal role in addressing the various challenges confronting humanitarian relief organizations. The conclusion that knowledge management has a role to play is also reflected in the documents of the National Science Foundation workshop on Relief Management, among others. Many exciting, fulfilling, and humbling opportunities lie ahead for researchers interested in furthering an interdisciplinary agenda in this area that is grounded in what both information systems and knowledge management research have to offer.

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Table 1 Issues in Crisis and Relief Management highlighted in prior research

Issue	Source	Main finding/proposed solution
Organizational issues		
Planning and management of multi-agent operations in emergency planning efforts	Abrahams (2001)	Proposes command, control, coordination and communication as critical aspects of emergency planning efforts, which typically involve multiple agencies.
Inter-organizational issues in emergency management	Trnka (2005)	Hierarchical management of ICT and GIS infrastructure is a significant obstacle in inter-organizational co-operation
Cross organizational interoperability	Park and Waxman (2005)	Proposes DTM (Dynamic Team Management), a web based solution based on commercially available directory integration software that enables creation of inter-organizational teams to address an emerging problem
Collaboration between various users involved in emergency response	Landgren (2005)	Design of information technology to support incident response must support collaboration between different personnel. Field experiment based on fire crew's response to an emergency situation is used to argue focus has been on designing IS for emergency management, while use of IT by first responders has been ignored.
Scaling up – building up an ad- hoc emergency response organization to deal with the emergency (that involves various entities and agencies)	Oomes and Neef (2005)	Emergency response requires collaboration between heterogeneous organizations such as fire brigade, emergency medical service, police, governmental agencies, and other authorities. Proposes that the crucial process of scaling up can be accomplished through creation of multiple distributed agents which are capable of exchanging information regarding the organization they are representing including the organizational structure, roles and responsibilities, tasks and processes performed by each of the local departments
Automation of information gathering and dissemination process in an Incident Command System	Hannestad (2005)	Replacement of current hard copy based ICS architecture with soft copy based system, that stores documents as pdf files which can be shared through a WLAN created by linking remote sites with a Ka band satellite network
Addressing the "division of knowledge" as a factor in social activity coordination for natural-disaster management	Sobel and Leeson (2007)	Governmental oversight of the knowledge market required to address complex disaster management issues inhibits the optimized functioning of a knowledge market.

Decision making: Storage of past cases, DSS, Sense-making and Improvisation, role of personal values, data quality etc		
Storage of past knowledge, experiences	Project Description of NSF workshop on Relief Systems Research	Highlights need to use KM techniques to store past experiences and adapt them to solve new problems
Decision support systems - Maximization of objectives	Wilkenfeld (1995)	Conclude that DSS enhances the ability of a decision maker to explore options and compare the utilities of different possible outcomes. Describe GENIE, a DSS that can aid decision makers maximize their objectives when negotiating in a hostage crisis situation
Decision support systems – ranking of available alternatives	Papamichail and French (2005)	Propose an intelligent DSS for nuclear emergencies that assists decision makers in the formulation and ranking of alternatives and communicates its recommendation in a natural language form.
DSS – collating multiple perspectives	Hall and Davis (2006)	Uses a value based decision making model that decision makers and researchers can use to better understand and facilitate multiple perspectives in decision-making.
Sensemaking – information overload and complexity require ability to try and make sense of the crisis situation at hand	Grant (2005)	Uses planning operator induction technique to propose development of a decision support tool that integrates the two usual stages in any emergency response process: recognition that pre-prepared plans cannot be executed and real time development of new plans (improvisation)
Improvisation – recognition that no planned for procedure exists (output of Sensemaking) and real time development of new plans (based on past knowledge)	Mendonça (2005)	Proposes design requirements that can support decision maker's ability to improvise in case of extreme events.
	Otim (2006)	Describes the architecture for a CBR system for disaster management.
Data quality issues in data used to make decisions in crisis situations – important cause leading to disaster	Fisher and Kingma (2001)	Emphasizes that causes of flawed decision making has received a lot of attention in the literature, but little attention from a data quality perspective. Reviews explosion of the space shuttle Challenger and shooting down of an Iranian airbus carrying civilians by USS Vincennes to exemplify that data quality issues were a paramount cause of these disasters.
Effect of crisis situations on cognitive processes underlying decision making	Streufert (2005)	Uses complexity theory to predict how stressor events impact nine primary decision making areas including overall response rate, speed of performance, responsiveness, level of initiative, information orientation, emergency responsiveness, breadth of approach, planning activity and strategic thinking.

Factors that affect group information seeking and decision making in emergency response	Gu and Mendonça (2005)	Hypothesized and confirmed that presence of decision support technologies facilitates decision makers to seek more information; that novices rely more on the recommendations of the system; whereas experts rely more on their own professional judgments regardless of the recommendation of the system
The impact of previous Operations Research on the efficacy of disaster management	Altay and Green (2006)	Operations Research remains an effective means of understanding the management and logistics issues surrounding effective disaster management.
Design Considerations		
Information gathering in crisis relief – how to gather data from multiple heterogeneous resources	Bui and Sankaran (2001)	Describes a virtual information center to provide support when a disaster has not yet taken place (but is imminent) and when a disaster is unfolding. Utilizes concept of workflow to automate all the processes and entities involved in a disaster management process to explain how information requests for disaster preparation management can be effectively coordinated and processed.
	Mak et al. (1999)	Suggests use of workflow technology to coordinate, monitor, organize and distribute specific tasks and the associated required information in a timely and efficient manner appears to make it an ideal tool for strategic crisis management.
Design considerations for IS to support critical infrastructure management	Chakrabarty and Mendonça (2005)	Proposes that design of IS that support critical infrastructure should assist human decision makers through visualization and visual problem solving. The visual model should support decision makers and managers of critical infrastructure systems in reducing their cognitive load and identifying core elements of the problem
Socio-technical issues in design of DSS	Niculae (2004)	Argue that it is not enough for a DSS to be merely interactive as while such tools may suffice for technical operators, the decision makers in emergency situations have to deal with novel unstructured problems that require them to consider social and even political issues and not merely technical issues that can be managed through constraint satisfaction.
Unique communication requirements in crisis response	Hale (1997)	Proposes a layered architecture for a communication system meant to connect various decision making elements in crisis response.

Timely identification of risks (confronting a community) that could lead eventually to disaster	Abrahams (2001)	Proposes that communities should examine their hazards, vulnerabilities, risks of disasters and their likely effects as an integral part of emergency planning efforts
Emerging social media technologies	Yakes and Parquette (2011)	Social media technologies enable knowledge transfer across several semiotics boundaries: syntactic, semantic, and pragmatic to transfer, translate and transform knowledge.
Crisis training		
Training of crisis personnel	Sniezek (2002)	Proposes framework for understanding the special problems in training for crisis management. Discusses effectiveness of a multimedia training system that provides crisis training in the context of ship damage control.
	Abrahams (2001)	Uses Australia's national emergency management system to describe concepts and principles of disaster planning. Describes how emergency physicians can enhance their understanding of local, state and national arrangements by participating in exercises and emergency management courses.

Table 2 Relevant KM techniques/methods for Issues in Crisis and Relief Management

Issue(s)	**Technique**
➢ Ability to store past cases	Case base system
➢ Difficulty in extraction of knowledge that constitutes an aspect of a case	Motivating workers to share knowledge
➢ Documenting the case	Critical Decision Method
➢ Reduction in cognitive load for effective problems solving ➢ Capturing of some aspects of organizational knowledge	Cognitive maps
➢ Capturing and Storage of some aspects of organizational knowledge ➢ Cross organizational interoperability and scaling up in emergency response	Organizational Memory
➢ Creation of knowledge assets that represent organization's shared knowledge of a domain ➢ Enabling cross organizational interoperability ➢ Representation of shared knowledge	Ontologies as a means of capturing and representing shared knowledge
➢ Decision support in crisis response	Crisis decision support systems (DSS), and Workflow Automation Systems
➢ Sense Making and Improvisation in crisis decision making ➢ Training crisis response personnel	Case Base Systems
➢ Extraction of knowledge from relevant documents	Text extraction
➢ Data quality and knowledge quality issues affecting decision outcome	Techniques for managing data quality and knowledge quality
➢ Personal values and cognitive biases of crisis decision makers	Appropriate Decision making models

NOTES

SELF-DISCLOSURE VS. PRIVACY IN THE CONTEXT OF ONLINE SOCIAL NETWORKING – A THEORETICAL REVIEW AND INTEGRATION

Jie Zhang, Midwestern State University
Xin Luo, The University of New Mexico

ABSTRACT

This research offers a thorough review and an integration of theories that can be applied to explain self-disclosure of personal information on online social networking sites.

INTRODUCTION

With the increasing diffusion of innovative information communication technology (ICT), people can more efficiently communicate and share information across the interconnected networks. Email and instant messaging, to some extent, have become an inseparable part of today's society for communication. Moreover, social networking sites, e.g. facebook.com, myspace.com, and newly launched google+, help people connect with others who share a variety of common interests by establishing online profiles and sharing media such as photos, music and videos. The phenomenal popularity of such online social networking websites has grown dramatically in recent years. Facebook alone has more than 800 million active users in 2011. Along with the rapid growth of registered members is the heightened concern over information privacy in interconnected cyber social networks. Through these prevalently growing social networking sites, personal identity information, including real names and email addresses, can be revealed to public. Furthermore, users' photos, videos, and journals increase the exposure of personal and professional life, thus leading to high risk of social hacking (Nolan & Levesque, 2005). Accompanied also includes risks to future career or jobs and threats from online predators, etc (Rosenblum, 2007).

While e-commerce websites strive to attract customers by improving their privacy practices to alleviate customers' privacy concern, social networking sites seem effortlessly to make people unwarily and willingly disclose themselves. Privacy concern does exist in social networking websites. Nevertheless, such concern does not thwart the ever increasing diffusion of those websites. Such intriguing phenomenon elicits the question as to why so many people use social networking websites despite the privacy concern. Previous studies approached this problem from different perspectives (e.g., Joinson, 2001; Barnes, 2006; Posey et al. 2010). This research offers a thorough review and an integration of theories that can be applied to explain the above-mentioned phenomenon. The following section discusses the background of the privacy problems related to social networking sites. Section 3 provides an integrated framework of related theories, some of which have been adopted by researchers. Section 4 explores other research perspectives that can be used to analyze privacy problem in the context of online social networking. Section 5 concludes this paper.

BACKGROUND

Online social networking is conducted through social networking sites (SNS), where individuals "*(1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system*" (Boyd & Ellison, 2007). Since their emergence in 1997, SNS have demonstrated great potentials and vitality. Such popular SNS as Facebook, MySpace, and LinkedIn have grown fast in terms of people counts, visit counts, and site ranking (compete.com, 2008). While all SNS share some common features, each of them has their own uniqueness. Both Facebook and MySpace focus on personal networking. LinkedIn concentrates on professional networking. Regardless of their differences, all SNS feature interpersonal connections and interactions.

In order to establish and maintain personal or professional connections, self-disclosure is a necessity. Self-disclosure refers to the "*process of making the self known to others*" (Jourard & Lasakow, 1958). Through self-disclosure, personal information previously unknown to others becomes shared knowledge. A remarkable phenomenon in SNS is the amount of personal information disclosed by users. By creating and updating profiles, SNS users voluntarily make their addresses, phone numbers, names, and even social security numbers accessible by others. Such information self-disclosure diminishes personal privacy and makes the revealer vulnerable to potential privacy threats.

Once an individual discloses his/her personal information on the SNS, the individual will lose control over secondary use of such information (Joinson & Paine, 2006). Due to the public or semi-public nature of SNS, disclosed information can be readily accessed, duplicated, shared, and/or forwarded to others without his/her knowledge or consent. Privacy threats related to SNS include social predators, cyberbullying, identity theft, disclosure to advertisers, university/employer surveillance, and commercial data collections and mining, etc (Barnes, 2006; Jones & Soltren, 2005; Munukutla-Parker, 2006).

Paradoxically, in spite of the privacy concerns, people are still actively involved in information sharing in SNS. Multiple researches (Acquisti & Gross, 2006; Dwyer, 2007; Dwyer, Hiltz, & Passerini, 2007) report that privacy concerns have little influence on information disclosure behaviors in SNS, because users "*with high privacy concerns still disclose a lot of personal information*" (Acquisti & Gross, 2006). The inconsistency between privacy attitudes and privacy behaviors triggers the further exploration of a research question: what factors drive personal information disclosure in SNS.

INTEGRATIVE ANALYSIS OF THEORIES ON ONLINE SOCIAL NETWORKING SELF-DISCLOSURE

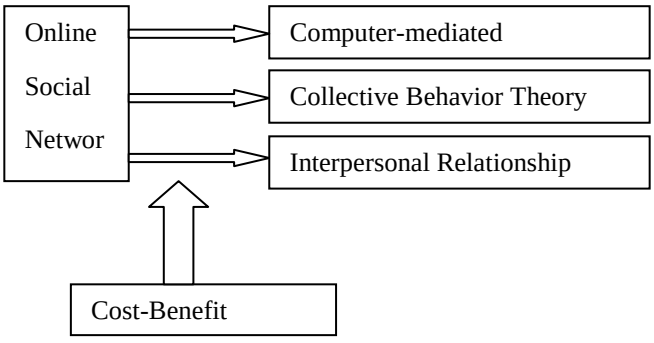

Figure1: overview of related theories

Figure1 displays the theories related to online social networking research. These

theories, which are discussed below, target different aspects of online social networking activities and explain the privacy "paradox" from various angles.

Computer-mediated Communication Theory

Computer-mediated communication (CMC) is "*characterized by high levels of self-disclosure*" (Joinson, 2001). One explanation of such high self-disclosure is anonymity, including visual anonymity and personal anonymity. Visual anonymity refers to an absence of visual identification of a person, e.g., pictures or videos. According to the Social Information and Deindivuduation (SIDE) theory (Lea & Spears, 1992), visual anonymity makes people focus less on individual differences but more on similarities of the social group that they belong to. High level of self-disclosure is observed when visual anonymity is present (Joinson & Paine, 2006). Personal anonymity refers to the lack of personal identification, e.g., name, location, or gender. With the mediation of computers and the Internet, people can communicate with each other without personally knowing, visually seeing, or physically being close to their conversation partners. In an anonymous environment, computer-mediated communication reduces accountability concerns and promotes freedom in self-expression.

Online social networking activities rely on both synchronous and asynchronous CMC, such as online chatting, instant messaging, posting, and commenting. Both visual anonymity and personal anonymity can be realized in online social networking communications. In most SNS, users are allowed to remain anonymous. They are not required to provide identity information upon registration. They can selectively post their personal information and restrict others' access to such information. Lange (2007) refers "privately public" as "*making connections with many other people, while being relatively private with regard to sharing identity information.*" Theoretically, being "privately public" allows people to express themselves without exposing their identifications. They may disclose their interests, skills, and personalities so they can establish social connections with other people. In the mean time, identity information such as name, address, and hometown can be kept private. When visual anonymity and/or personal anonymity are present, CMC theory may explain the high-level self-disclosure in SNS.

Collective Behavior Theory

Online social networking activities are social activities involving groups or networks of groups. Individual behaviors in such environment are unavoidably influenced by other members. Collective behavior theory explains why individuals act differently as a group. In online social networking context, an individual may reveal more personal information within a group or a network than he would do individually. Gross et al. (2005) speculates that peer pressure and herding behavior cause such high level self-disclosure. Another explanation may be offered by Contagion Theory (Le Bon, 1895). According to Contagion Theory, an individual feels relatively anonymous and invulnerable and senses less responsibility when he is in a group. His attitudes and behaviors are highly related to and influenced by other group members' attitudes and behaviors. Collectively, people may act against dominant social norms or rules. In SNS, self-disclosure is a common practice. Social networking groups demonstrate low collective privacy concerns, which may explain group members' high level of self-disclosure.

Interpersonal Relationship Theory

The major purpose of social networking activities is to establish and maintain a dynamic relationship network. In order to develop a close relationship, self-disclosure is a prerequisite (Altman & Taylor, 1973). According to interpersonal relationship theory, self-disclosure leads to two interpersonal effects: disclosure reciprocity and increased liking of the discloser (Berg & Derlega, 1987). In SNS, one user's self-disclosure level is positively correlated with the trustworthiness evaluation of this user by other SNS participants (Strater & Richter, 2007). Positive evaluations help establish friendships. Lampe et al. (2007) study the profiles of Facebook users and the number of friendship links connected to each profile. Their results confirm that those who reveal more information about themselves make more friends. Self-disclosure behaviors in SNS may be explained by the disclosers' need to establish and maintain friendships.

Cost-benefit Analysis

Self-disclosure is a decision-making process. The decisions, such as "to disclose or not" and "how much information to disclose", always involve analyzing and balancing cost and benefits associated with using SNS. "*By disclosing personal information, the cost to a person is increased vulnerability and a loss of privacy. However, in many cases, the benefits – a building of trust, rapport, and reciprocation – will outweigh the costs*" (Joinson & Paine, 2006).

Self-disclosure in SNS may be due to users' under-perceived cost. First, online social networking activities are conducted in a fairly large group or network. "In the crowd" effect makes people feel less vulnerable. Secondly, while the communication is mediated by computers and the Internet, "talking through a computer" creates an illusionary private communication environment (Barnes, 2006). Both factors decrease users' perceived risk or costs associated with self-disclosure.

Self-disclosure may be also grounded in elevated evaluation of benefits, such as social capital and/or attention gained from online social networking activities. Ellison et al. (2007) report a positive relationship between Facebook usage and the creation and maintenance of social capital. An individual may gain social capital by building both "weak ties" and "strong ties". "Weak ties" refer to loose social connections. They are capable of bringing in useful, unduplicated information. "Strong ties", which are connections between close friends and family members, may improve an individual's psychological well-being.

FUTURE TRENDS

Self-disclosure of personal information inevitably exposes people to privacy threats. While privacy is about the control of private information, an individual can easily lose such control once the information is exposed on SNS. Future study should address the issues of how to execute and maintain the control. Barnes (2006) proposes that "protecting privacy in online social networking sites can be approached in three different ways — social solutions, technical solutions, and legal solutions". Relying on technical methods, SNS should safeguard personal information collected from users; and users need to restrict public access to their personal information by applying SNS privacy control tools. Privacy problem related to online social networking activities cannot be fully understood or resolved if it is not also considered a social and legal problem. Social norms related to privacy practices on SNS should be established, so that users know exactly the boundary

between private and public. Social privacy expectation should be developed, so a threshold of self-disclosure can be established and maintained. The access, usage, and dissemination of private information in SNS should be regulated. Future research shall also address how regulatory efforts can effectively affect self-disclosure.

CONCLUSION

An intriguing phenomenon related to online social networking is the inconsistency between users' privacy concerns and their self-disclosure behaviors. In this research, we have attempted to explain high level self-disclosure from different perspectives by applying theories from multiple disciplines. Focusing on the characteristics of online social networking activities, we have identified that computer-mediated communication theories, collective behavior theories, and interpersonal relationship theories are relevant to analyze the phenomenon. Employing cost-benefit analysis, we believe that the fundamental reason of self-disclosure is that users' cost-benefit evaluation favors the disclosure decision.

People using SNS tend to unwarily disclose too much personal information. Therefore, they are subject to potential privacy threats. While the current analysis focuses on people's self-disclosure behaviors and privacy concerns, future research may need to explore the ultimate goal which is to find technical, social, and/or legal methods to minimize privacy risk or cost, so that people can leverage the social networking services and enjoy the new cyber lifestyle that was empowered by innovative web technologies.

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YOUR IS CLASSROOM: YOUR CRITICAL QUESTIONS THAT LEAD TO STUDENTS' CRITICAL THINKING

Jim Larsgaard, Eastern Kentucky University

STATEMENT OF THE PROBLEM

A major challenge in today's classroom is getting students to participate. A second challenge in teaching several sections of Management Information Systems, with students of varying computer literacy, is to facilitate critical thinking into the learning process for students by using discussion and in-class activities.

ACTION RESEARCH METHODOLOGY

The researcher has been using and refining many critical thinking activities for several semesters, and has now realized the importance of Socratic Questioning to instill critical thinking in students so that they might achieve the desired learning outcomes.

Four research questions have evolved from this Socratic Questioning practice:

Research Question One: How should student learning outcomes be measured in the business information systems course?

Research Question Two: How can educators promote Socratic questioning, discussion, and critical thinking in student learning?

Research Question Three: How is human resistance in classroom participation and student learning overcome by delivery instructional strategies?

Research Question Four: What are the most effective methods for achieving and assessing various student learning outcomes when using computer applications?

REVIEW OF THE LITERATURE

The intellectual roots of critical thinking can be traced back to the teaching practice and vision of Socrates 2,500 years ago. Socratic discussion guides students to develop and evaluate their thinking with a sense of intellectual discipline and thoroughness. Paul and Elder (2007) regard Socratic questioning as the heart of critical thinking. Even though some researchers believe that the roots of critical thinking go back as far as 2,500 years, a review of the literature reveals that there still remains a lack of agreement among researchers regarding the definitions and characteristics of critical thinking. The disagreement stems from what critical thinking skills can and should be taught on one end of the continuum to what methodology should be used to teach critical thinking.

Pascarella and Terenzini (2005) relate that most attempts to define critical thinking operationally focus on an individual's capability to accomplish some or all of several dimensions of critical thinking. Those dimensions include (a) identify central issues and assumptions in an argument, (b) recognize important relationships, (c) make correct inferences from the data, (d) deduce conclusions from information or data provided, (e) interpret whether conclusions are warranted based on given data, (f) evaluate evidence or

authority, (g) make self-corrections, and (h) solve problems.

Gabbitas (2009) reported that as the concept of critical thinking began to become more popular in the late 1930s and early 1940s, a definition of critical thinking began to emerge that represented critical thinking as a procedural kind of thought that uses method and logic to come to conclusions. Subsequently, Watson and Glaser's 1942 test of critical thinking revealed a common perception of critical thinking in its early days. The test focused on reasoning strategies such as making inferences, generalizations, and applied logical reasoning.

Ennis (1985) defined critical thinking as reflective and reasonable thinking that is focused on deciding what to believe or do. Further, Ennis and Millman (2005) indicated the five assessment aspects of critical thinking that include (a) induction, (b) deduction, (c) observation, (d) credibility, and (e) assumptions.

Paul (1990) indicates that critical thinking is often complex and always a holistic process. The elements of thought identified by Paul and Elder (2006) include (a) purpose, (b) question and subquestions, (c) information, (d) interpretation and inference, (e) concepts, (f) assumptions, (g) implications and consequences, and (h) point of view. Paul and Elder recommend using the elements of thought with sensitivity to intellectual standards including (a) clarity, (b) accuracy, (c) precision, (d) relevance, (e) depth, (f) logic, (g) significance, and (h) fairness. According to Paul and Elder (2008), good critical thinkers make use of a variety of critical thinking strategies, and use those strategies in concert with each other. Some educators have noted the importance of drawing on both philosophy and psychology to develop a rigorous and encompassing theory of critical thinking. Differences in researchers' opinions of the methodology of critical thinking may include whether they consider critical thinking a procedural line of thought that uses method and logic to come to conclusions, a qualitative line of thought that tends to focus on the nature and quality of the products of critical thinking, or a combination of theories.

SUMMARY

This presentation will explain the cognitive and affective domains of critical thinking, the elements of thought, Bloom's Taxonomy, and Socratic Questioning. Role modeling of the Socratic Questioning procedure will be demonstrated, and examples of assignments and in-class activities to expand student knowledge and skills in critical thinking will be shared for participants to take back to their classrooms and use immediately.

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