A RESOURCE-BASED ANALYSIS OF IT-ENABLED MARKET ORIENTATION AND STRATEGIC ALIGNMENT: A MODERATING ROLE OF IT MATIRITY

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Abstract

Since organizations have faced new and ever changing market where they must quickly and appropriately respond to customer needs and demands, more and more organizations strive for greater customer intimacy. To realize this intimacy, many organizations have adopted the market orientation as a concept that can be implemented as one of business strategic directions. In today's intensely competitive and dynamic market places, organizations also have developed information technology (IT) applications that are expected to enhance the content and quality of customer services, and thus generate a significant competitive edge. How IT can be strategically employed to retain and improve customer intimacy for business value becomes a great challenge continuously in recent years.

This strategic use of IT or strategic alignment generally refers to the extent to which IT strategy can be pursued to support business goals and determined by the sophisticated level of IT management practices, noted as IT maturity. When IT maturity increases, it is more likely to have a better strategic alignment and thus hold or even sustain the organization's competitive position.

Business goal can be market oriented and involve the implementation of marketing concept into activities and behaviors of an organization toward that goal. High market orientation organizations with the use of IT might enjoy intangible benefits (e.g., improved market share, improved flexibility and adaptability, and increased market responsiveness, etc.). Researchers and practitioners have focused most on IT-enabled intangibles generated from market orientation as IT grows mature over time. In that sense, during the alignment process, whether the degree of IT-enabled market orientation can be important for organization to consider when examining how IT applications emerge formally in accordance with business goals is a critical IT management issue.

We use the resource-based view (RBV) to examine the issue. The RBV defines organization as a bundle of resources including tangible, intangible and human resources. The RBV also emphasizes capabilities how these resources can be effectively allocated, distinctive, and not perfectly imitated. The key point of the RBV is that organization generates competitive advantage when IT capabilities and business (or managerial) capabilities are co-presented (or combined) and complementary to one another. Since IT-enabled intangibles contribute to the development of core IT capabilities, we attempt to investigate whether IT-enabled market orientation can be a key IT capability and how it co-presents with complementary managerial capability of IT maturity, and thus creates strategic alignment that is source of sustained competitive advantage (Barney, 1991). In other words, we investigate whether there is a moderating role of IT-maturity, which facilitates the relationship between IT-enabled market orientation and strategic alignment.

We expect to poof that IT-enabled market orientation per se is hardly unique and inimitable resource to help strategic alignment unless comparable efforts are spent to improve IT maturity as well.

Keywords: IT-enabled Market Orientation, IT Maturity, RBV, Strategic Alignment

ORACLE ENDECA INFORMATION DISCOVERY AND ACADEMIC SUCCESS: UTILIZING ANALYTICS TO BENEFIT AT-RISK STUDENTS, FACULTY, AND THE UNIVERSITY

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Successful higher education institutions are transforming the ways they deliver education to students and operate to align themselves with the opportunities and challenges accompanied by increasing global competition, regulatory requirements, economic forces, and technology. Due to these issues, colleges and universities need better insight into and analysis of their core operations to forecast, elevate, and sustain enrollment, retention, and graduation rates. This panel discussion highlights Valdosta State University's (VSU) novel approach to improving retention and graduation rates while simultaneously empowering faculty.

In 2015, the state of Georgia will move to a performance based funding model; this shift means that universities' budgets will be linked to retention, progression, and graduation rates. This change makes it imperative that faculty members take responsibility for and work with campus support systems to increase retention and graduation rates. To address this challenge, the VP of Enrollment Management, Marketing, and Communications; the Director of IT; and the VP of Academic Affairs developed a user-friendly electronic portal to connect faculty, students, and support services. A formula was created to identify math and reading based risk factors for all first-year students. This formula included VSU's Faculty Portal, which enables faculty to view an interactive class roster with photos, reports, and easy referral methods for students who are at-risk (e.g., a student's grade may be low due to attendance). Once a faculty member has identified a student as being at-risk, an email is sent to the student's advisor, housing (if applicable), and the academic support office. If a student is flagged as having problems with course content, then notification is sent to a professional advisor or tutor who will then reach out to the student. Business intelligence and data warehousing models are also provided to faculty and support staff to identify at-risk populations.

By combining predictive modeling, business intelligence, data warehousing, and application development, VSU was able to create new Faculty and Student Portals. Both portals provide interactive reports and a fully tailored user experience. The Student Portal provides real-time information and ads to drive student success intervention strategy specific to each student's needs. The Faculty Portal allows faculty to communicate proactively as well as initiate student success strategies anytime throughout the semester. Valdosta State University is the first university to implement Oracle Endeca Information Discovery. We are now able to use the same technologies that Amazon and Netflix employ—the primary difference being that VSU targets content to promote academic success.

PANEL DISUSSION: THE CURRENT STATE OF OPEN ACCESS E-JOURNALS

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Tom Seymour, Minot State University
Richard McCarthy, Quinnipiac University
John Girard, Middle Georgia State College

This panel discusses Open Access (OA) initiatives and the challenges facing the OA e-journal Journal Movement. The focus begins with the the Budapest Open Access Initiative, which states that "The literature that should be freely accessible online is that which scholars give to the world without expectation of payment... open accessto this literature, [means] its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited." (http://www.soros.org/openaccess/read.shtml, Paragraph 3)

The panelist will attempt to create a forum (with the audience) to discuss the pros and cons of OA e-journals. The major questions to be discussed are:

- **How Open Access movement is changing the landscape of publishing and scholarly communication?**
- **Has Open Access e-journals had an impact on the community of scholars?**
- What has been the major achievements of the Open Access e-journal movement?
- Since the production of OA e-journals is not free, who is paying for publication fees?
- Are there sustained business models for OA e-journals?

Keywords: e-journals, open access, scholarly communication, publication

DECISION MAKING IN EVACUATION FROM DISASTER

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ABSTRACT

Evacuation is needed when a natural disaster like hurricanes, floods, wildfires and gas leaks and explosions threaten a populated area. The process of evacuation is vital in such situations. A well-organized evacuation routing aid is required for the evacuees to reach the shelters with minimum risks involved. An evacuation routing aid is proposed which would be able to identify the risks involved in the evacuation process and also provide a contingency plan to avoid or mitigate the risk. A flowchart of the evacuation procedure would depict the proposed evacuation process in picturesque form. A detailed evacuation plan would be described for the smooth functioning of the evacuation. A test scenario has been considered to illustrate the system.

Keywords: Decision making, Emergency evacuation, Evacuation Procedure, Risk matrix, Shelters

INTRODUCTION

In ancient times, risk meant the danger of being bitten by a beast or being infected by a disease. The definitions have changed over the course of time. The definitions vary from literature to literature, but the concept of the risk being a threat to lives has remained same. There are a few characteristics of the risks involved in any situation. First, it is an objective experience which means that one can mitigate, control or transfer the risk but can never be eliminated. Second, it is abrupt which means its occurrence is almost sudden giving less time for awareness. Third it is harmful, since large losses are involved leading to fatalities and severe casualties. Fourth it is uncertain, which means time and place of the risk are unknown. Finally, it is developing, which is due to developments in science and technology. Evacuations are by nature disruptive, expensive and often politically sensitive issues. The cost of a single evacuation may cost more than one million dollars from direct costs, losses in commerce, tourism and general productivity. To save on these costs the evacuation orders must be ordered to those areas which mandatorily need to be evacuated from the disaster areas. This requires sound knowledge in the area of risk management.

RESEARCH METHODOLOGY

Our research focuses on developing an evacuation procedure with an evacuation routing aid in the event of a natural disaster in order to save more number of lives and reduce the number of losses along with the evacuation time. This would be done by developing a procedure with a risk matrix that would highlight the possible risks involved in the evacuation process when the evacuation orders have been issued to the danger areas. This matrix would also explain these risks in detail and thus formulate contingency plans to mitigate the effects of those risks. An evacuation plan would be proposed by which the evacuees would have a well-defined procedure of evacuating the area. This plan would be explained as a flowchart. A smartphone application would be developed which would help guide the evacuees to the shelters by providing vital emergency evacuation information from time to time on the smartphones. This application would also provide the safe routing options from the current location of the evacuees along with the locations of the shelters. The shelters have been strategically located so as to get temporary relief from the disasters till the disaster subsides and the emergency personnel are able to declare a danger area safe again.

RISK MATRIX

The risk matrix describes the risks involved and the impact of those risks (physical, economical, technological, and psychological). The contingency plans have been devised to contain or reduce the effects of those risks so as to minimize the loss to lives. There is also a risk rating which allows emergency personnel to designate which risks are of utmost importance and need to be attended efficiently and effectively.

EVACUATION PROCESS FLOWCHART

The evacuation plan is described in detail with the help of a flowchart to illustrate the evacuation process step by step. This flowchart portrays the evacuation from the beginning till the end with the loop coming back to the previous step to check whether the process needs to be repeated again or the disaster has subsided and the people can go back to their homes. This flowchart is vital to the emergency authorities as they would have an idea of the process taking place and monitor which steps have been completed or need to be completed.

RESULTS

A survey was conducted and results show that most people preferred the proposed evacuation procedure compared to the current procedure. This research also found that a mass evacuation makes congestion problem that puts people in a dangerous situation on the load. To avoid the congestion problem, we proposed shelters and the optimal number of shelter was calculated using LINDO software.

CONCLUSIONS

Through the above a research, an evacuation procedure would be developed which would not only assist the evacuation personnel but also help the evacuees to understand the evacuation process in a systematic way. This would allow the evacuation process to be carried out effectively and efficiently by minimizing the evacuation time and maximizing the number of lives saved.

can be used as a resource for enterprise architecture teaching and research, and to inform faculty of ways in which they can be involved in contributing to expanding this body of knowledge. We intend to provide an overview of this consortium of industry, government and academic research. We will also discuss ways in which it can be used to link to potential research partners.

THE CONTINOUS IMPROVEMENT PROCESS:
A PROPOSAL FOR EVALUATING ONLINE INFORMATION SYSTEMS COURSES

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ABSTRACT

As the number of online programs and their associated courses continue to grow, so has the interest in how to best evaluate online course offerings. The two purposes of this presentation are: (1) to identify issues associated with evaluating online courses and (2) to propose key elements to include in the evaluation of online courses as part of a continuous improvement process based on a literature review.

Keywords: online, course evaluation, continuous improvement

CONTENT

Recognizing that differences in needed instructor skill sets between distance and traditional face-to-face instruction, researchers have begun exploring the unique traits of effective online course instructors for continuous improvement [1, 2, 3, 4, 5, 6]. Edwards, Perry, and Janzen conducted a study to determine the characteristics of exemplary online instructors [2]. Specifically, they reported that exemplary online instructors exhibited these three characteristics: (1) challenging, (2) affirming, and (3) influencing. Online instructors were identified as challenging when they set high expectations of students and required evidence to support discussion forum postings. Online instructors were recognized as affirming when they affirmed students were doing well in their studies and encouraged them during the learning process. Online instructors were branded as influencing based on both their subject expertise and their engaging presence in the learning process.

Hathorn and Hathorn [4] stated that an evaluation instrument for asynchronously delivered online courses is needed. They noted that "online courses provide unique challenges to the traditional peer and student evaluation process" [4, p.]. Results of their study indicated that both faculty and students found instructor information such as availability, e-mail response time, and assignment grading time to be important. In addition, both instructors and students found it important to include information regarding assessment techniques, course outcomes, due dates, grading information, and syllabus. Technology issues such as hardware and software trouble shooting are also important for both online instructors and students.

Seok, DaCosta, Kinsell, and Tung [5] compared the effectiveness of online courses by both instructors and students using an online course evaluation inventory. Subscales included with the online course evaluation inventory were: communications, content, course management, flexibility, getting started, instructional design, navigation, technical assistance, universal design, and user interface. Results of their study suggested that both online course instructors and students were positive regarding online course effectiveness with some variability across the subscales.

SUMMARY

The two purposes of this presentation are: (1) to identify issues associated with evaluating online courses and (2) to propose key elements to include in the evaluation of online courses as part of a continuous improvement process based on a literature review.

REFERENCES

1. Dziuban, C., & Moskal, P. (2011). A course is a course is a course: Factor invariance in student evaluation of online, blended and face-to-face learning environments. *Internet and Higher Education, 14,* 236 – 241.

2. Edwards, M., Perry, B., & Janzen, K. (2011). The making of an exemplary online educator. *Distance Education, 32*(1), 101 – 118.

3. Harrington, C. F., & Reasons, S. G. (2005). Online student evaluation of teaching for distance education: A perfect match? *The Journal of Educators Online, 2*(1), retrieved on March 30, 2014, from http://thejeo.com/ReasonsFinal.pdf

4. Hathorn, L., & Hathorn, J. (2010). Evaluation of online course websites: Is teaching online a tug-a-war? *Journal of Educational Computing Research, 42*(2), 197 – 217.

5. Seok, S., DaCosta, B., Kinsell, C., & Tung, C., K. (2010). Comparison of instructors' and students' perceptions of the effectiveness of online courses. *The Quarterly Review of Distance Education, 11*(1), 25 – 36.

6. Tobin, T. J. (2004). Best practices for administrative evaluation of online faculty. *Online Journal of Distance Learning Administration, 7*(2), retrieved on March 30, 2014, from: http://www.westga.edu/~distance/ojdla/summer72/tobin72.pdf

HIGH PERFORMANCE WORK SYSTEMS

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ABSTRACT

High-performance work systems involve a combination of technology, workers, and organizational structure for more fully utilizing an organization's resources in achieving its goals. This study focused on how organizations select, place, and maintain the right people, the best technology, and a progressive organizational structure to facilitate change while moving toward established goals and objectives. More often than not, the prevalent traditional management practices are in contrast to rather than in support of a high-performance work system approach. A recent trend has been that of managers realizing that success depends on how well the various elements of an organization work together--rather than as separate and unrelated entities.   This study involved a study of the various elements of high-performance work system such as the following: information systems, the workers, the prevailing organizational structure, the design of tasks, the selection, training, and development of workers, the established reward systems, and, of course, information systems.   Questionnaire results were from a group of 38 business leaders and managers representing 23 organizations in south-western United States. The research base group was 64% male and 36% female. The reported average age of managers and leaders was 39.4 years of age and the reported average age of the IT workers was 26.8 years of age.

Research results for this presentation will focus on the following:
1. Perceived and actual tasks and duties of team members.
2. Organizational activities
3. Specific tasks and team responsibilities.
4. Implementation of a high performance work systems
5. Success of high performance work systems

DESIGN, IMPLEMENTATION AND EVALUATION OF A PROTOTYPE FOR SENTIMENT ANALYSIS USING SAP HANA

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MOTIVATION

Today, many people will publicly express their opinion on the Internet, using tools such as social networks, microblogs and discussion forums. Taking into account the number of daily posts, the sheer volume of opinions, feelings, ideas, counter-statements among other things expressed through these media constitutes "big data" [2]. Sentiment analysis (also known as opinion mining) is a method by which unstructured data containing sentiments can be analyzed. Sentiments refer to the moods people may experience, or, to be more precise, they are the associated feelings, beliefs, emotions and opinions that people use to express these emotions in written form [5]. Sentiment analysis (SA) utilizes natural language processing (NLP) and other text analysis techniques [3], and the sentiments are assigned a category, e.g. positive, negative, or neutral.

Businesses can take advantage of sentiment analysis. To offer just one example, an ongoing discussion about a new product that has just been released onto the market can allow the vendor to better assess what consumers think about the product and what features they like or dislike. This will enable the vendor to identify areas for improvement. In-memory technology is an enabler for the processing of big data in general and for SA in particular. With the price reduction for memory chips and the progress in multi-core processors, powerful in-memory database solutions have been developed, e.g. SAP HANA [9]. Their main advantage is an extremely fast data access rate.

In this paper, we present a lexicon-based approach to sentiment analysis using big data from social networks (in particular Facebook and Google+). A prototypical implementation based on SAP HANA is discussed, and evaluated. The paper concludes by pointing out necessary extensions of the prototype and directions for future research.

RELATED WORK

Sentiment analysis is studied by researchers from various fields, including among others linguistics, computer science, and management [6, 5, 2]. Research on enabling technol¬ogies, e.g. in-memory databases and columnar data storage, helps to improve SA, as these technologies significantly reduce the time required for data querying [1]. Taking into account that the major difficulty is to extract sentiments from unstructured streams of data, a number of approaches have been proposed. They range from static lexicon- and rule-based methods (preferred by industry) to sophisticated solutions based on machine learning and natural language processing (preferred by scientists) [4, 8]. All approaches have their strengths weaknesses, which can be directly observed in the quality of the analysis [7]. For example, a recent study demonstrated that the rule-based approach is more applicable to practical questions than sophisticated machine learning or combined approaches [4].

SOLUTION APPROACH

The technological infrastructure underlying our solution comprises APIs (application programming interfaces) from both Facebook and Google+, as well as a cloud-based SAP HANA instance. HANA is officially called an "appli¬ance", which means that it consists of both hardware (for hosting and processing in-memory databases) and software – including a DBMS (database management system), an IDE (integrated development environment), and

application and web servers, among others [9]. Developing an SA solution using SAP HANA is made up of three major stages:

1) ETL (Extract, Transform, Load), which also includes a) reading raw social data with the help of Facebook and Google+ APIs; b) cleaning, structuring and formatting the data; and c) loading the data into the HANA database.

2) Sentiment Calculation Algorithm: Since our SA approach is lexicon based, it is necessary to first create a lexi¬con containing sentiment terms and values that assign a term to a category. While most authors of other solutions use only three senti¬ment categories, we have chosen instead to distinguish five categories (strong negative, negative, neutral, positive, and strong positive). In addition to this, a category for "Sentiment not found!" was introduced (leading to the value NULL for the message). Thus, the algorithm will calculate a message's sentiment value as follows: First, it determines how many times a word from the lexicon is contained in the message, using NLP techniques, then it computes an average sentiment value, and finally assigns a sentiment category to the message.

3) User Interface: The user interface (UI) was developed with the help of SAP HANA Studio – the IDE included in the HANA appliance. The front-end is an HTML page with JavaScript, composed of preconfigured elements that come with SAP HANA UI libraries (the so-called SAPUI5 [9]).

EVALUATION AND OUTLOOK

The SA prototype has strengths and weaknesses. One of the strengths of our prototype is the additional category "Sentiment not found!", which is used to define messages that contain none of the sentiment terms. While other solutions treat this situation as a neutral sentiment, we disregard messages not containing any term currently in the lexicon, thus improving the quality of the results. In addition, execution times are shorter than other comparable solutions [1]. Tests with 1,200 social messages (up to 5,000 characters long), using a lexicon of 100 pre-defined words, took approximately three seconds, which also included ETL, calculation, and visualization of sentiments.

Among the weaknesses is the size of the lexicon, which is limited in scope. It requires extending in order to ensure the results are more accurate in the future. Another area causing some concern is the amount of manual work that is required for both the ETL and the sentiment calculation. Furthermore, the lexicon can only be edited with the help of SAP HANA Studio. A web front-end would significantly improve the user-friendliness.

The most fundamental issue, however, is the sentiment calculation algorithm. The algorithm will need to be improved by taking semantic structures into account. This issue involves questions of natural language processing. Consequently, researchers from the field of linguistics should be included in the research.

REFERENCES

1. Assuncao, M. D., Calheiros, R. N., Bianchi, S., Netto, M. A. & Buyya, R. (2013). Big Data Computing and Clouds: Challenges, Solutions, and Future Directions. arXiv preprint arXiv:1312.4722, 1-39.
2. Chen, H., Chiang, R. H. & Storey, V. C. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. MIS Quarterly, 34(4), 1165-1188.
3. Chen, L., Wang, W., Nagarajan, M., Wang, S. & Sheth, A. P. (2012). Extracting Diverse Sentiment Expressions with Target-Dependent Polarity from Twitter. Sixth International AAAI Conference on Weblogs and Social Media, Dublin, 2012.
4. Chiticariu, L., Li, Y. & Reiss, F. R. (2013). Rule-based Information Extraction is Dead! Long Live Rule-based Information Extraction Systems!. Proceedings of the 2013 Conference on Empirical Methods in Natural Language Processing, 827-832.
5. Liu, B. (2012). Sentiment analysis and opinion mining. Sentiment analysis and opinion mining. Synthesis Lectures on Human Language Technologies, 5(1), 1-167.

6. Nanli, Z., Ping, Z., Weiguo, L. & Meng, C. (2012). Sentiment analysis: A literature review. International Symposium on Management of Technology (ISMOT), 2012, Hangzhou, 572-576.

7. Thelwall, M., Buckley, K. & Paltoglou, G. (2012). Sentiment Strength Detection for the Social Web. Journal of the American Society for Information Science and Technology, 63(1), 63-73.

8. Witten, I. H., Frank, E. & Hall, M. (2011). Data Mining: Practical Machine Learning Tools and Techniques (3rd ed.). San Francisco: Morgan Kaufmann.

9. Word, J. (2012). SAP HANA Essentials (2nd ed.). Epistemy Press, ISBN: 978-0-9856008-0-8.

EDWARD SNOWDEN VERSUS MARK ZUCKERBERG:
EVOLVING IS ETHICS VIEWS IN THE AGE OF PRISM AND FACEBOOK

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At the start of the Third Millennium, the Internet has become what some call the preeminent enabler of globalization [10]. It has been the primary channel for hugely successful business startups [15], for challenging and even toppling national governments [7], and for bringing more of the human race into social contact with each other than ever before in history [2]. As more of humankind has moved online, however, humankind's myriad ethics issues have begun to manifest online as well [5]. A particularly stark example of this is the contrast between the "Snowden Effect" and the "Facebook Effect."

The Snowden Effect. In 2013, Edward Snowden released to the public press information he had stolen from the United States National Security Administration (NSA) while working there as an information systems (IS) consultant [4]. Snowden's press release brought to light the NSA's far-reaching—some say, ubiquitous—surveillance of US and non-US residents [9]. Related disclosures have also shown that "secure" systems such as Verizon's cellular network, Amazon Web Services, Facebook.com, and Google.com are routinely searched (both with and without a court order) by the NSA, and probably by other governments as well [13]. Taken together, these revelations have spawned what has come to be known as the Snowden Effect [1], a sudden and widespread reluctance to use the Internet, publicly available cloud resources, or cellular networks for transmitting or storing trade secrets, internal email, and other confidential information. While the Snowden Effect has been characterized as being most pronounced in the European Union, it is also said to exist around the world, including the USA [13, 1].

The Facebook Effect. On the other hand, during this same time roughly half the Internet users on the planet (or about 16% of the human race) voluntarily shared information about their personal lives on social networking sites such as Facebook, Twitter, and Yahoo [14]. This information included people's names and photos, addresses, phone numbers, and other details about personal habits and preferences long considered private [8, 11]. These sites' terms of service, to which each user must agree to create an account, specify that the site owners have the right not only to access all site content but also to transfer it to third parties of their choice [8]. However, this seems not to faze social network users at all, presumably because they feel like they control who receives their private information and do not consciously acknowledge the corporate brokers behind the scenes [6]. This willingness to relinquish control of information that until recently was regarded as private has come to be known as the Facebook Effect [12].

Evidence in IS Ethics Views? This study sought to identify manifestations of these competing effects in the IS ethics opinions of information workers. Specifically, we surveyed information workers (people who routinely use computers in their work but are not IS professionals) at financial institutions in the Upper Midwest and the Mountain West of the USA about their IS ethics-related opinions in 2002 [3] and again in 2014. We then compared the two data sets to see whether IS ethics opinions have become more conservative over that time (indicating a possible Snowden Effect) or whether they have become more liberal (indicating a possible Facebook Effect).

Results. Analysis via multiple regression and two-tailed t-tests yielded statistically significant results on 16 of the 30 survey items, across all three survey sections, and between the two data sets as a whole. These results were entirely consistent in showing less concern for corporate or personal privacy among 2014 respondents than among respondents from 2002. That being said, the researchers also note that only 4 of the 16 statistically significant items yielded an actual disagreement between samples regarding the ethicality of a given practice; all others were only differences of degree.

Discussion. As the Information Revolution continues to shape the Third Millennium, we find evidence that human-to-human connection seems presently to be trumping human protection of privacy and confidentiality; that is, we see the Facebook Effect outweighing the Snowden Effect at present. However, our research is subject to a number of limitations. As convenience samples, our data are not easily generalizable. Also, being drawn from information

workers and financial institutions in the Upper Midwest and Mountain West, they do not give information about other institutions or regions. Additionally, our survey asks about personal opinions and specifically avoids institutional policies and practices. Finally, the Information Revolution is far from over, and the future may yet unfold far differently than our data suggest. For these and other reasons we hope to continue this research to address the limitations noted above, and we invite other researchers to join with us.

References

[1]   (2013, December 6). Snowden effect: Internet firms step up efforts to stop spying. *Financial Express*.

[2]   (2013, September). Social networking fact sheet. *Pew Research Internet Project*. Retrieved from http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/.

[3]   Al-Lawatia, H. & Hilton, T. (2002). Comparing I.S. ethics in the USA with I.S. ethics in the Arab world." Presented to the Annual Conference of the Information Resource Management Association International (IRMA International), Seattle, Washington, 19-22 May 2002.

[4]   Bacon, J. (2013, June 11). Contractor fires Snowden from $122,000 per-year job. *USA Today*. Retrieved from http://www.usatoday.com/story/news/nation/2013/06/11/booz-allen-snowden-fired/2411231/.

[5]   Berlatsky, N. (Ed.). (2013). *Netiquette and Online Ethics: Opposing Viewpoints*. Detroit, MI: Greenhaven Press.

[6]   Buchmann, J. (2013). *Internet Privacy: Options for Adequate Realization*. Berlin: Springer Berlin Heidelberg.

[7]   Douzinas, Costas. (2006). Postmodern just wars and the new world order. *Journal of Human Rights*, 5(3), 355-375.

[8]   Facebook. (2013, November 15). *Data Use Policy*. Retrieved from https://www.facebook.com/about/privacy/.

[9]   Finn, P. & Horwitz, S. (2013, June 21). U.S. charges Snowden with espionage. *The Washington Post*. Retrieved from http://www.washingtonpost.com/world/national-security/us-charges-snowden-with-espionage/2013/06/21/507497d8-dab1-11e2-a016-92547bf094cc_story.html.

[10]   Friedman, T. L. (2012). The global marketplace and the common good: sustainable values in the age of the Internet, globalization, and economics and environmental crises. *Notre Dame Journal of Law, Ethics & Public Policy*, 26(2), 363-380.

[11]   Hong, W. & Thong, J. (2013). Internet privacy concerns: An integrated conceptualization and four empirical studies. *MIS Quarterly*, 37(1), 275-298.

[12]   Kirkpatrick, D. (2011). *The Facebook Effect: The Inside Story of the Company that is Connecting the World*. New York: Simon & Schuster.

[13]   Rash, W. (2013, September 9). There is no way to keep your data from the NSA. *TechWeek Europe*. Retrieved from http://www.techweekeurope.co.uk/comment/snowden-nse-privacy-suiveillance-126537.

[14]   Smith, C. (2014, April 2). How many people use 416 of the top social media, apps, and tools? *Digital Marketing Ramblings… The Latest Digital Marketing Stats, Tips, Trends and Technology*. Retrieved from http://expandedramblings.com/index.php/resource-how-many-people-use-the-top-social-media/3/#.U2kKayjiiuo.

[15]   Stone, B. (2005, February 21). Once upon a time; it was only 10 years ago that Yahoo was born and Netscape had its IPO, leading to the Internet boom in Silicon Valley. Nobody seems to be taking notice. Should we? *Newsweek*, 32.

THE INTRODUCTION OF TABLETS IN THE CLASSROOM TO IMPROVE STUDENT LEARNING

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The use of tablets gives the professors the freedom to teach from anywhere in the classroom. The purpose of this research is to determine if faculty are using tablets as a teaching tool. If tablets are in use how are they utilized and do tablets have an impact on student's learning. If tablets are not in use the study will explore the potential for faculty to utilize tablets as a teaching tool. Research on the use of tablets in the classroom is an important topic for IACIS conference participants as the integration of emerging technologies is pervasive.

Past studies have shown the use of tablets in the classroom can be useful. Enriquez (2010) suggested that networked tablets enable students and faculty to analyze problems, collect data, and combine handwritten and other electronic class materials (p 84). Bonds-Raacke and Raacke (2008) study show that students not only enjoy tablets being used in the classroom, but also find the use of technology very beneficial (p 238). However, there are also disadvantages to professors using tablets in the classroom. Shepherd and Reeves (2012) informs us that one must understand the limitation in the tablet's software in that it may not always work (p.50). Ifenthaler and Schweinbenz (2013) believe the benefits of tablets can only be realized in a school environment if technology is accepted and integrated into the classroom practices.

This proposed study will collect data from faculty during one-on-one interviews within various divisions at one university. A focused analysis of the data will be categorized in patterns. A review of the literature shows faculty are positive about the influence using the tablets would have on learning and teaching (Weitz, Wachsmuth & Mirliss, 2006). Hawkes and Hategekimana (2009-2010) studied the impact of wireless, mobile computing (tablet-PC) tools on student pre and post assessment outcomes. The results of their limited study showed to some degree there was a positive effect on student learning through the use of mobile technology. The authors suggest that more research should be done to determine how the results are produced. Shepherd & Reeves (2012) and Hawkes & Hategekimana (2009-2010) explain how faculty realized that they must prepare for possible failure. Shepherd & Reeves (2012) also suggest, "Spending 20 percent more time creating good activities and assignments can reduce back end grading effort by almost 90 percent" (p. 50).

While several studies discussed what benefits there are to students having technology in the classroom, they failed to show how professors used the technology to enhance student learning. Also, the advantages and disadvantages were only expressed at the implementation stage. Finally, none of the studies explained if the application worked exactly the way they were expected to or not. Future research can explore why professors would want to implement the use of tablets in their classrooms and how the introduction of tablets can affect students. The results from this study will address any updates found regarding previous studies and expand on how professors can use tablets to improve student learning.

References

Bonds-Raacke, J & Raacke, J. (2008). Using tablet PCs in the classroom, *Journal of Instructional Psychology*, 35(5), 235-239.

Enriquez, A. (2010). Enhancing student performance using tablet computers, *College Teaching*, 58, 77-84.

Hawkes, M. Haegekimana, C. (2009-2010). Impact of mobile computing on student learning in the university, *J. Educational Technology System*, 38(1), 63-74.

Ifenthaler. D., Schweinbenz. V. (2013). The acceptance of Tablet-PCs in classroom instruction, *Computers in Human Behavior*, 29, 525-534.

Shepherd, I. & Reeves, B. (2012). iPads or iFad- the mobile classroom, *Journal of Higher Education Theory and Practice*, 12(5), 40-53.

Weitz, R., Wachsmuth, B. & Mirliss, D (2006). The tablet pc for faculty, *Educational Technology & Society*, 9(2), 68-83.

AN EMPIRICAL STUDY OF LEARNING OUTCOME IMPROVEMENT USING ERPsim

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ABSTRACT

ERPsim is an Entity Resource Planning (ERP) teaching-learning tool for business major students to learn real-world ERP and business processes. This study empirically examines how ERPsim enhances student learning outcomes in an IS course. The research findings indicated that enjoyment and cognitive appraisal of using ERPsim significantly increase student's behavioral intention to using the learning tool in the classroom, and thus improve their learning outcomes.

Keywords: ERPsim, Learning Outcomes, Intention, Enjoyment, Cognitive Appraisal

INTRODUCTION

ERPsim (ERP Simulation Game) is an ERP teaching-learning software tool developed by HEC Montreal. ERPsim simulates a business environment in which students use an SAP ERP system to learn the full cash-to-cash cycle of a distribution company including planning, procurement and sales. Worldwide, over 170 universities have adopted ERPsim in their IS courses. Pedagogical evidence indicates that ERPsim improves students' learning performance in IS courses. This study empirically examines how ERPsim enhances students learning outcomes in IS courses. Particularly, we investigate how enjoyment of using the learning tool influences the behavioral intention which in turn impacts the learning performance on ERP concepts. The study investigates theoretical effects of the ERP learning tool on the learning outcomes in a core IS course and provides empirical evidence on which antecedent factors positively influence student learning outcomes.

RESEARCH METHODOLOGY

A significant body of IS studies have found that enjoyment of information systems has positive effects on the behavioral intention to adopt the system and system usage outcomes [2]. According to the theory of planned behavior [1], enjoyment acts as an exogenous behavioral belief that positively influences an individual's behavioral intention and behavioral performance in a cognitive-psychological activity such as using information systems. Accordingly, it is believed that enjoying using the ERPsim learning tool will increase the intention of adopting the learning tool and improve the learning outcomes related to ERP learning. In addition, cognitive appraisal, which refers to individual's interpretation of situation during an activity or event, has significant effects on behavior [3]. It is thus believed that cognitive appraisal also determines the behavioral intention of using ERPsim as well as learning outcomes during the ERP learning process. In sum, we propose the following hypotheses.

H1: Enjoyment of experiencing ERPsim has positive effects on the intention of using the learning tool
H2: Cognitive appraisal to using ERPsim has positive effects on the intention of using the learning tool
H3: The intention of using the learning tool has positive effects on the improvement of learning outcomes.

A corresponding research model is illustrated in Figure 1.

To test these hypotheses, a survey instrument has been developed based upon prior IS research findings. The survey was administered to college students who were taking a core IS course. During class, students managed a wholesale distribution company and its associated processes using SAP by competing against other student groups in an emulated market by ERPsim. Following the competition, students took the survey by answering questions related to

SAP usages and wholesales business processes. Student learning outcomes were measured by student self-reported assessments on the learning goals for the ERP lecture during the ERPsim experiment week.

RESULTS

A dataset consisting of 160 complete surveys has been collected. A tested research model is illustrated in Figure 1. The first hypothesis is significantly supported at the 99.9% significant level or p<0.001. This suggests that enjoyment of using ERPsim has significant effects on the behavioral intention and thus learning outcomes. This finding is in line with prior IS findings on the effects of enjoyment on information systems usage and outcomes.

The second hypothesis is also significantly supported at the 99.9% significant level or p<0.001. This indicates that cognitive appraisal plays a significant role in influencing learning behavior. Cognitive appraisal helps students increase their self-confidences on their problem solving skill in a technology-business context. Using ERPsim requires skills of using SAP and understanding of business processes (e.g., wholesales). Therefore, cognitive appraisal increases students' curiosity about the learning by exploring more challenges during the learning process due to high self-confidence in their problem-solving skills and thus significantly increases their learning intentions and outcomes.

The third hypothesis address the causal relationship of intention and learning outcomes. The findings highly supports this hypothesis at t-value of 22.84, much higher than the 99.9% confidence level (p<0.001). As the theory of planned behavior [1] addresses, the actual behavior directly results from behavioral intention. When students have a high intention to use the learning tool in their learning processes, they usually have high motivation to learn and thus high performance in learning.
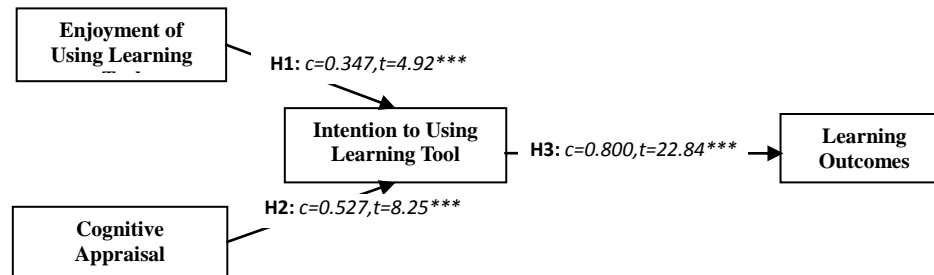
Note: *** indicates the 99.9% confidence level (p<0.001) with t-value greater than

Figure 1. Research Model for ERPsim Learning Outcomes

CONCLUSIONS

Based upon the results of the study, we concluded that an effective and efficient learning tool greatly increases students' learning intention and learning outcomes. Business education, especially IS education, is highly practice-oriented. Without practicing in a real-world business and technology settings, it is hard for students to get engaged in learning process or understand real-world business processes. The study for the first time provides empirical evidence on the significant effects of ERPsim on improving student learning outcomes. We hope further empirical study of ERPsim on learning outcome will shed more light on the efficiency and effectiveness of ERPsim in IS education.

REFERENCES

[1] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

[2] Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. *Information Systems Research*, 13(2), 205-223.

[3] Nyer, P. U. (1997). A study of the relationships between cognitive appraisals and consumption emotions. *Journal of the Academy of Marketing Science*, 25(4), 296-304.

THE MAINFRAME OPTION

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INTRODUCTION

As technology has become more pervasive throughout our society it is very evident that we rely on it quiet heavily. It is easy to see firsthand as you sit at your favorite coffee shop. Just take a look around and notice the surrounding people. Most are all busily working away on their laptop, tablet computer, or even using very powerful cellular telephones known as smart phones. With all this high-tech gadgetry and technological wonders all of which have such amazing capabilities, it creates a fairly perplexing scenario. This begs the question as to what is happening on the "high-end" of computing today. What do massive companies use to handle their workloads? Surely millions of banking transactions are not processed with thousands of laptop computers. So what do companies use for such large scale processing? The answer quiet simply is believe it or not, mainframe computers. While this technology is one of the older forms of computational power it is still very much alive and used heavily to this day. This researched focused on the mainframe while trying to flush out some of the general misconceptions surrounding this technology and show that the mainframe is a valid technology option.

RESEARCH METHODOLOGY

In demonstrating the misunderstandings that coincide with mainframe technology a student survey was created. The population for this study was both the undergraduate and graduate students in the Computer Science and Management Information Systems departments of an upper Midwest university. The survey was provided to the students by the professor of each class. The students then completed the survey within the given class. Participation in the survey was completely voluntary and in no way affected the students' grade. Survey participants were informed of the intent of the survey and completion of the survey implied the surveyors consent. The research was quantitative in nature. Descriptive statistics were used to analyze the data. Correlational analysis was further used to determine if there is a correlation between the grade level and gender with respect to mainframe understanding.

CONCLUSION

The idea that these are old antiquated machines seems to persist despite the overwhelming evidence that the mainframe is not what the perceptions make it out to be. We demonstrated several reasons why mainframes are a valid option. Myths that we have dispelled fairly easily would be as follows:

- The mainframe is not out of date, but rather a solid technology platform that has evolved over time and continues to be very modern.
- The operating system and hardware is not old or going away anytime soon.
- A mainframe computer can integrate with several other non-mainframe systems and even can run as a hybrid.
- There is a strong future in the field of mainframe technology and a very large demand for skills.
- The customer base is huge, global, and continues to grow.
- In the right scenario significant cost savings can occur.

USING TWITTER AND OTHER SOCIAL MEDIA TO ENGAGE STUDENTS

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ABSTRACT

This paper reports on how the authors used the mobile devices students have access to in order to keep them engaged in the classroom. The extra screen (devices with social media) is no longer a distraction in class but a facilitator of meaningful student discussion with professors and classmates. Some current best practices for social media and mobile technology both in and out of the class were explored. The strategies were tried in computer application and mathematics classes taken by freshmen business and education majors. Students had a choice to use tablets or smartphones for in-class activities that required technology.

KEYWORDS: Social Media, Twitter, Student Engagement, Microblogging, Mobile Technology, Higher Education Teaching

SYSTEMS ANALYSIS FROM A QUALITATIVE PERSPECTIVE: AN EMERGING SKILLS SET FOR INFORMATION SYSTEMS PROFESSIONALS

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Abstract

Effective systems analysis is at the core of the design, development and operation of a modern information system. As part of their analysis and design work, information technology (IT) professionals are called upon to interview clients, observe daily operations and interpret and evaluate existing or proposed solutions. Moreover, these practitioners must understand and situate themselves in the context of multiple stakeholder organizations and remain cognizant of organizational goals. Unfortunately many of these interaction skills, critical to effective application development and delivery, are not taught in a university setting, and are oftentimes seen as knowledge to be ultimately gained through experience. Fortunately, many of these needed skills are the focus of effective qualitative research (e.g., the ability to identify problems or opportunities, collect and analyze data and develop proposed models, best practices or theories to address organizational concerns, etc.) and may be learned through coursework focusing on this topic. This paper presents the results of interviews with fifteen senior information systems personnel who completed a graduate level course in qualitative research. The results indicate a strong agreement that this type of coursework should be included as part of an information systems curriculum, with specific examples of how these skills can be used, as well as suggestions for future use in a corporate setting.

After extensive personal experience with systems development life cycles designed to foster collaboration, in conjunction with interview data collected during the study, the authors concluded that aggressive delivery schedules and limited resources necessitate that development teams focus on assigned deliverables. Unfortunately, this undermines team member collaboration, knowledge of how their efforts fit into the overall solution and an understanding of how their product will be received. Adverse impacts include lost time from missed or ineffective communication between team members, ineffective handoffs between functions, poor expectation management, missed or misunderstood requirements, late delivery and inflated budgets. The professionals interviewed for this paper affirmed the application of specific, focused qualitative methods tools (e.g., interviewing skills, the ability to effectively conduct, synthesize and analyze qualitative data, the effective use of focus groups, etc.) in such situations should infuse IT teams with renewed focus, accuracy and purpose.

Courses teaching qualitative research methods are designed to prepare graduate students to conduct formal research. The information systems professionals interviewed for this paper felt this approach is limiting because qualitative training can become an important tool for IT delivery that would benefit a larger audience, and should be expanded and presented as such. The professionals interviewed embraced these methods and concluded they provide a foundation for critical thinking and enhanced synthesis and application of qualitative data. Their testimonials asserted qualitative methods provide the deep knowledge and understanding necessary to avoid pitfalls and ensure observations are not accepted at "face value" without first obtaining an additional perspective. In today's IT environment such perspectives are often lost, resulting in a larger than expected financial and human resource investment. This paper's findings indicate a significant opportunity to leverage qualitative research methods for enhanced IT delivery. The overarching concerns of the executives interviewed were best summarized by one manager who described the costly and time-consuming need for additional analysis, design and development following the unsuccessful launch of a municipal information system. The interviewee felt that a clear lack of communication between IT personnel and the systems end-users led to critical problems with the initial implementation of the new system. As he noted, the effective application of many of the communication and data analysis skills learned in the qualitative research class would have likely helped IT personnel during the design of the system, and ultimately avoid problems experienced during the initial implementation.

PREDICTORS OF ACADEMIC PROCRASTINATION IN ONLINE CLASSES: CAN INSTRUCTOR INTERVENTION INCREASE STUDENT SUCCESS?

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KEYWORDS: retention, progression, procrastination, online education

INTRODUCTION

Public higher education institutions are facing difficult budget decisions as performance-based funding is implemented. Performance-based funding will be determined by formulas that use performance indicators such as student retention, progression, and graduation. Academic success in the classroom is considered a primary factor in these performance indicators (Lazier, 2013) and can be dependent on many factors, including academic procrastination (Michinov, Brunot, Le Bohec, Juhel, & Delaval, 2011). Academic procrastination is defined as "…the delay of a task or assignment that is under one's control" (Ackerman & Gross, 2005, p. 5). Research has shown that students in online classes who procrastinate tend to withdraw more often or have lower grades and academic performance (Ackerman & Gross, Humphrey & Harbin, 2010), negatively impacting retention, progression, and graduation rates. This study examined relationships among selected variables (gender, age, academic level, enrollment status, overall GPA) and academic procrastination. The aim of this study is to identify any relationships between the variables and academic procrastination that can be used by instructors to intervene early and to improve the student's chance to succeed in the class.

RESEARCH METHODOLOGY

For purposes of this study, thirteen classes of undergraduate information technology courses were selected, all taught by the same professor. The data includes demographic data about 350 students and over 4,700 assessments from classes offered from fall 2009 through fall 2013. The study includes assessment data from online discussions and a variety of writing assignments. Procrastination is measured by determining the time difference between the submission times of student work and the assigned submission time or the deadline.

The data was analyzed using Microsoft Excel. To simplify the analysis, date comparisons were used and the difference between the submission time and the deadline was reduced to hours and minutes. The difference indicated the level of procrastination, with lower values indicating higher levels of procrastination. The procrastination data was then analyzed by type of assessment (discussion or writing assignment), gender, age group, academic level, enrollment status, overall GPA, and declared program or major.

IMPLICATIONS and CONCLUSIONS

The number of students enrolling in online classes continues to grow and the number of institutions offering online classes also continues to grow (Allen & Seaman, 2013). Unfortunately, not all students are prepared for the time and effort it takes to succeed in these classes. This impacts retention, progression, and graduation rates. Michinov et al. (2011) recommend that "…stimulating the participation of learners with a tendency to procrastinate may be another fruitful strategy to discourage students enrolled in online courses from procrastinating" (p. 249).

This study identified some "predictors" of academic procrastination (gender, age, GPA, etc.) that affect student success in online classes. A preliminary evaluation of all of the assessments indicates that males procrastinate more than females; seniors procrastinate more than any other academic level; part-time students procrastinate more than full-time students; students with less than a 2.0 GPA procrastinate more than any other GPA level; and students 50 years of age and older procrastinate more than any other age group. The results of the study can be used to identify actions faculty may take to "stimulate" or motivate students to manage time better, which could reduce the level of procrastination and improve student performance. Ultimately, the goal is to increase student success in online classes, thus improving retention, progression, and graduation rates. A win-win situation for both students and higher education.

REFERENCES

1. Ackerman, D. S., & Gross, B. L. (2005). My instructor made me do it: Task characteristics of procrastination. *Journal of marketing Education, 27*(1), 5-12.
2. Allen, I. E., & Seaman, J. (2013). Changing Course: Ten years of tracking online education in the United States. Babson Research Group and Quahog Research Group, LLC. Retrieved 7/5/2014 from http://www.onlinelearningsurvey.com/reports/changingcourse.pdf
3. Humphrey, P., & Harbin, J. (2010). An exploratory study of the effect of rewards and deadlines on academic procrastination in web-based classes. *Academy of Educational Leadership Journal, 14*(4), 91-98.
4. Lazier, M. (2013). Optimizing student success: Increasing retention and graduates ready for the demands of the twenty-first century global marketplace. *International Journal of Liberal Arts and Social Science, 1*(3), 75-87.
5. Michinov, N., Brunot, S., Le Bohec, O., Juhel, J., & Delaval, M. (2011). Procrastination, participation, and performance in online environments. *Computers & Education, 56*, 243-252.

ETHICAL DILEMMAS OF WEARABLE COMPUTING

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Keywords: Wearable Computing, Ubiquitous computing, Privacy, Ethics, Policies for wearable computing

Wearable computing is a category of technology oriented devices that incorporate micro motion sensors and chips and are embedded into items of clothing and accessories and can be comfortably worn by the users for a variety of uses. Wearable computing is closely related to the field of ubiquitous computing. Ubiquitous computing allows the vision of integrating technology into everyday life, while making technology pervasive and overall interaction smooth. Wearable computing integrates communication technologies and allows the user with access to information in real time.

As the potential uses in wearable computing field continues to grow, the sociological and cultural impact it will have in the future cannot be ignored. These devices are no longer simple pieces of jewelry, clothing accessories or a variation of conventional eyewear. They are and continue to have profound effects on how and what we see, understand and remember the world. As users of this technology continue to grow, the society must balance their individual rights with the rights of other individuals to reasonable privacy and confidentiality. Although this new field of computing will provide practical, novel and sometimes fun uses, it will also influence society's behavior, creating various dilemmas for designers. Society must adopt new protocols to combat these emerging societal attitudes and norms. These devices will impact us on more personal level and as they become more intimate they will also be more invasive. We also explore the ways in which organizations may encourage or discourage the use of these wearable computers.

In this presentation, we demonstrate where the current research on wearable computing is leading, what some of the novel uses are as well as what invasive implications can arise. We also demonstrate why the uses of wearable computers are social engineering in the most literal sense. Ultimately, we explain the ethical dilemmas for society, companies, and individuals and how each can formulate policies and guidelines for appropriate use of wearable computing.

THE INFLUENCE OF GOAL CLARITY, CURIOSITY AND ENJOYMENT
ON INTENTION TO CODE

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ABSTRACT

The purpose of this study is to examine the influence of goal clarity, curiosity and enjoyment—all factors of Csikszentmihalyi's (1975) flow theory—on the intention to write programming or querying code. By focusing on specific flow factors, this research refines and extends previous research by the authors (Chen & Pratt, 2013) to study the impact of flow and technology acceptance on systems development behavior. Findings are based on survey data from computer science and information systems classes at three different universities.

Keywords: Flow, behavioral intention, programming, information systems, coding

INTRODUCTION

Enhancing performance in learning as well as applying coding knowledge and skills are important reasons to investigate the role of flow theory in coding experiences. As educators, we are interested in helping students gain competence and self-efficacy at higher levels of coding skill. As employers, we are interested in finding ways to maximize the performance of those writing code and aligning employees' skill areas—where they feel most in the zone—with corresponding project assignments. Both goals aim towards increased satisfaction and performance.

LITERATURE REVIEW

Whereas previous research on flow in computer-mediated environments demonstrates positive, empirical support for the influence of flow on behavior, inconsistencies exist regarding the contributions of specific flow theory factors. Inconsistencies in results is due, in part, to the holistic nature of flow (Csikszentmihalyi, 1975) and the challenges related to measuring dynamic cognitive processes. Additionally, research (e.g., Abuhamdeh & Csikszentmihaly, 2012) indicates contradictory findings related to relationships among individual factors. As Finneran and Zhang (2005) highlight in their literature review, researchers introduced confounding variables into their flow theory research by integrating other factors (e.g., playfulness) and other theories or models (e.g., Technology Acceptance Model). The research presented here takes a different approach. Our goal is to isolate groups of flow theory factors to examine their influence on intention. We are specifically interested in examining how the combination of goal clarity and curiosity contribute to enjoyment, which influences intention to code in a computer-mediated environment. Researchers have been studying the influence of flow—an immersive experience in which one is completely absorbed in the activity at hand—for over three decades since Csikszentmihalyi (1975) first published his seminal article introducing the concept of flow. The ability of one to be completely immersed in an activity is dependent in part on that person's goals and abilities combined with his or her subjective evaluation of the external situation. We extend the research that combines these intrinsic and extrinsic factors in a computer-mediated environment (Csikszentmihalyi, 1990; Ghani, Supnick and Rooney, 1991; Trevino and Webster, 1992; Webster et al., 1993).

RESEARCH METHODOLOGY AND FINDINGS

College students taking upper-division programming courses at two universities comprised the study sample. The students engaged in a challenging coding task related to the concepts and skills being taught in that course. They then completed a validated, theoretically based (Agarwal & Karahanna, 2000; Ajzen, 1991; Davis et al., 1992; Ghani et al. 1991; Guo & Klein, 2009) survey instrument. We used the partial least squares (PLS) (Wold, 1974, 1985; Lowry & Gaskin, 2014) method to analyze a complete survey dataset (see Figure 1). Goal clarity is the knowledge and understanding of an intended outcome and the rules by which one operates to achieve that outcome. Curiosity is the focused and concentrated attention on the task at hand. Goal clarity and curiosity individually and significantly contribute to enjoyment, which is a positive artifact of flow and is associated with increased skill development and

performance. Enjoyment in completing a task leads to persistence and intention to continue such tasks—in this case, coding. We used confirmatory factor analysis to test the loading factors from the latent variables to the measurement items. As seen in Table 1, all composite reliabilities exceed the minimum threshold value of 0.70, thereby demonstrating the measures are robust in terms of their internal consistency reliability. Likewise, the average variance extracted (AVE) exceeds the recommended minimum threshold value of 0.50 for reflective indicators. Table 1 also confirms discriminate validity by illustrating that the square root of the AVE scores are significantly higher than the absolute values of the inter-construct correlations in the corresponding rows and columns. The diagonal elements (in bold) are the square root of the AVE score for each construct (curiosity, enjoyment, goal clarity, and intention).

Table 1. Reliability and Discriminate Validity

	Composite Reliability	**AVE**	**Curiosity**	**Enjoyment**	**Goal Clarity**	**Intention**
Curiosity	0.893	0.739	**0.860**			
Enjoyment	0.930	0.770	0.736	**0.877**		
Goal Clarity	0.895	0.680	0.402	0.616	**0.825**	
Intention	0.866	0.689	0.053	0.249	0.382	**0.821**

We used the bootstrapping technique with 500 subsamples and 63 cases (our actual sample size) to determine the significance of the coefficient paths between variables. Figure 1 displays the significant t-statistic on the co-efficient paths. Table 2 shows the corresponding levels of statistical significance for each t-statistic.

Figure 1. Influence of Goal Clarity, Curiosity and Enjoyment on Intention to Code
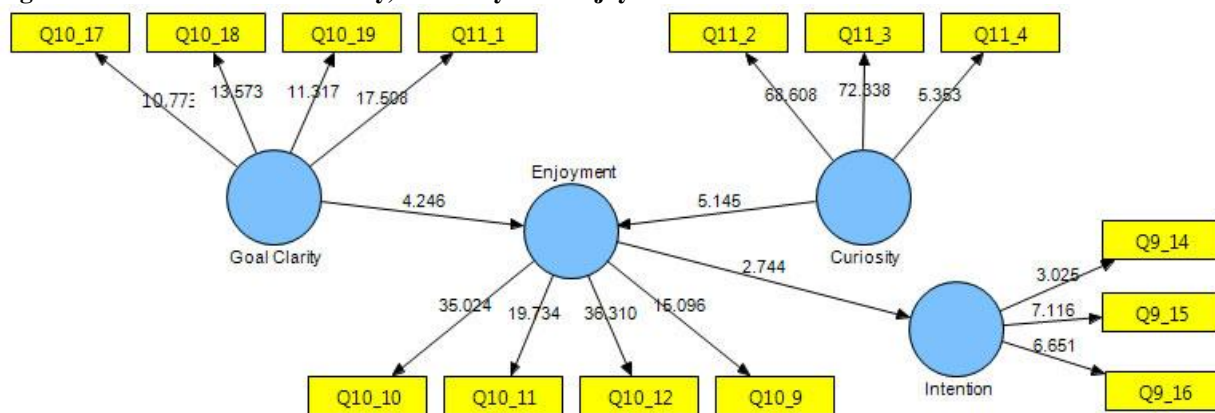
Table 2. T Statistics and P Values

	T Statistics	**p-value**
Curiosity -> Enjoyment	5.1993	0.0000
Enjoyment -> Intention	2.8870	0.0054
Goal Clarity -> Enjoyment	4.1856	0.0001

CONCLUSION AND CONTRIBUTIONS

This research demonstrates the importance of enjoyment—fueled by goal clarity and curiosity—in completing complex activities. Whether in the classroom or in the office, we need to create an environment in which individuals understand and enjoy the work they do and are thereby enabled to grow through their work (Csikszentmihalyi, 2003). As each individual grows, benefits extend to the environment in which they are functioning. Individuals engaged in immersive experiences demonstrate positive gains in productivity. Educators and practitioners can use this research to consider and explore ways of making learning and working more enjoyable with a net end result of increased performance for both the individual and the classroom or organization.

TAKING EXPERIENTIAL LEARNING TO THE NEXT LEVEL: PARTICIPATING IN PROJECT AND CASE COMPETITION

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Keywords: Experiential Learning, ACCSB Accreditation, Project Competition, Knowledge Transfer

Introduction

Many Information Systems programs are housed in college of business and are required to participate in AACSB accreditation process. One of the new 2013 AACSB standards is Academic and Professional Engagement. Schools will need to provide "a portfolio of experiential learning opportunities for business students" as the basis for judgment and will need to provide documentation on the "experiential learning activities that provide business students with knowledge of and experience in the local and global practice of business and management" (AACSB, 2014). This standard coincides with the requirement of a senior capstone class in many Information Systems programs. Most capstone classes involve experiential learning in which students work with an external client to solve an IS-related business problem. This presentation discusses an innovative teaching strategy that takes experiential learning to the next level by encouraging students to participate in competitions, such as the annual IS Project and Case Competition hosted by a Mid-western university. In the first day of this two-day event, students present their completed experiential learning projects to a panel of IS professionals. A business case is then presented to students in the first day. Students present their case solutions to the panel in the second day. Top winners of the project competition and top winners of the case competition are recognized before conclusion of the event. These competitions provide students opportunities to solve a complex business problem in limited time, to practice formal business presentations, to answer difficult questions from IS professionals, and to learn from other teams' projects. This proposed presentation is relevant to IACIS conference participants because project and case competitions provide students a unique learning opportunity that is un-parallel with other types of learning, regardless if the conference participants are involved in AACSB accreditation.

Basis of the Presentation

With the increasing demand placed on universities to demonstrate student learning outcome, teaching strategies that ensure student learning and transfer of knowledge into workforce are needed (Herrington & Herrington, 2006; Chen, 2013). Salomon and Perkins (1989) maintained that knowledge transfer occurs in two ways: a mechanism involves automatic transfer of highly practiced skills in a new context (low-road transfer), and an intentional formulation of abstraction in one situation and application in a new context (high-road transfer). Kolb and Kolb (2008) proposed an experiential learning cycle consisted of four learning stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. In this learning cycle, students take the concrete experience, reflect on the experience and observation to gain a deeper understanding, generalize the understanding into abstract concepts and integrate it with existing knowledge, and then apply and test the newly learned knowledge. It is Kolb and Kolb's experience/reflection/abstraction/action cycle in the experiential learning process that may promote high-road transfer. By working with a client, students learned the valuable lessons of dealing and managing clients (McClam, Diambra, Burton, Fuss, & Fudge, 2008), achieved better academic learning and hands-on skills (McClam, et. al, 2008), gained confidence in personal and professional skills (Primavera, 1999), confirmed their career choice (McClam, et. al, 2008), and improved communication skills (Leung, Liu, Wang, & Chen 2006).

Competitions take the experiential learning to the next level because students must present their projects and case solutions to a panel of experts. The questions that these judges ask are real-world questions, and the panel is judging the projects and case solutions using industry standards.

Implications

After-competition surveys indicated that students viewed the event as a great opportunity to improve their presentation skills and to learn to think on their feet. They appreciated the challenge of solving a complex business problem within limited time frame. They indicated that having to answer judges' tough questions was an excellent learning experience, and they learned from the constructive feedback from judges.

Conclusion

An experiential learning project can serve many purposes, including providing students with a crucial learning opportunity, encouraging the transfer of knowledge to their careers, and meeting ACCSB accreditation requirement. This presentation discusses the benefits of taking the learning to the next level by encouraging students to take their project to competitions. A project competition provides opportunity for students to present their projects to professionals, to practice answering difficult questions, and to receive helpful feedback from IS practitioners. A case competition allows students to integrate their knowledge in all business areas to solve a real-world problem within time constraint.

References

AACSB (2014). 2013 Business Standards. Retrieved from http://www.aacsb.edu/accreditation/standards/2013-business/Academic%20and%20Professional%20Engagement%20Standards/standard13.aspx

Chen (2013). Immersive Learning--A Creative Pedagogy. International Journal of Pedagogy and Curriculum, 19(2), 41-55.

Herrington, A., & Herrington, J. (2006). What is an authentic learning environment? Retrieved from http://www.igi-global.com/viewtitlesample.aspx?id=27373

Kolb, A. Y. & Kolb, D. A. (2008). Experiential Learning Theory: A dynamic, holistic approach to management learning, education and development. In Armstrong, S. J. & Fukami, C. (Eds.) *Handbook of Management Learning, Education and Development* (pp.42-68). London: Sage Publications.

Leung, K., Liu, W., Wang, W., & Chen, C. (2006). Factors affecting students' evaluation in a community service-learning program. *Advances in Health Sciences Education*, *12*(4), 475-490. Retrieved from http://ntur.lib.ntu.edu.tw/bitstream/246246/173119/1/138.pdf .

McClam, T., Diambra, J. F., Burton, B., Fuss, A., & Fudge D. L. (2008). An analysis of a service-learning project: Students' expectations, concerns, and reflections. *Journal of Experiential Education*, *30*(3), 236-249.

Primavera, J. (1999). The unintended consequences of volunteerism: Positive outcomes for those who serve. *Journal of Prevention and Intervention in the Community*, *18*(1-2), 125-140.

Salomon, G., and Perkins, D. N. (1989). Rocky roads to transfer: Rethinking mechanisms of a neglected phenomenon. *Educational Psychology, 24*, 113–142.

RETHINKING THE ROLE OF IT GOVERNANCE AND ASSURANCE IN THE ERA OF BIG DATA

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ABSTRACT

This paper introduces a research framework developed to explore the importance of IT governance and assurance in the era of big data. As part of the presentation, we will look at the limitations of traditional IT governance and assurance processes. As an example, we will assess SMEs' readiness of IT governance and assurance capabilities, particularly as it relates to big data which typically involves a combination of structured (e.g., transactional and sensor) and unstructured (e.g., social) data generated by internal and external sources. We will present different IT governance components, including data and information governance and their critical role in supporting businesses' efforts to capture business value from big data. We will also discuss the expanding role of IT assurance and how it can be utilized to promote the importance of IT governance at the management level, increase the efficiency of IT governance, and help businesses create value through big data while managing risks. The goal of this presentation is to discuss the framework for a better understanding of opportunities for businesses to leverage and align their IT governance and assurance capabilities to realize the full potential of big data.

Keywords: Big Data, IT Governance, IT Assurance, Information Governance, Data Governance, SMEs

THE ADULT E-LEARNER'S DILEMMA: WHY ARE THE GROWN-UPS STILL SITTING AT THE KIDS' TABLE?

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Keywords: E-learning, Adult Learner, Andragogy, Course Development

INTRODUCTION

Electronic learning (e-learning) continues to expand within higher education. According to a recent study by the EDUCAUSE Center for Analysis and Research [1] there are more than 80% of universities offering at least several courses online and more than 50% offering a significant number of courses online. This is especially for adult learners. A significant financial benefit of e-learning is the lower cost of delivery. While the initial cost of purchasing an e-learning module or software system may be higher than traditional classroom-based teaching, the long-term benefits, re-usability, and delivery methods are lower [2]. E-learning provides a time and cost savings because it is easily accessible, readily available on a 24/7 basis, no scheduling conflicts, offers a reliably consistent delivery of training of the same subject matter [8]. The e-learning model provides a viable option for full-time working professionals to complete their undergraduate and graduate degrees or obtain job-based training.

ADULT LEARNING THEORY

Malcolm Knowles [6] argues in his Andragogy Theory that the adult learning experience is dissimilar to the child learning experience, therefore should be studied in contrast to existing child-based learning research. The adult learning experience draws from the participants experience and existing knowledge. The adult learner is active and self-motivated to pursue learning or education, while the child learner is passive and needs to be prodded to learn [7]. Lerner [9] explains that students learn more effectively when they are able to actively interact with the elements being taught, as opposed to passively reading the course material. When the learner is able to control or construct his or her learning material, there is greater understanding and depth to knowledge acquired [4]. E-learning allows for the participant to complete the program at their own pace, within a location of their choosing, supports flexible schedules [5]. The challenge for faculty and curriculum developers is to ensure the principles of adult learning theory [6] are considering when constructing e-learning modules.

IMPLICATIONS FOR FUTURE RESEARCH

Educators are most successful when they understand the factors that affect adult learners. Adult learners want to take an active role in their education. Adult learners should be empowered to contribute and add to the learning process because each adult has valuable life experiences [3]. The six primary principles of adult learning according to Knowles [7] are:
1. Adults need to know the purpose of learning something before they invest their time in learning.
2. Adults view themselves as self-directed and responsible.
3. The ability of adults to incorporate previous life experiences into training is an important part of the learning process.
4. Adults have greater incentive to learn when the material relates directly to their current job.
5. Adults learn best through problem-solving scenarios.
6. Adults respond to internal motivators.

Future research and curriculum development should measure the impact of the six principles of Knowles' [7] theory of adult learning. Communication between the instructor and adult learner should be conducted as an engaged peer-to-peer relationship rather than a passive teacher-student affiliation. This is important with adult learners because it

can motivate them to be more engaged with the content. Consistent feedback, dialogue, and interaction as a facilitator increases motivation and performance [10].

REFERENCES

1. Bichsel, J. (2013). *The State of E-Learning in Higher Education: An Eye toward Growth and Increased Access*. Research Report (Louisville, CO: EDUCAUSE Center for Analysis and Research, 2013), 19, available from http://www. educause.edu/ecar.

2. Brown, A. R. & Voltz, B. D. (2005). Elements of effective E-Learning design. *International Review of Research in Open and Distance Learning*, *6*(1).

3. Dew, J. R. (1997). *Empowerment and democracy in the workplace: Applying adult education theory and practice for cultivating empowerment*. Westport, Ct: Quorum Books.

4. Fosnot, C. T. (2013). *Constructivism: Theory, perspectives, and practice*. Teachers' College Press.

5. Harrington, S. S., & Walker, B. L. (2003). The effects of computer-based training on immediate and residual learning of nursing facility staff. *Journal of Continuing Education in Nursing, 35*(4), 154-63.

6. Knowles, M. S. (1970). *The modern practice of adult education: Andragogy versus pedagogy*. Englewood Cliffs, Cambridge: Prentice Hall.

7. Knowles, M. S. (1984). *Andragogy in action.* San Francisco, CA: Jossey-Bass.

8. Lee, W. W. & Owens, D. L. (2000). *Multimedia-based instructional design: Computer-based training, web-based training and distance learning.* San Francisco, CA: Jossey-Bass.

9. Lerner, M. (1997). The current state of technology and education: How computers are used in K-12 and brown university classrooms (On-line). Available at: http://www.netspace.org/-mrl/handbook/int_ed.html.

10. Ruiz J. G., Mintzer M. J., and Leipzig R. M. (2006). The impact of e-learning in medical education. *Academic Medicine, 81*(3), 207–212.

APPROACHES TO INCORPORATING SOFTWARE ENTREPRENEURSHIP INTO THE INFORMATION SYSTEMS CURRICULUM

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ABSTRACT

Venture capital funding for software startups is at an all time high [1]. The success of tech company IPOs such as Facebook and Twitter has not been lost on today's college students. The demand for entrepreneurship education has grown rapidly. From a just a few college offerings in entrepreneurship education in the 1970s, today over 1,600 universities provide an entrepreneurship curriculum [2].

Information Systems (IS) students interested in launching their own tech startup can benefit from the common body of knowledge found in general entrepreneurship coursework. However, as Kontio et al. [6] claim, "general business education does not take into account the specific characteristics of software." This translates into the need for a special set of entrepreneurial skills for developing and launching a software startup. While there has been some research into software entrepreneurship in the fields of software engineering [6] and computer science [4][5], little curricular guidance exists for Information Systems students wishing to launch their own tech startup [3]. A promising pedagogical development [5] is the use of the Lean Startup methodology [7], which has its roots in the Agile methodology.

This paper explores current approaches to teaching the software entrepreneurial skill set. Experience with a dedicated course in tech startup entrepreneurship is described. A sample syllabus for IS majors is provided. The paper concludes with lessons learned and suggestions for implementing an entrepreneurship component as part of an undergraduate IS program.

Keywords: Entrepreneurship, Software Startup, Information Systems Education, Entrepreneurship Pedagogy, Software Entrepreneur

REFERENCES

1. Castellanos, S. (2014, March 3). VC-backed software companies in U.S. break funding record with $11B in 2013. *Boston Business Journal*. Available: http://www.bizjournals.com/boston/blog/startups/2014/03/vc-backed-software-companies-in-us.html?page=all
2. Davidson, B., White, B. J., & Taylor, M. (2012). The rise of IT for entrepreneurs and the increasing entrepreneurial focus for IT professionals. *Issues in Information Systems*, 13(2), 104-111.
3. Frydenberg, M. (2013). Fostering entrepreneurship in the CIS Sandbox. *Information Systems Education Journal*, *11*(3), 35-41.
4. Fu, X., Doboli, S., & Impagliazzo, J. (2010). Work in progress: A sandbox model for teaching entrepreneurship. In *Proceedings of the 40th ASEE/IEEE Frontiers in Education Conference* (pp. TIA1-2). Washington, DC: IEEE.
5. Hickey, T. J., & Salas, P. (2013, March). The entrepreneur's bootcamp: A new model for teaching web/mobile development and software entrepreneurship. In *Proceeding of the 44th ACM Technical Symposium on Computer Science Education* (pp. 549-554). New York: ACM.
6. Kontio, J., Warsta, J., Mäkelä, M., Ahokas, M., Tyrväinen, P. & Pöyry, P. (2006). Software business education for software engineers: Towards an integrated curriculum. In *Proceedings of CSEE&T 2006, the 19th Conference on Software Engineering Education and Training*. Washington, DC: IEEE.
7. Ries, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. New York: Crown Business.

EXPLORING THE ADOPTION AND UTILIZATION OF SOCIAL MEDIA IN SMALL BUSINESS THROUGH THE APPLICATION OF THE UTAUT MODEL

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Keywords: social media, small business, UTAUT, technology adoption

Description of the proposed study

This study examines the adoption of social media by direct salespersons in a $1 billion global direct sales organization. In the U.S. alone, over 16 million direct salespersons sold over $30 billion in products (e.g. cosmetics, jewelry, clothing, candles) and services in 2012. Although over one billion individuals and many businesses routinely use social media, questions remain about the costs, benefits, and barriers to usage for applications such as Facebook, Twitter, LinkedIn, and YouTube in organizations. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) as a theoretical framework for social media and technology adoption, this study evaluates the applicability of the UTAUT in "small businesses" where individual direct salespersons are responsible for the management of their own business operations. Upon completion, the study will provide insights for direct sales organizations regarding their usage of social media, and will identify those factors that encourage adoption and help realize business value.

Basis of the study

A global direct sales organization has agreed to participate in survey research using a previously validated instrument related to the UTAUT. The instrument has been adapted for this study to reflect company specific content. Over 300 survey responses will be analyzed to determine if the key UTAUT constructs relating to perceived ease of use and perceived usefulness are applicable to social media in a small business environment. Additional constructs relating to privacy will also be assessed. The relationships between age, organizational role, usage, perceived usefulness and perceived ease of use will be statistically analyzed.

Prior research suggests that relationships should exist between age and expected usage, and that positive perceived usefulness and ease of use should be predictors of intention to use. However, it is not known whether direct sales organizations with a large distributed workforce of individual practitioners will demonstrate similar characteristics.

Implications/Conclusions

The study will provide an understanding of how social media has been adopted in a small business and whether business value has been achieved. Further, the research will provide an indication of whether an existing information systems theory (UTAUT) can be applied relating to social media in a direct sales organization. To the extent that the UTAUT is not supported, the research may provide insights to barriers or factors that have limited its adoption and its potential for value creation. This research will also inform future research for other direct sales organizations and for other small businesses that rely on direct sales for revenue generation.

Representative References (from literature review)

1. Magsaysay, Melissa (2011, January 30). Direct-sales cosmetics 2.0; Avon, Mary Kay, Votre Vu and more move beyond sales parties to market via social networking sites. *Los Angeles Times*.
2. Rupak Rauniar, Greg Rawski, Jei Yang, Ben Johnson, (2014) "Technology acceptance model (TAM) and social media usage: an empirical study on Facebook", Journal of Enterprise Information Management, Vol. 27 Iss: 1, pp.6 - 30

SERVICE CONVENIENCE AND REPURCHASE INTENTIONS IN E-COMMERCE ENVIRONMENTS

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Keywords: e-commerce, service convenience, repurchase intentions, textbook purchasing

Introduction

The elements of service convenience under the control of service providers are directly and indirectly tied to customer satisfaction and repurchase intentions (Colwell et al., 2008; Jones, Mothersbaugh, and Beatty, 2003; Seiders et al., 2007). Previous work has focused on brick and mortar environments while ignoring service convenience in e-commerce environments (Jiang et al., 2013; Wen, Prybutok, and Xu, 2011). Repurchase intentions have been studied with e-commerce services (Wen, Prybutok, and Xu, 2011; Wu, et al., 2014). But, little has been done to tie both the service convenience research and e-commerce repurchase intentions research together. This research starts the process of integrating those two streams of research into a related whole.

The authors have previously demonstrated the applicability of the SERVCON model to e-commerce environments (Stephens and McGowan, forthcoming). In this work, we theoretically tie the SERVCON model to models of e-commerce repurchase intentions. Then we test this integrated model with data collected from customers in the college textbook marketplace who buy and rent textbooks both on-line and from local brick and mortar bookstores.

Data Collection and Methodology

The scales we developed to measure service convenience were adapted from the SERVCON items used by Seiders et al. (2005) in their study on customer repurchase behavior in brick and mortar stores. The SERVCON items were designed so they would generalize to many service contexts: they were tested for convergent validity and discriminant validity in the original study.

In examining textbook purchasing, the customers are students. We conducted focus groups with students and found that they discussed convenience of textbook purchasing using language similar to that used in the SERVCON items. We modified the SERVCON items to fit the subject of our study, textbook purchases. We also adjusted the wording to obtain information about brick and mortar purchases as well as online purchases. Each item was measured using a five-point Likert scale ranging from strongly agree (1) to strongly disagree (5). We developed a questionnaire to capture student responses. We conducted our research at a private university in the Midwestern U. S. We administered the questionnaire to students in ten management classes representing four different courses. Students were instructed to fill out the questionnaire based on their purchases within the most recent six months. We received 285 responses, of which 281 were usable.

Expected Outcomes and Implications

This research will demonstrate (1) the relationship been service convenience and repurchase intentions in an e-commerce environment and (2) illustrate how e-commerce strengthens service convenience thus improving the probability of repurchase intentions. Repurchase intentions in e-commerce environments have been mainly concentrated in information systems related journals while research focusing on service convenience has been almost solely the domain of marketing researchers. We believe that by tying the two streams of research together, we will bring a more robust model to both worlds. We specifically believe IS professionals who have been studying repurchase intentions in e-commerce environments will benefit by being exposed to validated models of service convenience that have been developed by respected marking researchers.

Conclusions

As first conceptualized by Hoffman (2003), this research conclusively demonstrates that e-service systems mitigate the weaknesses of traditional service environments. Providing service in e-commerce environments leads to higher

levels of customer satisfaction and more likely repurchase behavior.   Businesses should continue to modify their business models to transition service offerings to e-service environments.

References

Colwell, S. R., Aung, M., Kanetkar, V., and Holden, A. L. (2008). Toward a measure of service convenience: multiple-item scale development and empirical test. *Journal of Services Marketing,* 22(2), 160-169.

Hoffman, K. D. (2003). Marketing + MIS = E-Service. *Communications of the ACM.* 46(6), 53-55.

Jiang, L., Yang, Z. and Jun, M. (2013). Measuring consumer perceptions of online shopping convenience. *Journal of Service Management,* 24(2), 191-214.

Jones, M. A., Mothersbaugh, D. L., and Beatty, S. E. (2003). The effects of locational convenience on customer repurchase intentions across service types. *Journal of Services Marketing,* 17(7), 701-712.

Seiders, K., Voss, G. B., Godfrey, A. L., and Grewal, D. (2007). SERVCON: development and validation of a multidimensional service convenience scale. *Journal of the Academy of Marketing Science,* 35,144-156.

Seiders, K., Voss, G. B., Grewal, D., and Godfrey, A. L. (2005) Do satisfied customers buy more? Examining moderating influences in a retailing context. *Journal of Marketing,* 69(October), 26-43.

Stephens, P. R. and McGowan, M. K. (forthcoming). Service convenience: on-line versus brick & mortar bookstores. *International Journal of Information Systems in the Service Sector.*

Wen, C., Prybutok, V. R., and Xu, C. (2011) An integrated model for customer online repurchase intention, *Journal of Computer Information Systems*, Fall: 14-22

Wu, L. Y., Chen, K. Y., Chen, P. Y., Cheng, S. L. (2014) Perceived value, transaction cost, and repurchase-intention in online shopping: A relational exchange perspective, *Journal of Business Research*, 67: 2768-2776.

EVOLUTION, REVOLUTION: TALKING DRUMS TO TEXT MESSAGES

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ABSTRACT

The advancement of technology for communication has advanced at mind-breaking speed. The devices were once a means to facilitate communication with the goal of interacting in-person; however today entire episodes of interaction take place via these devices. The vignettes discussed in this paper explore the paradigm shift regarding how users of this technology communicate with one another and view information
Keywords: smartphone, text, mobile, and communication

INTRODUCTION

The advancements in mobile smartphone technology have sparked a revolution and a paradigm shift in the view of information and communication by the users of this technology. Starting with the talking drums of Africa to the telegraph, then telephone, and now mobile devices; the mechanisms used to inform and communicate have always, and will continue to evolve. This paper is focused less on the mechanism and more on the impact of their evolution on the communication and information paradigm. This is demonstrated through discussion of the following three vignettes; voice-to-text, in-person interaction, and information on demand.

Beyond this introduction, the paper contains three sections: definition of key terms, discussion, and a conclusion. The definition of key terms operationalizes selected terms to ensure clear understanding of the context of the paper. The three vignettes illustrate the paradigm shift in communication and information. Finally, the paper closes with a brief discussion of this revolution and paradigm shift.

DEFINITION OF KEY TERMS

To ensure clarity and common understanding, a number of terms critical to the context of the argument are defined for the reader. The term mobile smartphone technology in this paper is aligned to the definition provided by Jarvenpaa and Lang (2005), "IT artifacts that encompass hardware (devices), software (interface and applications), and communication (network services)" (p. 8). Debons (2008) defines information as, "that which is in our heads (from our senses, mind), and that which is produced physically from such (i.e., speeches, writings, documents, etc.)" (p. 216). He also states that communication is a "broad term that includes the role of language, the practice of journalism, the position of the media, and other sources that result in the transmission of data and information" (1, 2008, p. 217). Kuhn (1996) states "a paradigm is an accepted model or pattern" and that revolution is the "resulting transition to a new paradigm" (pp. 23 & 90). Operationalizing these terms will level-set the reader and ensure a shared experience.

DISCUSSION

The vignettes discussed in this paper illustrate the paradigm shift regarding how users of this technology communicate with one another and view information transfer. Communication, for the more experienced users, no longer requires frequent in-person interaction. Where landline telephones augmented communication among friends between visits, mobile smartphones have established a virtual environment in which friendships exist often in their entirety. Information was once viewed only as a physical object stored at a physical location. Today's mobile technology allows users to visualize information as a more dynamic ever-present stream of knowledge.
Voice-to-Text

The telephone age in America started in the 1870s when a set of circuits were established for experimental use (2, 2011). Use of this new mode of communicating and exchanging information was growing exponentially by 1900, "doubling every few years" (2, 2011, p. 188). Eventually this landline based communication mode came to be viewed as normal science as described by Kuhn, "research firmly based upon one or more past scientific achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice" (3, 1996, p. 10). Enhancements such as switching technology, numbering of individual telephones,

and introduction of the phonebook contributed to its status as a paradigm which Kuhn described as "an accepted model or pattern" (3, 1996, p. 23).

As exciting as this was, the movement to wireless mobile phones at the end of the 20th Century meant people were no longer tethered to their homes or offices. A spouse could call their partner to communicate the need to pick up a gallon of milk on the way home from the office. However, this has proven to be an intermediate step in the evolution to text messaging via smartphones as the preferred form of communication, especially for teens.

According to a Pew Research Center study, teens, 75% of which utilize text messaging, receive and/or send an average of 60 texts per day (2012). This move to, and ongoing increase in, text messaging parallels a decline in voice communication whether wired or not. In 2012, only 14% of teens engaged in conversation over a traditional landline telephone, and 26% used mobile devices. The paradigm continues to shift as these users move beyond text messaging to social media applications that can be accessed via smartphones. This same PEW study reported that "91% of teen smartphone owners use social networking sites, and 25% are Twitter users" (5, 2012, p. 7). The demise of a tethered landline can be viewed as a "failure of existing rules" and the "prelude to a search for new ones" (3, 1996, p. 68).

In-Person Interaction

The integration of video communication in mobile smartphones has provided yet another opportunity to both enhance the user experience and allow more opportunity to disengage in physical human interactions. Direct in-person interaction is still considered important, however this interaction among teens with smartphones outside the confines of school has declined from 33% in 2009 to 25% in 2012 (5, 2012). This disengagement issue is not isolated to teens. Whether it's text messaging, social media, or an incoming call, the individuals will "typically abruptly disengage from the current conversation and engage in a new one, often leaving others stranded" (4, 2005, p. 16). We have all been in professional and personal situations where it may have served us better to be the one on the other end of the mobile communication.

The impact of these technologies extends to situations where the goal is to meet in person. While they can serve as "effective planning tools," more often they provide an incentive to improvise (4, 2005, p. 15). The improvisation fosters an environment where being late is "acceptable as long as you update your party on your whereabouts and report how you are progressing toward the meeting" (4, 2005, p. 16). An ensuing flurry of messages between members of the party creates chaos with all attempting to decipher which message is most current resulting in a communication breakdown (4, 2005). As the spiral continues, the accuracy and value of the information is suspect, however this is outweighed by the convenience offered by the technology.

Information on Demand

The explosive growth of mobile smartphone technologies in the workplace has been driven by a need for real-time access to information. Prior to the introduction of these technologies in the law enforcement community, a police officer in the field was reliant upon a dispatcher and often a helpdesk staff to process request for information from multiple databases (6, 2007). This requires the officer to possibly depart the scene of the incident and wait for a response which can range "from minutes to hours" (6, 2007, p. 6). Providing direct access to these databases by the officer on the ground allows for "faster information access (minutes versus hours) with fewer steps involved (and therefore fewer opportunities for error); more sophisticated searching; increased accuracy and scope of information obtained; acquisition of supplemental data (e.g., outstanding warrants); and the ability to get information without losing touch with ongoing operations" (6, 2007, p. 6). Additionally, sharing of this critical information with the team requires only shared access or messaging. This new capability which improves time-to-need of information can make the difference in breaking a case, preventing a terrorist attack or saving a life. This change to the "meaning of established and familiar concepts" goes to the core of the revolution in information and communication (3, 1996, p. 103).

CONCLUSION

These vignettes introduced the harnessing of these activities and technologies into one device. Integration of voice, written, and video communication combined with access to troves of information via on-line databases has altered our perception of communication and information. This extends beyond a law enforcement or other professional context. Consider the more personal example of viewing a music video online, searching for the lyrics via a search engine, text messaging the website address to a friend, and engaging in dialogue about it using the video chat function of a social media application on your smartphone. The walls have all been torn down, there are no more boundaries. This information and communication revolution is a result of the previous paradigms' inability to address "the problems posed by an environment that they have in part created" (3, 1996, p. 92). Eventually there comes a point when one must decide to accept one paradigm over another (3, 1996). This is accomplished through "comparison of both paradigms with nature and with each other" (3, 1996, p. 77). For some people the ritual of talking over a landline phone will override the benefits of mobility, interaction with other people will primarily happen in person, and research will always involve a trip to the library. For these people, this may signal the end of a career as they are simply not able to "tolerate crisis" and adapt to the new technologies that impact their personal and professional lives (3, 1996, pp. 78-79). However, those that embrace the revolution will have the opportunity to continue to shift the paradigm to greater integration, education, and collaboration.

REFERENCE
1. Debons, A. (2008). *Information science 101.* Lanham, MD: Scarecrow Press, INC.
2. Gleick, J. (2011). *The information: a history, a theory, a flood.* New York, Pantheon Books.
3. Kuhn, T.S. (1996). *The structure of scientific Revolutions,* (3rd ed.). Chicago & London: The University of Chicago Press.
4. Jarvenpaa, S.L. & Lang, K.R. (2005). Managing the paradoxes of mobile technology. *Information Systems Management,* 22 (4), 7-23.
5. Lenhart, A. (2012). *Teens, smartphones & texting*. Retrieved from http://pewinternet.org/Reports/2012/Teens-and-smartphones.aspx
6. Straus, S.G., Bikson, T.K., Balkovich, E., & Pane, J.F. (2010). *Mobile technology and action teams: assessing blackberry use in law enforcement units.* Retrieved from http://www.rand.org/pubs/external_publications/EP20090923.html

USING AN SOM TO VISUALIZE DECEPTIVE CHAT CONTENT

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Keywords: Textual analysis; deception detection; self-organizing map

The topic

As smart phone use continues to grow, the use of text messaging and text-based chatting has also risen. With such growth in computer-mediated textual communication, the likelihood of encountering deception also has increased (Hancock, Thom-Santelli, & Ritchie, 2004). Deception on the Internet is already rampant and ranges from financial email schemes and fake job offers to fictional girlfriends of major college football stars (Zeman, 2013). Understanding more about the language of deception is an important component of deception detection.

The data

In this study, we analyzed the chat transcripts of 50 chats taking place between juniors and seniors participating in a Prisoner's Dilemma game (Axelrod, 1984; Boyle, R. J. 2003). In a classical prisoner's dilemma game, there are two players. Each player can choose to either "defect" or "collude." Each player makes his/her decision without the knowledge of what the other person will do. Defection always yields a higher payoff than collusion. The dilemma is that if both players defect, they will lose more than if they had both colluded. In other words, the greatest positive and negative payoffs are achieved when one player defects and his/her partner colludes respectively. Since both players are trying to obtain this optimal solutions, it is in their best interests to convince each other that they are going to collude, and then defect. The experiment was run at a major southeast university. In the game, some students tell the truth to someone also telling the truth. Others tell the truth to someone that is deceiving them. Other times, students are deceptive to truth tellers while sometimes students are deceptive to someone trying to deceive them. The text transcripts from these four conditions is the source of the data for analysis.

Data processing

Each of these four groups of chat transcripts was processed by our content tagging algorithm (McDonald, Chen, Su, & Marshall, 2004). The text was tokenized, tagged, and combined into topic categories. Different from other text-based deception detection techniques, we used only the lexical semantics of the chat content, ignoring other textual features like syntax, sentence length, and self-reference counts. After eliminating stop words, we used the most common content categories from each of the four chat types as inputs into a self-organizing map algorithm. A self-organizing map is a two-layered neural network algorithm used for clustering and dimension reduction. The SOM, developed by Teuvo Kohonen, does not require human intervention (Kohonen, 1995).

Expected Outcome

We hypothesized that chats from subjects that were lying would appear together on the self-organizing map, while chats from subjects that were telling the truth, whether to truth tellers or liars would appear close together. The result, however, did not support our hypothesis. Subjects being truthful chatting to a truthful student appeared closest on the map to subjects being deceptive, chatting to a student being deceptive.

Implications and Conclusions

While the finding was unexpected, it nevertheless provided some interesting insight. When chatting, the effect of communicating with someone with your same intentions has a stronger impact on the text content than does whether your intent was to be truthful or deceptive. We plan on expanding our study to see if this trend continues if we compare only noun content to noun content and verb content to verb content as opposed to mixing the word categories together.

References

Axelrod, R. 1984. *The evolution of cooperation*. New York: Basic Books.

Bond, C. F., & DePaulo, B. M. 2006. Accuracy of deception judgments. *Personality and Social Psychology Reports*, 10(3): 214-234.

Boyle, R. J. 2003. *Dispersed Deception: An Examination of the Impacts of Computer Mediation, Proximity, and Familiarity on Truth Bias*. Florida State University, Electronic Theses, Treatises and Dissertations.

Buller, D. B., & Burgoon, J. K. 1996. Interpersonal deception theory. *Communication Theory*, 6(3): 203-242.

George, J. F., & Keane, B. T. 2006. Deception detection by third party observers, *39th annual Hawaii international conference on system sciences*.

Hancock, J. T., Thom-Santelli, J., & Ritchie, T. 2004. Deception and design: The impact of communication technology on lying behavior, *SIGCHI conference on Human factors in computing systems*. Vienna, Austria.

Jain, A. K., & Dubes, R. C. 1988. *Algorithms for Clustering Data*: Prentice Hall College Div.

Kaski, S., Honkela, T., Lagus, K., & Kohonen, T. 1993. *Creating an order in digital libraries with self-organizing maps*. Paper presented at the International Conference on Neural Networks (ICANN), London, UK.

Khun, S. 2001. Prisoner's dilemma, Vol. 2014: The Stanford Encyclopedia of Philosophy.

Kohonen, T. 1995. *Self-Organizing Maps*. Berlin: Springer-Verlag.

Lin, C., Chen, H., & Nunamaker, J. F. 1999. Verifying the Proximity Hypothesis for Self-organizing Maps, *32nd Hawaii International Conference on System Science*. Hawaii.

Lin, X., Soergel, D., & Marchionini, G. 1991. *A Self-organizing Semantic Map for Information Retrieval*. Paper presented at the 14 International SIGIR Conference.

McDonald, D., Chen, H., Su, H., & Marshall, B. 2004. Extracting gene pathway relations using a hybrid grammar: The Arizona relation parser. *Bioinformatics*.

Roussinov, D. G., & Chen, H. 1999. Document clustering for electronic meetings: an experimental comparison of two techniques. *Decision Support Systems*, 27: 67-79.

Thang, C. 2011. Spice-SOM, Vol. 2013.

Zeman, N. 2013. The Boy Who Cried Dead Girlfriend, *Vanity Fair*. http://www.vanityfair.com/culture/2013/06/manti-teo-girlfriend-nfl-draft.

ENTERPRISE SYSTEMS IMPLEMENTATION IN A PUBLIC UTILITY: COMMUNICATION AND CONTROL ISSUES

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ABSTRACT

This field study explores the management and control issues involved in the implementation of an Enterprise Resource Planning (ERP) system following a corporate divestiture. After it was sold by a multi-state utility to a private firm in 2010, a regional natural gas utility faced a conversion and implementation process that was inherently challenging due to its size and scope, but also made significantly more complicated by a number of situational factors introduced by both the selling and buying company. These constraining factors included starting the project from scratch without any physical or technical assets, confronting an exceptionally abbreviated timeframe for conversion (18 months), and the need to produce a final system that improved on a number of customer service metrics. Despite these constraints, the project was completed on time, within budget, and exceeded even the aggressive customer service requirements imposed by senior management. Within this context, this research project seeks to determine the project control strategies and tactics that potentially are generalizable to other large systems implementations.

Keywords: Enterprise Resource Planning (ERP), System Implementation, Project Management

BASIS OF THE STUDY

Data for this study will come from a series of interviews conducted during the summer of 2014, involving the various company employees and outside consultants who were involved in the 2010 conversion and implementation project. Project participants will be asked about their professional backgrounds, their roles in the project, and the methods, methodologies and management tools used in the project. After the interview data is collected, a qualitative analysis of the data will be conducted to determine the IS project control techniques that led to the completion of the project on time and within budget, and that also contributed to the quality of project deliverables.

The objective of this study is to understand how and why the company was so successful given the profound constraints they faced. While the factors contributing to the success are still under investigation, early indications point to the highly structured and systemic management approach taken by the CIO and her team. That approach involved a number of elements, but essentially distilled into two areas. First, management prioritized the vetting and integration of its contractors; i.e., the external people and companies with whom they would partner in implementing the system. Second, and of equal importance, was the meticulous, day-to-day project/change management process directed by the CIO and her team. Communication was a critical element of this process and it involved all persons who were involved in and/or affected by the project. Management took a 'command and control' perspective in which: 1) communication was constant and on-going, 2) implementation plans had multiple short-term goals, 3) needs/issues were identified and addressed quickly, 4) details were important and were constantly under review, and 5) the project budget and resources were monitored continuously and managed as needed.

RESEARCH IMPLICATIONS AND CONCLUSIONS

The results of this study should be of interest to a number of constituencies, including IS and management researchers as well as practitioners engaged in large systems implementations. As such, our study will be informed by prior research in IS and general management, particularly studies in stakeholder communication and expectation management that coincide with the elements of this ERP implementation project (e.g., see [1-3]). These studies will guide our investigation and contribute to a framework that would explain and direct behavior in this context.

[1]   Ko, D.G., Kirsch, L. J., and King, W. R., "Antecedents of Knowledge Transfer from Consultants to Clients in Enterprise System Implementations," *MIS Quarterly,* (29:1), 2005, 59-85.
[2]   Sakka, O., Barki, H., and Cote, L., "Interactive and diagnostic uses of management control systems in IS projects: Antecedents and their impact on performance," *Information and Management,* (50:2013, 265-275.
[3]   Tiwana, A. and Keil, M., "Control in Internal and Outsourced Software Projects," *Journal of Management Information Systems,* (26:3), 2009, 9-44.

REORGANIZING THE CLASSROOM EXPERIENCE: REDESIGNING AN ABET REQUIRED COURSE

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ABSTRACT

The paper gives a perspective on a process of re-organizing the classroom experience of an ABET required course. The problematic situation encountered is to take and use two perspectives of the course: the social [cultural] and the ethical, as the dominant framings of the given issues of the course. The paper first presents the current view of affairs which consists of four equally valued perspectives which determine the significance of the discussed issues. The four perspectives are the global, the economic, the social [cultural], and the ethical. The issues presently discussed are freedom of expression in cyberspace, intellectual property and piracy, information and privacy, information systems liabilities and reliability, information and information systems security and safety, as well as the use of social media in organizations. The perspectives are orienting frames which are viewed as providing a vocabulary and a way of dealing with the issues. The issues are discussed under their descriptive definitions within the frames.

The paper argues for a re-orientation of experience by using the social [cultural] and ethical perspectives as dominant defining perspectives on the issues. The global and economic frames become subsidiary to these frames. The paper further argues that a person's experience and discourse in situations defined by the issues is conditioned first by his or her membership in particular primary groups; the perspective is social because one lives-in formal and informal associations of individuals, or communities of practices; the perspective is cultural because for every groups lived-in, an individual dwells also in the community's attending system of meanings and vocabulary. This paper argues that we live-in multiples of communities and attending systems of meanings. The paper posits that we also live-in the moral sphere attending every community and meaning-system. Generally, there are three types: rule-based, consequence-based, and virtue (value)-based. This moral sphere is a social construct by which we judge events, affairs and behaviors to be beneficial or harmful, and by which we justify our own actions. It s the moral sphere which is a basis for an ethical-theory-of-action and for the ethical perspective. An individual's ethical-theory-in-use may be deontological (rule-based), utilitarian (consequence-based), or eudaimonic (virtue/value-based). The essay concludes by suggesting an empirical way of determining a student's identifying communities of practice and moral spheres, and making explicit the ethical-theory-in-use.

Keywords: ABET required course, community of practice, culture, ethics, global frame, economic frame.

PANEL: INITIATING AND EXPANDING CYBERFORENSICS CURRICULUM THROUGH ACADEMIC COLLABORATION

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Keywords: Cyberforensics, Curriculum, NSF, Engagement

Cyberforensics is a new science based on the application of scientific and engineering principles to the identification, verification, and examination of digital evidence. While cyberforensics and cybersecurity have a synergistic relationship, cybersecurity focuses on defense and prevention while cyberforensics focuses on who, what, when, where and why.

The Advanced Cyberforensics Education Consortium is an NSF ATE Project that is a partnership between state and community colleges, and whose mission is to grow cyberforensics programs and awareness. Our multithreaded approach includes: faculty training; creating and distributing comprehensive course materials; working with K-12 schools to implement cybersecurity and cyberforensics programs while creating awareness in the discipline, and serving as a catalyst for workforce development.

ACE provides faculty members access to our online self-paced train-the-trainer program, which includes four cyberforensics courses. These courses include high-quality, hands-on educational tools that faculty members can re-purpose and utilize in their own courses.

The audience for this presentation is current faculty and administrators interested in expanding their cybersecurity knowledge and programs. During this presentation we will cover the following:

- K-12 Engagement and Pathways
- Faculty Development
- Curriculum Development and Dissemination

MAKING DECISION ABOUT TEACHING LEGACY PROGRAMMING LANGAUGES

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ABSTRACT

More than any other field, computer technology courses face continuous updates. This is represented by adding new content that the introduction of new technologies dictates. It also takes the form of deleting contents that teaches about older technologies that are no longer in use. In courses that teach programming languages, this may include deleting courses that teach old languages and replace them with content of newer programming languages that are on demand. The name that is typically exchanged in the technology field that describes these older programming languages is "legacy" programming languages. This scenario described above would be true if no other factors influence the decision on teaching legacy programming languages. However, making a decision to replace these languages involves different other factors. This study is to examine the factors that influence the decision to eliminate the teaching (or to continue to teach) these legacy programming languages. It illustrates the experience of the department of computer science (COSC) at Indiana University of Pennsylvania (IUP) and how this department is studying these factors for deleting the legacy programming language or keeps teaching it at least for the time being.

Keywords: Teaching Legacy Language, Legacy programming language, legacy applications

DISENTANGLING FACTORS IMPACTING EMOTIONALLY INTELLIGENT IT TEAMS

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Abstract

Given the pervasive use of teams in organizations coupled with the high cost of investment in information technology (IT) systems, there is increasing interest in identifying factors that can benefit the organization over and above the technology investment. Prior research has called for a deeper understanding of how emotions, cognition, and behavior can be maximized while employing an IT to accomplish work-related tasks at the team level. Team emotional intelligence (TEI) is an emergent collective skill that has been shown to influence team performance. A gap exists in the literature to fully understand how team cooperative norms influence performance when teams utilize emotional intelligence skills within the boundary conditions of intra-team conflict and expertise coordination. Results show that the conditional indirect effect increases as teams' expertise need increases. Unexpected findings reveal partial moderated-mediation effects on intra-team conflict, expertise brought to bear, and expertise location. These results suggest that the effect of TEI on team performance is attenuated as each moderator behavior increases. Implications and opportunities for IT TEI skills development are discussed.

Introduction

In today's global information economy, successful team performance depends on effective team collaboration, gathering and exchange of information, and coordinated expertise (Faraj & Sproull, 2000; Choi et al., 2010; Hollingshead, Gupta, Yoon, & Brandon, 2012). As organizational downsizing continues amid the delayering of the hierarchy, team structures are constantly changing and adapting. The normative expectations, dynamic interactions of the team members and emotional states evolve and emerge at the team level. The interactions within a team create phenomena and structures that serve to shape and constrain the phenomena (Kozlowski & Bell, 2003). For example, organizations rely on teams to perform tasks that are technically complex, very demanding, and require coordinated effort (Driskell, Salas, & Hughes, 2010). To fully address IT team phenomena, enterprise technology, a contextually-specific settings is the environment for this study. Enterprise technology brings richness to examine team behavior in real-world environments.

Method

Twenty-four IT teams (*N*=156) were studied representing seven Fortune 100 companies, located in the southern United States. The IT teams were involved in various functional and systems task work in areas such as: network operations support, IS healthcare claims, medical informatics, project management office, intranet software development, and IS electronic imaging document management. The companies span several industries, which include transportation, technology and marketing services, and healthcare. Each team was asked to complete an on-line survey anonymously. The data was collected over a 60-day period. The average team size was approximately 13 (SD = 6.0).

A moderated mediation model was utilized to explain both how and when a given effect occurs (Frone, 1999). The observed effect occurs when the strength of an indirect effect is dependent on the level of some variable or when a mediated relationship is contingent on the level of a moderator. The research model focuses on intra-team conflict, expertise cooperation (expertise needed, expertise location, and expertise brought to bear) as a potential moderator of the mediated relation between cooperative norms and team performance transmitted by TEI.

Implications and Conclusions

Boundary conditions were examined for the indirect effect of cooperative norms on performance at levels of expertise coordination: expertise needed expertise location, expertise brought to bear, and intra-team conflict.

Though partially and fully supported, these results demonstrate the value of TEI skill as a constructive mechanism that impacts team performance in the context of IT teams. The indirect effect of TEI was significant for teams higher in the recognition of the need for expertise than teams with lower recognition of the need for expertise. This suggests that team emotion management abilities can increase the team interactions when team members fail to seek information from one another even if they know well who has the expertise. Despite IT teams who are highly skilled and involved in complex environments, the ability of the team as a whole to secure expertise resources needed from task completion can benefit from emotional management abilities. Consistent with prior empirical findings, work-team processes and outcomes are highly influenced by team emotional contexts (Barsade & Gibson, 2012).

References
1. Barsade, S. G., & Gibson, D. E. (2012). Group Affect Its Influence on Individual and Group Outcomes. *Current Directions in Psychological Science, 21,* 119-123.
2. Choi, Y. C., Lee, H., & Yoo, Y. (2010). The Impact of Information Technology and Transactive Memory Systems on Knowledge Sharing, Application, and Team Performance: A Field Study. *MIS Quarterly, 34*(4), 855-870.
3. Driskell, J. E., Salas, E., & Hughes, S. (2010). Collective orientation and team performance: Development of an individual differences measure. *The Journal of the Human Factors and Ergonomics Society, 52*(2), 316-328.
4. Faraj, S., & Sproull, L. (2000). Coordinating Expertise in Software Development Teams. *Management Science*, *46*(12), 1554-1568.
5. Frone, M. R. (1999). Work stress and alcohol use. *Alcohol Research and Health, 23*(4), 284-291.
6. Hollingshead, A., Gupta, N., Yoon, K., & Brandon, D.P. (2012). Transactive Memory and Teams, Past, Present, and Future. In E. Salas, S.M., Fiore, & M.P. Letsky (Eds.), *Theories of Team Cognition* (pp. 421-455). New York, NY: Routledge.
7. Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology*: *Industrial and organizational psychology* (pp. 333-375). New York: John Wiley.

OPEN ACCESS TO PEER REVIEWED PUBLICATIONS: THE ENTERPRISE ARCHITECTURE BODY OF KNOWLEDGE (EABOK) AS AN ACADEMIC REFERENCE

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Keywords: Enterprise Architecture, EABOK

ABSTRACT

Enterprise Architecture was added to model curriculum for information systems programs beginning in 2010. There are very few quality peer-reviewed publications to support teaching Enterprise Architecture (EA) and virtually no teaching cases. The Enterprise Architecture Body of Knowledge (EABOK) is an open access, double blind, peer-reviewed on-line body of knowledge designed to evolve with the evolving field of EA. It provides a mechanism and resources to support teaching EA. The purpose of the presentation will be to describe how the EABOK can be used as a resource for enterprise architecture teaching and research, and to inform faculty of ways in which they can be involved in contributing to expanding this body of knowledge. We intend to provide an overview of this consortium of industry, government and academic research. We will also discuss ways in which it can be used to link to potential research partners.