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Special Issue

Balasundram Maniam
Sam Houston State University

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Balasundram Maniam
Special Issue Editor
Sam Houston State University

ASSESSING STUDENT CRITICAL THINKING SKILLS FOR ONLINE QUANTITATIVE COURSES

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ABSTRACT

Using rubrics is an accelerating trend in education, especially in the online environment. Rubrics are tools for assessing learning outcomes and evaluating critical thinking skills and are currently of interest given a changed emphasis in education. How well do rubrics capture student improvement of critical thinking skills over time? Can the ability to perform quantitative analysis also be captured under the category of critical thinking skills? Is quantitative analysis a distinct skill that needs to be captured by a separate measurement such as a rubric for numeracy or quantitative literacy?

INTRODUCTION

Over the last two decades, it has become apparent that the acquisition of knowledge is no longer a sufficient goal in higher education. The world of business is changing so rapidly leading to changes in instruction to nurture cognitive abilities for problem solving. The increase in the diversity among students has also brought the emphasis on critical thinking to help individuals be successful in today's business environment. New instructional methods in higher education has devised ways to standardize learning by establishing institutional, program, and course learning outcomes levels to measure student learning.

Frequently, academia is posed with the question of how one knows that students are acquiring critical thinking skills when doing coursework. The motivation of this study is to attempt to measure student critical thinking and analytical skills as students make progress in their coursework. Rubrics have facilitated the way to measure institutional outcomes. In particular, the Association of American Colleges and Universities (AAC&U) has published a collection of VALUE rubrics developed by a diverse team of university professors and administrators. The Critical Thinking and Quantitative Literacy VALUE rubrics will be used for this study.

LEARNING OUTCOMES, ASSESSMENTS, AND RUBRICS

Learning Outcomes

Learning outcomes (LOs) are defined as statements that describe significant and essential learning that learners have achieved, and that can reliably be demonstrated at the end of a course or program (Program Assessment Guide, 2012). A learning outcome must be clear, specific, learner-oriented, task-focused, and measurable (Fulcher, 2010). Learning outcomes are assessed to provide evidence of knowledge, skills, and values learned and what remains to be learned. This outcome-based approach is essentially a "learner centered" approach in which outcomes determine the teaching and learning activities.

Assessments

Baroudi (2007) and Johnson and Jenkins (2013) likewise define two types of assessments: formative and summative. A given professor uses formative assessments to determine a student's level of knowledge and understanding. The results are used to provide the student with developmental feedback and to improve future instruction. In contrast, summative assessments are those to evaluate and grade student learning at a point in time.

Assessments are further classified into direct and indirect measures. Direct measures are based on a sample of actual student work, including reports, exams, demonstrations, performances and completed works. The strength of direct measurement is that faculty members are capturing a sample of what students can do, which can be very strong evidence of student learning. This type of assessment is also used to perform gap analysis for continuous classroom improvements (Shepard, 2000, p.7). Indirect measures are based upon a report of perceived student learning. The reports can come from many perspectives including students, faculty, and employers. Indirect measures are not as strong as direct measures because one needs to make assumptions about what exactly the self-report means to faculty and students. Setting learning outcomes encourage and measure student achievement. Learning outcomes state the goal and rubrics assist in measuring the attainment of such goals.

Rubrics

Rubrics are multi-purpose tools. Rubrics are used to measure institutional, program, and course outcomes as well as to determine the grades on individual assignments. Rubrics are not only popular with instructors and administrators but are also encouraged and supported by accrediting organizations. Consequently, the design and use of rubrics in education has a wide adoption. The information gleamed from rubrics' ratings can also be used to improve the educational experience for students.

The term rubric was often associated with instructional rubrics in the past. They were used to guide students and assist instructors to evaluate student work in a consistent manner. It can be an efficient manner of grading that can easily be explained to students (Andrade 2002). Another crucial aspect of a rubric is that the performance assessed should be observable and measurable (Wolf & Stevens 2007). The latter is true whether a rubric is used for institutional assessment or individual grading. There is much to learn about using rubrics for evaluating learning outcomes, so the emphasis will be on institutional assessment for purposes of this study.

VALUE Rubrics

Among the many developers of rubrics, the Association of American Colleges and Universities (ACC&U) has served as the leader. The association designed various types of VALUE rubrics with the intent to measure learning outcomes in 15 intellectual and practical skill areas of study (ACC&U, 2013). The association consists of a diverse advisory board, leadership and partner campuses representing development teams. VALUE rubrics are designed to accommodate different campuses, disciplines, and courses aiming at measuring learning outcomes. Depending on the assignment, these rubrics can be used as analytical tools to grade students' work. According to ACC&U (2013), several initiatives are ongoing to establish the reliability of VALUE rubrics and to ensure that all users have the same understanding of rubrics' criteria, levels, and descriptors. VALUE rubrics are examples of summative assessments with direct measure properties, and these are designed to accommodate different type of campuses, disciplines, and courses. VALUE rubrics include progressively more sophisticated criteria for meeting learning outcomes.

Critical Thinking VALUE Rubrics Defined

According to Striven and Paul (1987), "critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness." This study adapted the Critical Thinking Rubric developed by American Association of Colleges and Universities for their Valid Assessment of Learning in Undergraduate Education (VALUE) project, using the following domains of critical thinking:

> Explanation of issues
> Evidence
> Influence of context and assumptions

Student position (perspective)
Conclusions and related outcomes (implications and consequences)

A sample of this rubric can be found in the AAC&U website, which site address is listed in the reference page.

Quantitative Literacy VALUE Rubrics Defined

According to the Mathematical Association of America (2013), "colleges and Universities should accept responsibility for overseeing their quantitative literacy programs through regular assessments. A quantitative literacy program should be managed watchfully. At appropriate times and in appropriate ways, the results should be evaluated so as to obtain enlightened, realistic guidance for improvement. Evaluation methods should reflect course goals and teaching methods used, and besides pointing to possible improvements in the program can themselves be educationally beneficial. In particular, the evaluation methods should involve clearly applications-oriented tasks."

Due to the nature of the material covered in accounting a second VALUE rubric was applied for these two courses. The Quantitative Literacy VALUE rubric was selected for the second evaluation for comparison purposes. It is possible that a different type of categorization is needed to capture quantitative analytical skills. The following domains were scored.

Interpretation
Representation
Calculation
Application/analysis
Assumptions
Communication

The Quantitative Literacy Rubrics can be also found in the AAC&U website. See reference page for site address.

PURPOSE OF STUDY

A persistent lack of evidence remains as to whether students improve their critical thinking skills in quantitative courses. In fact, it is unclear if faculty can apply the same criteria to assess gains in higher level thinking skills for courses involving numeracy skills. It is common knowledge that many students struggle with this type of course materials, so it is an issue of interest. Since the authors already have some experience with the VALUE rubrics from working on an institutional assessment committee and regional accreditation activities, the use of VALUE rubrics was chosen for this exploratory study. The authors are both interested in the successful implementation of rubrics for quantitative courses. The goal of conducting assessments at the

university where the authors teach is to support a learner-centered environment and apply effective techniques to conduct and measure learning. The primary function is to benchmark improvements of student learning and to enhance academic programs. Assessments play a significant role for the university mission, and instructional outcomes and rubrics are tools to improve the learning culture and instructional practices (WASC, 2013). Another issue of interest is to assess the information learned from using alternative VALUE rubrics.

The authors used the AAC&U's VALUE rubrics because these instruments have been thoroughly tested and offer strong validity and reliability. The rubrics are also available for use by any institution. Critical thinking skills are paramount in today's education and are an important skill to take away from any course. Although quantitative courses have computational and written components, the use of VALUE could inherit challenges not otherwise observed with faculty-driven rubrics.

The major concern voiced about assignment evaluations is if a teaching institution should use rubrics to assess student improvements in a quantitative course. Similarly, faculty is faced with the question if a thinking skills rubric is applicable or whether a quantitative literacy rubric should a better measure of analytical skills. Accrediting institutions endorse numeracy as a separate category; however, measuring literacy skills in quantitative courses is important just as it is in any other course. Can the same critical thinking skills rubric be successfully applied to a course that has a significant quantitative component? Is quantitative reasoning or numeracy distinct from critical thinking skills? Can one apply the same rubric to both types of courses to measure performance? Given the rapidly growing use of rubrics, these questions are worthy of attention.

Because student evaluations are pervasive in use, it is essential to apply rubrics to gain an understanding of the advantages and disadvantages and how to best use them to assess the meeting of outcomes. While it is a compelling idea to use the same generic rubric to assess an important skill for all courses, the practicality remains an issue until proven otherwise.

Sample Selection

The authors used signature assignments to rate six undergraduate and two graduate classes taught during a recent session at Trident University International (TUI). The accounting courses do not include signature assignments. Instead, two equivalent types of assignments were evaluated. Signature assignments all have elements of theory application, computations, analysis, synthesis, and conclusions. The selection encompassed both critical thinking skills and performance of financial analysis for the accounting courses since these courses lacked a signature assignment.

A signature assignment is an assignment or milestone that is used to measure competency or progress in achieving an institutional or program learning outcome. As a guideline, it is generally recommended that signature assignments occur in the first course and after students

have had the opportunity to develop and refine the skills related to the outcome. For this reason, the first course and last course were chosen for the Information Technology Management (ITM) graduate program. For accounting, a required MBA core course and an accounting elective covering similar type of material were chosen. The two accounting courses are sequential as opposed to the other courses evaluated.

For the undergraduate Computer Science (CS) and BS ITM programs, a total of 28 student submissions were selected and another 30 submissions were selected for the MSITM program. Fifteen student submissions were randomly selected for the MBA accounting graduate courses. The number of student submissions evaluated for different courses varied based on the availability of assignments to evaluate. All identifying criteria of the authors were removed before downloading and saving the documents. Each assignment was read twice and carefully analyzed before applying the rubric by evaluators familiar with the assignments. In all, 88 assignments were evaluated; and 30 of those assignments were evaluated on two dimensions.

Selected assignments were scored using modified levels for Critical Thinking VALUE Rubric on a scale of 1 – 4. The representing levels were 1 = weak, 2 = marginal, 3 = adequate, and 4 = strong. The rubric was administered in the form of a summative assessment and used to evaluate the learners' critical thinking abilities.

Assignments were scored using a holistic approach for all criteria and levels. To process the scores, the means were calculated for each category and thereafter compared between the first and last course of the ITM program for mean changes. Percentages were also calculated by level within each criterion to determine what level had the highest and lowest ranking in the rubrics. Accounting courses also noted a minimal variation in mean changes between the core and elective course.

RESULTS AND CONCLUSION

Results of the Study

All courses in the ITM program evaluated with the Critical Thinking VALUE rubrics showed gains in mean for all criteria except for "position" in the Computer Science Program. Since computer courses are technical and programming oriented, there is little room to "synthesize" principles across courses. Therefore, a low level of fluctuation was noticed. Significant gains were observed in "evidence and conclusions" in the CS program, demonstrating knowledge increase between the first and last course. The "analysis" criterion also showed a substantial increase, proving that students' analytical skills improved over time. The BS ITM program did not vary dramatically in gains, but "position" or synthesis showed a noteworthy increase above other criteria. See details in Table 1.

The MS ITM program enjoyed the best gains across criteria. The ITM courses indicate a gain in critical thinking skills as evidenced by the data in Table 1. It is also interesting that the

score increased for all the categories assessed. Additional details for the undergraduate courses are displayed in the last two tables, 7 and 8.

Table 2 indicates that the results are less consistent for the accounting courses than ITM courses. The difference may be explained by the courses analyzed. The ITM courses were the first and last in a sequence, implying that there were several courses between the two. The highest increase was on "position," demonstrating strong arguments to defend points of view. The lowest gain was on "analysis," which could be justified by the pressure of the learning task (Kottasz, 2005).

The accounting courses yielded only modest gains in "interpretation, analysis, and position." There was no intervening accounting course between the two courses evaluated in this study. Additionally, the assignment evaluated for the core accounting course were placed in the middle of the course while the assignment evaluated for the accounting elective was in the beginning of the course. The study reveals that those two courses do not have prerequisites and are close together in the program and could be taken in any order. The analysis of the accounting courses shows a different pattern. Table 3 indicates some gain in "interpretation, knowledge, comprehension" and analysis, but a loss for the "conclusion, evaluation" category. The negative gain in "conclusions" may indicate that students did not tie the application of knowledge and analysis together to provide a statement on how they supported the thesis. The findings remain consistent with the lack of bringing closure on essay writing (Norton & Pitt, 2011) and engaging students in difficult courses through online schools.

Table 4 hows the results from the emphasis of numeracy or quantitative reasoning and analysis. Comparing this table to Table 3, it demonstrates a gain on all dimensions of quantitative literacy for the accounting courses. The gain for analysis is lower than a similar dimension using the critical skills rubric.

Table 5 provides a summary of the gain in means for the graduate courses of the two disciplines evaluated in this study using the critical thinking skills VALUE rubric. Table 6 provides a concise summary comparing the two VALUE rubrics for accounting.

Table 1				
DISCIPLINES				
Summary of Gain in Means				
CT Criterion	CS	BSITM	MSITM	ACC
Interpretation	0.50	0.40	0.53	0.27
Evidence	1.00	0.40	0.73	-0.06
Analysis	0.75	0.40	0.40	0.20
Position	0.00	0.80	1.07	0.06
CT Criterion	CS	BSITM	MSITM	ACC
Conclusions	1.00	0.40	0.66	-0.20
Average	0.65	0.48	0.68	0.05

Table 2			
ITM COURSES – CRITICAL THINKING VALUE RUBRIC			
Average Ratings			
CT Criterion	ITM524	ITM590	Gain in Mean
Interpretation/Knowledge/			
Comprehension	2.80	3.33	0.53
Evidence/Application	2.47	3.20	0.73
Analysis	2.73	3.13	0.40
Position/Synthesis	2.20	3.27	0.53
Conclusions/Evaluation	2.47	3.13	0.53
Average			0.54

Table 3			
ACC COURSES – CRITICAL THINKING VALUE RUBRIC			
Average Ratings			
CT Criterion	ACC501	ACC504	Gain in Mean
Interpretation/Knowledge/			
Comprehension	2.80	3.07	0.27
Evidence/Application	2.93	2.87	-0.06
Analysis	2.87	3.07	0.20
Position/Synthesis	2.87	2.93	0.06
Conclusions/Evaluation	2.93	2.73	-0.20
Average			0.05

Table 4			
ACC COURSES – QUANTATIVE LITERACY VALUE RUBRIC			
Average Ratings			
CT Criterion	ACC501	ACC504	Gain in Mean
Interpretation	2.47	2.80	0.33
Representation	2.47	3.13	0.66
Calculation	2.47	2.93	0.46
Application/Analysis	2.73	2.87	0.14
Assumptions	2.67	2.73	0.06
Communication	2.79	2.87	0.08
Average			0.29

Table 5		
COMPARISON OF ITM AND ACC - – CRITICAL THINKING VALUE RUBRIC		
Gain For the Next Course		
	Gain in ITM Mean	Gain in ACC Mean
Interpretation/Knowledge/		
Comprehension	0.53	0.27
Evidence/Application	0.73	-0.06
Analysis	0.40	0.20
Position/Synthesis	0.53	0.06
Conclusions/Evaluation	0.53	-0.20
Average	0.54	0.05

Table 6			
ACC COURSES – COMPARISON OF TWO VALUE RUBRICS			
	ACC501	ACC504	Gain in Mean
Overall Mean for Critical Thinking Rubric	2.88	2.934	0.05
Overall Mean for Quantitative Literacy	2.60	2.89	0.29

Table 7			
BS COURSES - COMPUTER SCIENCE			
Average Ratings			
CT Criterion	CSC111	CSC111	Gain in Mean
Interpretation/Knowledge/			
Comprehension	2.25	2.75	0.50
Evidence/Application	2.25	3.25	1.00
Analysis	2.25	3.00	0.75
Position/Synthesis	2.75	2.75	0.00
Conclusions/Evaluation	2.00	3.00	1.00
Average			0.65

Table 8			
BS COURSES - INFORMATION TECHNOLOGY MANAGEMENT			
Average Ratings			
CT Criterion	ITM206	ITM491	Gain in Mean
Interpretation/Knowledge/			
Comprehension	2.20	2.60	0.40
Evidence/Application	2.20	2.60	0.40
Analysis	2.00	2.40	0.40
Position/Synthesis	1.80	2.60	0.80
Conclusions/Evaluation	2.40	2.80	0.40
Average			0.48

CONCLUSION

The results of the study indicate that the application of the Critical Thinking Skills VALUE Rubric to the first and last course in a given program yields the best results as demonstrated by the evaluation on the quantitative non-accounting course assignments. This kind of rubric can provide valuable insights into student achievement even in some quantitative courses.

The application of two separate VALUE rubrics does not appear to yield meaningful differentiation even though the quantitative rubric shows some improvement from one course to the other. The study also observed that using both rubrics at the same time might contaminate the scoring by trying to fit the understanding of the analysis into more than one rubric. Also, timing could attribute the lack of significant improvement from the first required course to the second elective accounting course. The assignment evaluated for the first accounting course was due mid-session while the assignment for the second accounting course was due early in the semester. Yet another possibility is that the assignment are not comparable meaning that the assignment chosen in the first case may have been at a higher difficult level than the one chosen for the next course.

Regardless of the issues discussed above, this exploratory study provides some initial observations into the use of VALUE rubrics for assessing student progress on thinking and analytical dimensions for quantitative online courses. The initial observations and information gleamed warrant further investigation, and it should be tested with larger course samples and course variety.

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THE GLASS CEILING:
HOW LACK OF MENTORING AND NETWORKING OPPORTUNITIES CONTRIBUTE TO THE PROBLEM

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ABSTRACT

This paper focuses specifically on the glass ceiling and how the fact that women often do not receive the benefits provided from mentoring and social networking and how that effects their progression within a company. In order to take a closer look at these problems and their effect on women in the business world this paper examines just how a person in general can benefit from these experiences and why women do not generally receive these opportunities. After addressing some of the contributing problems of the glass ceiling in the business world this paper turns to addressing what companies can do to begin to help women break through the glass ceiling and advance through the ranks. Finally this paper gives some reasons how not only women but also the companies they work for benefit from taking strides to break the glass ceiling.

THE GLASS CEILING: HOW LACK OF MENTORING AND NETWORKING OPPORTUNITIES CONTRIBUTE TO THE PROBLEM

While the U.S. is generally associated with being "the land of opportunity" that statement turns out not to be the case for one large demographic in today's workforce, women. While the number of women who make up the workforce today has grown tremendously over the years, they still have not managed to make it into the upper tiers of their organizations, only a slight 2.2% of Fortune-500 CEOs are women (Ely, Ibarra, & Kolb, 2011). Another shocking statistic shows that women, in fact, make up for 47% of the U.S. workforce, however only a mere 1 in 5 senior management positions belong to women (Daugherty, 2012) showing that women are still struggling to break through the professional glass ceiling.

This paper will begin with providing some background information and statistics on the professional glass ceiling seen today. From there it will analyze how the lack of mentoring opportunities adds to the glass ceiling and how women could benefit from these mentoring opportunities. Next the lack of networking opportunities will be analyzed and how this also contributes to the glass ceiling and again how women would benefit from these opportunities. From there, this paper will look at how companies can go about fixing these problems and helping women improve their chances at career advancement within their organization. Finally, this paper will explain how companies can benefit having women in the upper tiers of their companies.

BACKGROUND AND STATISTICS OF THE GLASS CEILING

First, this paper is going to give a brief explanation of what the glass ceiling was like in 1998 to give a comparison of how far it has come. At the time there were four different advancement strategies used by women who were looking to advance within their organization and move under the upper management ranks. These four strategies were to consistently exceed performance expectations, develop a management style than men are comfortable with, seek difficult or high visibility assignments, and have an influential mentor (Ragins, B., Townsend, B., & Mattis, M., 1998). Basically in order for women to succeed they were forced to develop a management style that was neither masculine nor feminine in order to please their mostly male coworkers. While women in the workplace have made significant strides since 1998, there are still quite a few things left to improve upon.

The glass ceiling, according to this paper, is defined as an invisible barrier faced by middle management women who want to attain top level positions (Daugherty, 2012). One of the main reasons women are seeming to have difficulty advancing into the upper ranks of a company is because they are not seen as possessing the leadership qualities that companies often look for when promoting their managers into positions of higher authority within the organization (Ely et al., 2011). Some of the traits often found desirable in male managers and leaders are often found to be very unattractive in women and tend to make them less liked as managers (Ely et al., 2011) an example of such trait would be aggressiveness. While this is a trait often coveted and earns respect in male managers, women with this same trait are often disliked and viewed as demanding or controlling. Due to this perception women are generally not given the same respect that is given to a man who possesses this characteristic. There are those who also believe that women are ill-suited for these leadership roles. This belief could quite possibly be linked to the fact that most cultures definitions or meanings for the word leadership itself is masculine (Ely et al., 2011) therefore offering a possible explanation of why men are more often seen as possessing leadership traits rather than women.

The belief that men make better leaders than women does not really hold up when one examines the research based on leadership traits and how men and women compare. In a study of eight different leadership traits women outranked their male counterparts in seven of the eight researched categories including honesty, hard work, compassion, outgoingness, intelligence and creativity (Carnes & Redojevich-Kelley, 2011). This study also makes some of the notions supporting the argument that women are generally less aggressive, fragile, and run by their emotions (Carnes & Redojevich-Kelley, 2011) which seem to have been conjured out of the blue, yet this frame of thinking is part of the glass ceiling problem that is preventing working women from advancing their career within their desired organization or industry.

Women are also facing new obstacles and new factors contributing to the glass ceiling as more and more companies are becoming international. As companies become more international women tend to be seen as an even less likely candidates to receive what can be crucial job assignments that are located overseas. These assignments often act as a stepping stone to higher-level management positions, however organizations typically do not consider their female employees as these assignments tend to be deemed "inappropriate for female candidates" (Insch, McIntyre, & Napier, 2008). Many companies assume that due to possible cultural prejudices

against women in these international locations, women would not want these particular assignments (Insch, McIntyre, & Napier, 2008) it is also believed that women would turn down these assignments due to their family obligations.

While many of the factors labeled as contributing to the glass ceiling and are deemed responsible for holding back women's advancement in the business world it should also be acknowledged that some believe women themselves can provide some of these contributions to the glass ceiling.

While there are many factors that contribute to the professional glass ceiling, one factor that is important to note is women themselves. Women are often found to be holding themselves back such as allowing the many gender stereotypes in businesses to lead to what is known as the "chilling effect" which in essence ends up causing women to avoid applying for certain positions either because they do not think they will get the position or they simply do not feel welcome to apply (Carnes & Redojevich-Kelley, 2011). Another barrier that women can create for themselves, and are in essences holding themselves back, is the belief that not advancing into higher-level positions is "just the way it is," or they learn to "accept the status quo," (Kelan & Jones, 2010). If women themselves are leaning to accept the status quo instead of fighting to fix the problem then it is very likely that no steps will ever be taken to actually fix this problem.

Finally, some women may let the fact that there is a glass ceiling act as an excuse for them to not try harder to advance within a company and can often let it determine their amount of career ambition (Carnes & Redojevich-Kelley, 2011). While there are many contributing factors to the glass ceiling today in the workplace, from both men and women alike, this paper has chosen to focus on two of the multiple factors that contribute to the glass ceiling which are the lack of mentoring opportunities and the lack of networking opportunities for women in the workplace.

MENTORING AND LACK THEREOF

The lack of mentoring opportunities was identified as one of the key factors to the women's glass ceiling because many women who do manage to move up to an organization's senior roles show that they have a desire to lead but often feel they do not have the support to do so (Barsh & Yee, 2011). According to Linehan and Scullion (2008) mentors, as defined for this paper are, " higher-ranking, influential, senior organizational members with advanced experience and knowledge who are committed to providing upward mobility and support to a protégée's professional career" (p. 31). Mentors are also noted to perform two main functions, first, to provide career guidance such as sponsorship and coaching, and second, to provide psychosocial support such as acting as a counselor and a friend (Washington, 2011). Multiple studies and researchers suggest that the lack of mentors available or willing to mentor women is a rather large contribution to the glass ceiling and barriers to women looking to advance within an organization. Authors Ramaswami, Drher, Bretz, and Wiethoff (2010) also show that there is a positive correlation between those who have the opportunity of having a mentor and their compensation and promotion levels, in other words, employees who have had the opportunity of mentoring show to be paid more and receive more promotions than those employees who did not receive any form of mentorship.

So where does it show that mentors truly provide as great an advantage for women as suggested? The study performed by Ramaswami et al. took a much closer look at the mentoring relationship and what advantages, if any, the relationship provided (2012). This study looked at three different mentor/protégé groups; male/male, male/female, and female/female and the impact these groups had on the protégée's compensation and promotion levels (Ramaswami et al., 2010). The study also found that the most effective mentors proved to be senior male mentors as they were better connected than women of the same level and junior-male mentors and were more likely to achieve better outcomes for their protégées (Ramaswami et al., 2010). Overall, the study concluded that women with male mentors in male-gendered industries which, for this paper, are defined as an industry comprising of 75% or more male employees or the industries are known to be gender stereotyped (Ramaswami et al., 2010). These male-gendered industries proved to have the highest compensations and promotion rate with a salary difference of $70,287 (Ramaswami et al., 2010). The question from this is, if mentoring proves to be so beneficial why are women still being denied this opportunity?

Since women are seen as a minority in many workplaces they lack the opportunity of having a mentor and thus benefiting from the relationship both professionally and personally which lead to many disadvantages when looking to advance up through an organization (Washington, 2011). One disadvantage is that women often do not receive the same, or any, coaching that their male coworkers receive which helps them to assimilate or adjust into a company's culture (Barsh & Yee, 2011). Another disadvantage is that by not having a mentor these women have no one to provide "tough love" and to advocate on their behalf to others within the organization (Barsh & Yee, 2011). These disadvantages help lead to women becoming further behind men in what they are offered or provided by the organization and this often bars them from advancing in their particular organization. Surprisingly, women are not denied mentors due to lack of actual mentors but instead rather the lack of the mentor's wiliness to mentor a woman (Barsh & Yee, 2011).

There are several reasons why men hesitate to choose a female protégé. One of the main reasons men hesitate is because they are either uncomfortable with the relationship or simply are unsure how to best be effective with a female protégé (Barsh & Yee, 2011). Other reasons men do not normally choose a female protégé become quite evident when one looks more closely at the actual process a mentor takes when choosing a protégé. A mentor often chooses their protégé based off of the degree to which they personally identify with the protégé and how they view them as a younger version of themselves (Linehan & Scullion, 2008). Male mentors are also more likely to mentor other men because they find it hard to build relationships with those with whom they share fewer interests (Barsh & Yee, 2011). Lastly, a large reason as to why men hesitate to mentor a female protégé is due to the fear of forming a close relationship that could be misunderstood as sexual rather than professional (Barsh & Yee, 2011).

All of this being said, there is another side to the problem of lack of mentoring opportunities that falls not on the men's shoulders but instead on the women's. The largest contributor to this blame is similar to the men's hesitation to mentor women, women may avoid seeking out male mentors for the same fear of a sexual misunderstanding (Linehan & Scullion, 2008).

LACK OF NETWORKING OPPORTUNITIES

While mentoring is no doubt a major player in the women's glass ceiling the lack of networking is yet another key player. First, how are mentoring relationships and social networking relationships different? As the previous section covered, mentoring is primarily based off of a more personal relationship with someone who has more experience in their particular field and who has vast amounts of resources available to them, this person uses their knowledge and resources to help out their mentee. Networking tends to be a less personal series or web of relationships with people both inside, and outside the organization or even the industry (Forett, M. L., & Dougherty, T. W., 2004). An individual's ability to have and maintain a network is especially important in today's working environment as the burden of creating and maintaining this network has shifted from the organization to the individual (Forett, M. L., & Dougherty, T. W., 2004).

Authors Forett and Dougherty (2004) state in their research, that the purpose of networking is largely, in order to receive career benefits such as promotions and compensation. Women are behind in this process of honing their networking skills which may often lead to the opportunity of connecting them with decision makers that may eventually lead to future career advancement (Washington, 2011). The fact that women are struggling to form and maintain these networking relationships (Forett, M. L., & Dougherty, T. W., 2004) proves to be a major disadvantage as they are missing out on some of the afore mentioned benefits such as available resources, access to new or inside information, favors and power (Bevelander & Page, 2011). Forett and Dougherty (2004) also mention that along with the more physical benefits provided by networking, this process also helps to develop interpersonal relationships that are considered to be a vital competency for advancing one's career in the work environment today.

Studies have found that for women networking can be especially important as these relationships can help build confidence by having the support of those in their networks (McGregor & Tweed, 2002). These relationships also tend to be with people higher in the organization which can increase a person's chances of advancement within that organization (Bevelander & Page, 2011). Forett and Dougherty (2004) also found that these networks of relationships should be as diverse as possible, in order to be highly effective and useful, having a more diverse network of people leads to being able to reach into different social circles thus providing the individual with more career opportunities and resources. Networking is also linked to providing greater visibility within an organization which Forett and Dougherty found to be the leading benefit of networking. This benefit can lead to higher promotion rates, compensation rates, and perceived career success by themselves and others (2004).

As touched on earlier in this paper research has suggested that women tend to have a lack of self-esteem in the workplace which can lead to them missing out on mentoring and networking opportunities. However networking in itself could be a key to helping women increase their self-esteem as the authors Forett and Dougherty believe to have linked the benefits of networking, such as having inside information and resources, to a feeling of empowerment within the organization leading to a higher sense of self-esteem (2004).

Women also often report a lack of culture fit and a feeling of being left out of these informal networks either inside or outside the organization also as being factors preventing their

advancement within an organization or in their career in general (Forett, M. L., & Dougherty, T. W., 2004). This proves to be true since, in many organizations, networking is understood to be a male club or an "old boys' network" (Linehan & Scullion, 2008) which leads to women often feeling excluded or physically being excluded from these networks and thus being denied the advantages and opportunities it provides. This perception of networking can also be linked to the fact that there are simply more men around some organizations and it is "just natural" or "easier" to form networking ties with other men (Benschop, 2009).

So what can companies do to fix these two problems, and perhaps more importantly why should they? To answer this question requires taking a deeper look into mentoring and leadership programs developed specifically for women and what their impact is on the company.

HOW CAN COMPANIES BEGIN TO FIX THE PROBLEM OF THE GLASS CEILING?

Now that this paper has provided a detailed analysis of two major contributing factors of the glass ceiling, the lack of mentoring opportunities and the lack of networking opportunities, it important to look at how organizations, and women as a group, can go about fixing these problems and perhaps begin to shatter the glass ceiling once and for all. The first thing that companies need to do is to realize that there is a glass ceiling problem within their organization, from there they need to simply start making changes from the top down, meaning that it must start with those who hold the most power and influence within the organization. Recognizing the problem can, in some cases, be difficult as authors Bible and Hill (2007) state that most discrimination within an organization can be discrete or under the radar and can sometimes go unrecognized or unnoticed completely by many professionals in the business world.

Researchers believe that companies should start by focusing on developing and promoting change within their company toward stereotyping and bias education (Evans, 2011). When a company is looking into developing a mentoring or leadership program specifically for women, they need to be sure to do their research just as if they were looking to develop a new employee training program. These programs should offer opportunities to gather experience and perhaps most importantly, need to have the support of the organization's upper management in order to truly be effective (O'Neill, C., & Boyle, S., 2011). An example of such program discussed by Branson (2012) can be found in Australia where the Australian Institute of Company Directors (AICD) implemented a mentoring and sponsorship program for accepted female business professionals. In this specific program, company chairmen or other experienced directors agreed to mentor a female candidate for a year and then in turn place that candidate on a public company board. This led to a 5% increase of females on higher company boards in Australia over just a two year time span.

When looking to develop or implement a program of their own, each company needs to find out what specific needs their female employees have and how they can go about best meeting these needs in order to provide the most effective program possible (Washington, 2011). O'Neill and Boyle (2011) also state that these programs should be sure to develop and reinforce techniques that help to promote business innovation and creativity, as these are some characteristics that organizations really look for when hiring upper management positions.

Several researchers and studies have found that one of the best ways to help "fix" the glass ceiling is by changing the organization's culture and making sure everyone is supportive and on board with making sure women have a better chance and access to moving into the upper ranks of the organization (Cabera, 2009). It is important for the male employees in higher managerial positions to show their support and lead by example within the organization when looking to implement different leadership, mentoring, networking, or advancement programs for their female employees. If the people in positions of power and high respect do not show support or help the entire organization how it will not only help these specific employees but in turn the company as a whole than it is likely other employees will have little or no respect for those benefiting from the program and it will not work (Cabera, 2009). Cabera (2009) also states how it is important for the organization to regularly measure the results of these programs or initiatives. As with many other projects or tasks in the business world measuring their success is a good way to keep track of just how useful it is to the organization and helps determine what areas are doing well or need further improvement; success requires constant change (Cabera, 2009).

As stated above the primary goal of the organization when starting to fix the problem of the glass ceiling, should be is to really focus on making an effort toward changing the organization's culture as a whole (O'Neill, C., & Boyle, S., 2011). Several studies and researchers suggest that gender inequality is actually rooted in an organization's culture patterns and systems (Meyerson, D. E., & Fletcher, J. K., 2000). The problem of the company culture are fairly easy to fix, according to Meyerson and Fletcher (2000) once the organization determines which practices in particular are undermining women's effectiveness within the organization they can then reinvent the system or patterns by altering the organization's every day practices. This is referred to as focusing on the "small wins" these wins might be an organization creating a more structured work environment such as working hours and employee timeliness, from there it is shown that these "small wins" begin to snowball and turn into bigger organizational wins (Meyerson, D. E., & Fletcher, J. K., 2000). Meyerson and Fletcher (2000) believe that the reason "small wins" are so effective is because they focus on combining changes of behavior with changes of understanding.

An example of a company who learned to focus on the small wins provided by Meyerson and Fletcher (2000) describes a company that realized they were struggling to keep their female employees and wanted to know how they could go about fixing that problem and reduce the female turnover. After further examination it was determined that the company's culture and practice of atypical hours such has meetings running late, almost coming and going at all hours of the day, or even calling a team meeting later in the evening was making it very hard for their female employees to adapt to and become successful. After the company realized their main problem they made the simple change of making sure that every employee held standard hours and made a point for everyone to become more time conscious with their work and meetings. By changing a few of these simple things and focusing on their "small wins" the company began to see huge improvements with their female employees and their organization's turnover rate.

Many organizations also seem to maintain a common belief that if they make it a goal to hire more women then the problem of women not advancing within the organization will eventually solve itself, however, when examining the evidence this theory is vastly mistaken

(Bible, D., & Hill, K. L., 2007). While it is no secret that men's attitudes of women's capabilities in the workplace are a definite problem that needs to be changed, women's attitudes and some behaviors also need to be changed (Bible, D., & Hill, K. L., 2007). Women also need to realize that they are capable of more than what an organization's gender stereotypes believe them to be capable of. It is also important that women strive to become more proactive and begin putting themselves in front of the people that can make their promotions a reality (Bible, D., & Hill, K. L., 2007).

Having an effective mentoring and development program focused specifically toward female employees has been noted to create three benefits to not only the female employees but also to the companies themselves. These factors are: advancing professional development needs, fostering professional growth, networking, and many other business benefits and opportunities which will be discussed in the next section of this paper.

HOW DO COMPANIES BENEFIT FROM FIXING THE PROBLEM OF THE GLASS CEILING?

So what incentives, if any, are there for the companies to create and promote mentoring programs? Studies have found that there are actually quite a few benefits toward the company itself by helping their female employees break through the glass ceiling and reach the upper ranks of their company. Some of the more general benefits arise from the simple fact that by the company providing more opportunities for training and advancement, they in turn create more talented and skilled employees. The benefits that can be gained from this are employees that are more loyal to their company, company growth skyrockets due to these talented employees, the company can reduce their hiring/recruiting expenses by having better candidates for in house promotion, it improves the overall company culture, and it increases information sharing where employees are more willing and more capable of helping other employees (Washington, 2011).

There are still several more benefits to companies for helping their female employees advance their career within their company. One study describes how companies' boards of directors should reflect the diverse world they function in and sell to (Branson, 2012). Market reciprocity is also mentioned when discussing the benefits of women in the upper ranks, market reciprocity refers to companies who sell either good or services and how having women on their board of directors sends out positive signals to their consumers (Branson, 2012). Researchers also believe that these positive messages can play a large role when trying to win over consumers toward their product since women account for 70% of the consumer purchasing power (Branson, 2012).

Among these benefits there are yet even more reasons for an organization to promote women's advancement within their company. Women are said to bring broader perspectives, better promotion of collaboration, better use of interpersonal skills, and help to avoid groupthink (Branson, 2012). A basic definition of groupthink is when organizations or groups fall into what is comfortable or the "norm" and this type of thinking greatly discourages creativity or individuality which greatly hampers the amount of creativity a company is able to produce (Branson, 2012). By bringing women into more of these groups or putting them higher up within

the company they are able to provide a wider perspective and different ideas which is shown to help organizations become more efficient and successful (Branson, 2012). It has also been shown that there is a positive correlation between companies with women on their top boards and higher return on equity and margins for earnings before interest and taxes (Barta, T., Kleiner, M., & Neumann, T., 2012).

Another benefit of an organization deciding to implement a program focused on helping to advance women in the workplace, or to simply increase female employee satisfaction is a decrease in employee turnover and thus leading to a decrease in employee recruitment which was briefly discussed earlier in this section (Cabera, 2009). Cabera (2009) talks about how companies spend a lot of time and money training and molding their employees to best fit the company's goals and needs, only to have high amounts of female employee turnover because they feel that they cannot maintain a work-home balance or they feel that they are wasting their time and will never be able to move up the company ladder. Implementing programs focused on helping provide and maintain mentoring or networking opportunities turns into a long term cost reduction and benefit by helping to eliminate employee turnover and increase employee satisfaction thus leading to a stronger organization that is more likely to perform better (Cabera, 2009).

Perhaps one of the most beneficial reasons for companies to support women's advancement is that as more and more women do find themselves breaking through the glass ceiling companies are gaining more female role models thus making it easier for future female employees to break through their glass ceiling until perhaps one day it is gone all together. As women begin to move up into the top ranks of an organization this will become more of the standard within the everyday workplace the glass ceiling will begin to disappear and organizations will no longer have to provide specific programs to help women because things such as mentoring and networking will become a generally accepted practice (Meyerson, D. E., & Fletcher, J. K., 2000).

SUMMARY AND CONCLUSION

As this paper has shown the glass ceiling is still very much a part of the work force today and has several different factors that lead to holding women back and keeping them from the upper ranks of an organization. Two of the rather large contribution factors are lack of mentoring and networking opportunities provided to women within most organizations. The fact that women are not able to procure the ample amounts of benefits provided from both of these practices greatly hinders women's knowledge and experience within a company and in turn hinders the likelihood of their promotion within the organization.

While the lack of these two opportunities provides a great number of problems for women in the workforce there are several steps that organizations may choose to take and begin changing and fixing the issue. This paper showed that by implementing different leadership, mentoring, or networking programs women can begin to regain what they had initially missed out on. It was also shown that striving to change the company's culture could be one of the best methods to helping women's advancement due to encouraging support of these programs.

Finally this paper discussed the many benefits of an organization helping women break through the glass ceiling move up the company ladder into more substantial and influential roles of the company. These benefits not only included helping to diversify the company enabling them to gain insight on more demographic markets with a wider variety of perspectives but also showed how organizations can greatly benefit financially by having women in their upper ranks. Overall, while the glass ceiling still exists there are many steps organizations can or have begun to take to help level the playing field between men and women which will ultimately provide large assets to the organization.

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ONLINE BUSINESS STUDENTS: MULTIMEDIA PRINCIPLES TO PROMOTE MEANINGFUL E-LEARNING

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ABSTRACT

The purpose of this study was to examine the learning effects of dual code and interactivity, two multimedia principles intended to promote meaningful e-learning, in an online learning environment within the discipline of business. Existing research has examined the effects of multimedia instruction designed to engage learners, facilitate learning, and reduce cognitive load. However, further research was needed to examine whether the instructional design principles of multimedia learning also applied to various types of multimedia lessons and more than one kind of learner in an online learning environment. Thus, using a different discipline (i.e., business), causal model (i.e., business communication model), learner sample (i.e., familiar), and environment (i.e., online instruction system) from that used by Moreno and Valdez (2005), the present study replicated and extended this earlier study to explore whether dual code and interactivity principles are related and have an effect on learning and mental effort in a cognitive load condition. The participants consisted of undergraduate business students. The study utilized a quantitative research design to examine whether students construct better models of causal systems when: they are presented with two representation modes rather than one, they are asked to organize the causal chain themselves, they can control the amount of time deemed necessary for self-organization, and the feedback designs encourage the intentional processing of information.

This study yielded a mix of significant and non-significant findings regarding the effects of cognitive load and multimedia learning principles upon instructional efficiency and meaningful learning. Most notably the results suggest that students learn best when the instructional materials present them the opportunity to make rather than take meaning. This finding is one of great importance because it purports that multimedia environments have the potential of promoting meaningful e-learning by varying the degree of student interactivity while considering specific characteristics of learners, such as level of expertise and learning styles. However, future research is needed to investigate the aforementioned issues, particularly the interactivity effect and level of knowledge.

INTRODUCTION

Allen and Seaman (2010) noted online enrollments have continued to grow at rates far exceeding total higher education student population, with the most recent data demonstrating no signs of slowing. Their study indicated 1) over 4.6 million students were taking at least one online course during the fall 2008 term; a 17 percent increase over the number reported in 2007. 2) This 17 percent growth rate for online enrollments exceeds the 1.2 percent growth of the overall higher education student population. 3) More than one in four higher education students now take at least one course online. Further, in 2009, over 2,500 colleges and universities were offering online courses (Allen & Seaman, 2010).

However, the learning environment on the Internet varies in several ways from the traditional face-to-face classroom (McKenna & Bargh, 2000; Morrison & Anglin, 2005; Spears & Lea, 1994). This transformation from traditional classrooms to cyber classrooms represents a major shift in the makeup of educational instruction. Educators must now develop online instruction that facilitates student construction of knowledge without overloading their cognitive processing capabilities.

The negative effects of cognitive overload have been well researched and documented within the subject matter of cognitive load theory and the cognitive theory of multimedia learning (Chandler & Sweller, 1991; Mayer & Anderson, 1991; Mayer & Moreno, 1998; Mayer, Moreno, Boire, & Vagge, 1999; Moreno & Mayer, 1999; Sweller, 1999; Sweller, van Merriënboer, & Paas, 1998). However, past research has generally examined the effects of multimedia instruction within the fields of mathematics and science. Due to the fact that online courses are being offered in a large number of disciplines other than mathematics and science (Morrison & Anglin, 2005) future research should look at the effects of multimedia principles across a range of disciplines. The recent expansion of online education in the discipline of business offers an excellent opportunity to investigate cognitive load and multimedia principles within a different content domain and educational environment (Lee & Nguyen, 2007).

Further, multimedia principles have often been observed in sample populations that utilize participants with no prior knowledge of the study's content area. However, instructional designers must also consider learners with previous knowledge in specific content domains. Thus, there is a need for additional research that explores the impact of learner level of expertise in regard to cognitive load and the cognitive theory of multimedia learning.

COGNITIVE THEORY OF MULTIMEDIA LEARNING

The cognitive theory of multimedia learning (Mayer & Moreno, 2003) presented a review of several empirical studies that investigated different guidelines for multimedia learning environments. The theory drew on Paivio's (1986; Clark & Paivio, 1991) dual coding theory, Baddeley's (1992) model of working memory, Sweller's (Chandler & Sweller, 1991; Sweller, Chandler, Tierney & Cooper, 1990) cognitive load theory, Wittrock's (1989) generative theory, and Mayer's (1996) SOI model of meaningful learning.

Based on their cognitive theory of multimedia learning, Mayer and Moreno (2003) recommended guidelines for effective multimedia instruction and effective reduction of extraneous cognitive load in instructional design. According to the theory, the learner has a visual information processing system and a verbal information processing system, such that auditory narration goes into the verbal system while animation goes into the visual system.
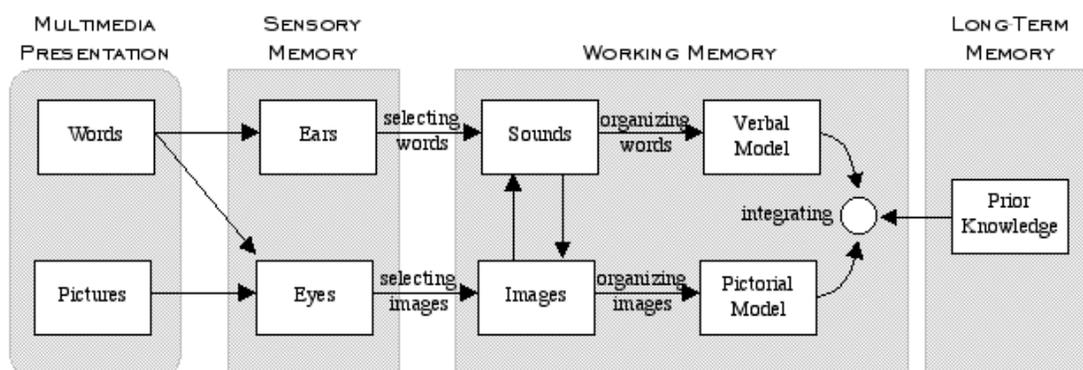
Figure 1. Mayer and Moreno's model of the cognitive theory of multimedia learning.

Mayer and Moreno's (2003) model of the cognitive theory of multimedia learning is primarily based on three assumptions: (1) Humans possess two separate channels for processing visual and verbal information, (2) the capacity of both channels is limited, and (3) meaningful learning involves building connections between pictorial and verbal representations. The model is triggered through five steps: "(a) selecting relevant words for processing in verbal working memory, (b) selecting relevant images for processing in visual working memory, (c) organizing selected words into a verbal mental model, (d) organizing selected images into a visual mental model, and (e) integrating verbal and visual representations as well as prior knowledge" (Mayer, 2001, p. 54).

MULTIMEDIA PRINCIPLES AND APPLICATIONS

Moreno and her colleagues have gathered research investigating the framework and effects of multimedia presentations on learning in high tech environments and summarized those results to ten principles (Moreno, 2006). The aforementioned effects are presented in Table 1 along with practical applications for each principle.

Table 1
Moreno's Ten Multimedia Principles and Practical Applications

Empirical Results	Practical Applications
Modality Principle: Students acquire knowledge better from words and graphics when words are spoken instead of printed.	Spoken words are processed in the auditory channel, thereby allowing the visual channel to only process the graphics, thus expanding effective working memory capacity.
Verbal Redundancy Principle: Students acquire knowledge better from graphics and narration than from graphics and redundant narration and text.	When both words and graphics are presented visually the visual channel can become overloaded.
Temporal Contiguity Principle: Students acquire knowledge better when corresponding words and graphics are presented simultaneously rather than successively.	When presenting joined words and graphics they should be presented simultaneously. Concurrent words and graphics can be held in working memory at the same time, thus learners are more likely to construct mental links between them.
Spatial Contiguity Principle: Students acquire knowledge better when multiple sources of visual information are integrated rather than separated.	When presenting joined words and graphics the words should be embedded in the graphics. Non-integrated sources of information force learners to hold one source in working memory while attending to the other, thus mental links between them are less likely to occur.
Coherence Principle: Students acquire knowledge better when extraneous words, graphics, and sounds are excluded from a lesson.	Extraneous material vies with relevant material for cognitive resources, thus disrupting the process of organization by priming learners to organize the material around inappropriate schemas.
Dual Code Principle: Students acquire knowledge better from words and graphics than from words alone.	When relevant graphics are added to words, learners are encouraged to link both materials, which play a substantial part in constructing a mental model.
Personalization Principle: Students acquire knowledge better when explanations are personalized rather than mass-produced.	Personalized messages increase students' attention, and learning is more likely to occur as a result.
Guidance Principle: Novice students acquire knowledge better when given principle-based explanations than they do when asked to infer principles on their own.	Novices lack good automated schemas to help them choose and organize materials, thus learning is more likely to occur when explanations offer guiding schemas.
Interactivity Principle: Students acquire knowledge better by manipulating the materials rather than passive observation.	Interactivity promotes the processing of new information by engaging students in an active search for meaning.
Reflection Principle: Students acquire knowledge better when given the chance to reflect during the meaning-making process.	Reflection encourages learning by promoting more active organization and integration of new information with the learner's prior knowledge.

Table 1 provides ten empirically based instructional design principles derived from the cognitive theory of multimedia learning, along with their corresponding practical applications. The first five principles are methods designed to reduce learners' cognitive load and extraneous processing, which is processing of extraneous materials or cognitive activities that do not promote learning. The last five principles are methods designed to increase learners' working memory capacity and essential processing, which is processing needed to enhance learning, such

as choosing, linking and organizing new information, retrieving important information from long-term memory, and combining the new information with prior knowledge (Moreno, 2006).

Meaningful Learning

Mayer and Moreno (1998, 2003) explained meaningful learning as a deep understanding of the material. Meaningful learning consists of attending to the most important parts of the presented material, retaining pertinent information in both visual working memory and auditory working memory, organizing information into a coherent mental structure, and incorporating it with applicable prior knowledge. According to Mayer (2001), multimedia learning linking animation with narration generally improves performance on retention tests better than when information is presented only as text or narration. In addition, meaningful learning is demonstrated when the learner can apply what is presented to novel conditions.

Mayer, Fennell, Farmer, and Campbell (2004) cited evidence that two key approaches to promoting meaningful learning in e-learning are to design instructional activities that reduce cognitive load, which allows the use of more working memory capacity for deeper learning, and to increase the learner's attention, which encourages the learner to use the available working memory capacity for deep processing during learning. Learner interest can be encouraged easily by presenting the material in a visually engaging way, accompanied by amiable wording or narration.

E-Learning and Online Environments

Clark and Mayer (2003) defined e-learning as instruction delivered through the use of a computer that is designed to promote learning. According to Mayer (2003), e-learning depends on instructional material being presenting using effective instructional methods. Materials are presented to learners through computers by way of the Internet, Intranet, CDROM, or similar means. The goal of e-learning is to foster transformation in the learner's knowledge base, which is indicated by changes in their performance. Thus, e-learning is intended to facilitate the achievement of learning objectives.

The design and development of e-learning materials offers the instructional designer an environment, opportunities, and limitations relatively different from those related to the design of instruction for a traditional classroom (McKenna & Bargh, 2000; Morrison & Anglin, 2005; Spears & Lea, 1994). The instructor must determine how learning in an online environment differs from learning in a traditional classroom. This question has generated much debate in the field of educational technology (Clark, 2001; Kozma, 1991; Salomon, 1979). The consensus among researchers (Clark) is that it is more productive to look at the instructional methods that actually promote learning, rather than the delivery method. Thus, the same design principles that promote learning in traditional classrooms have been thought likely to promote learning in online environments as well.

Moreno and Valdez (2005) Study- Experiment 1

In 2005, Moreno and Valdez sought to extend the research on multimedia learning by examining the role that dual coding and interactivity play in promoting scientific understanding. Moreno and Valdez cited evidence that multimedia environments have the potential of promoting meaningful learning by varying both the number of representations provided to students and the degree of student interactivity.

Moreno and Valdez (2005) studied the dual code and interactivity principles derived from the cognitive theory of multimedia learning. According to the cognitive theory of multimedia learning, humans cognitively represent and process information by two individual subsystems: one related with verbal materials and the other with nonverbal materials (Clark & Paivio, 1991). This assumption supports the dual code hypothesis proposed by Moreno and Valdez. According to the dual code hypothesis, teaching students about a causal system with both verbal and nonverbal materials will result in stronger encoding than instruction with verbal or nonverbal materials alone. For the dual code hypothesis to be applicable the information contained in both materials should not be redundant and the instructional design should incorporate the materials so that students are not made to split their attention between the two materials (Kalyuga, Chandler, & Sweller, 1999; van Merriënboer & Ayres, 2005).

Lastly, because cognitive overload is very likely to occur when students learn from a multiple representation interactive environment (Moreno & Durán, 2004), Moreno and Valdez (2005) were concerned with the limited capacity assumption of the cognitive theory of multimedia learning, a central thesis of cognitive load theory (Chandler & Sweller, 1991; Mayer & Anderson, 1991; Mayer & Moreno, 1998; Mayer, Moreno, Boire, & Vagge, 1999; Moreno & Mayer, 1999; Sweller, 1999; Sweller, van Merriënboer, & Paas, 1998). Thus, Moreno and Valdez (2005) also examined the cognitive load effects of the instructional methods utilized in their studies.

In Experiment 1 the findings supported the dual code hypothesis, which predicts that students learn more effectively when they are provided with visual and verbal knowledge representations as opposed to visual or verbal alone. This finding was supported by ascertaining a dual code effect on learning, cognitive load, and instructional efficiency. That is, learning about a causal system with nonredundant, integrated words and graphics is significantly more effective than learning with words or graphics alone. Thus, the dual code principle provides practical applications to the design of instructional materials in e-learning environments.

RESEARCH PROBLEM AND PURPOSE OF THE STUDY

It is clear that instructional design can be developed to reduce cognitive load. For over a decade, Mayer and his colleagues have researched the learning process as proposed in the cognitive theory of multimedia learning. Through the application of multimedia principles instruction can promote meaningful learning, in which students attain and make use of a variety of cognitive processes to understand the instructional materials. In addition, the principles derived from multimedia learning have been used as guidelines for designing e-learning materials in high-tech learning environments (Moreno, 2006).

Existing research has looked at the effects of multimedia instruction designed to cognitively engage learners, facilitate meaningful learning, and reduce extraneous cognitive load. The results of the Moreno and Valdez (2005) study are consistent with the principles derived from the cognitive theory of multimedia learning; however, future studies could replicate and extend the research given the fact that online courses are being offered in a multitude of disciplines other than science or mathematics (Morrison & Anglin, 2005). Thus, further research is needed to examine whether the instructional design principles of multimedia learning also apply to various types of multimedia lessons (i.e., business) and more than one kind of learner (i.e., college students who are familiar with business concepts) in an online learning environment (Mayer & Moreno, 2003; Moreno & Valdez, 2005; Morrison & Anglin, 2005).

The discipline of business was chosen to extend this study because the curriculum for undergraduate business students often involves constructing meaning and forming relationships from causal models similar to the one used in the Moreno and Valdez study (2005). However, the characteristics of business students may impact how efficiently they construct meaning. In 2007, Schlee, Curren, Harich, and Kiesler examined undergraduate business students' perceptions of themselves and their peers of the same and different majors on a number of dimensions of academic performance and personal characteristics. The authors found substantial evidence of positive self biases. Thus, the undergraduate business students had a tendency to see themselves in a positive light, as well as possessing most if not all of the characteristics stereotypically linked to the business profession (i.e., creative, ambitious, risk-taking, independent, people-oriented, studious, team player, flexible, talented in math, leader, good communicator, and well-organized [Schlee et al., 2007]).

Additionally, Moreno and Valdez sampled students with no prior knowledge of the content area. The present study utilized a sample of students familiar with the content area. The greater one's expertise is in a certain area, the greater is the working memory capacity for information in that area (Pitts, Ginns, & Errey, 2006). Thus, business students with prior knowledge should exhibit more efficiency in their construction of meaning from the causal model in an online learning environment. However, it should be noted that level of expertise is not viewed as a dichotomy (i.e., students are categorized as either expert or novice) in this study, rather expertise is viewed as a continuum ranging from novice to expert with many points in-between.

Method

This study is a replication and methodological extension of the 2005 study by Moreno and Valdez. This study employed a quantitative research design to replicate and extend the Moreno and Valdez research. Using a different discipline (i.e., business), causal model (i.e., business communication model), learner sample (i.e., familiar), and environment (i.e., online instruction system) from that used by Moreno and Valdez, the present study replicated this earlier study to examine whether dual code and interactivity principles are related and have an effect on learning and mental effort in a cognitive load condition. The following three experiments are based directly upon the Moreno and Valdez methodology.

Experiment 1

The purpose of Experiment 1 was to determine the impact of dual code and interactivity principles on learning and cognitive processing. The prediction was that learners in groups using words and pictures (WP) would have higher scores on both the retention and transfer tests and report lower levels of mental effort. Thus, Group WP was expected to experience higher levels of instructional efficiency. Second, groups using the interactive strategy (I) would outperform groups using the non-interactive strategy (NI) on both learning measures. In addition, since a basic assumption of cognitive load theory is that asking students to knowingly engage in the processing of new material results in germane load, load that is contingent on how much effort the learner supplies to figure out the instructional materials (Paas, Renkl, & Sweller, 2003; Paas, Tuovinen, van Merriënboer, & Darabi, 2005), Group I was predicted to report higher levels of mental effort than Group NI. Finally, no interactions are expected to occur between code and interactivity. According to the cognitive theory of multimedia learning (CTML), learning is promoted by dual coding regardless of whether the environment is interactive or non-interactive, and learning is promoted by interactivity from words and / or pictures (Moreno & Valdez, 2005).

Participants and Design

The participants consisted of 116 undergraduate students recruited from College of Business and Technology courses at a research university in the southern United States. The participants who agreed to take part in this study were junior and senior level students who possessed prior knowledge in the content area. All participants were screened for previous coursework and prior knowledge in general business. The screening process led to the removal of 16 students and left 100 participants to be assigned to one of six experimental conditions. There were 17 participants in the interactive, pictures (I-P) group, 16 participants in the interactive, words (I-W) group, 17 participants in the interactive, words and corresponding pictures (I-WP) group, 16 participants in the non-interactive, pictures (NI-P) group, 17 participants in the non-interactive, words (NI-W) group, and 17 participants in the non-interactive, words and corresponding pictures (NI-WP) group. Male students accounted for 53% of the participants while female students consisted of 47% of the participants. The mean age of the participants was 22.43 ($SD = 3.15$). Among the groups, there were no significant differences based upon gender or age.

Materials

For each participant, the electronic materials consisted of a subject questionnaire, a difficulty rating scale, a retention test, and a transfer test. The subject questionnaire solicited demographic information regarding students' gender, age, academic major, grade point average, number of online course taken in college, and previous knowledge of general business concepts. The level of business knowledge was assessed with the five-item knowledge checklist and five-item self-rating scale based on those used by Moreno and Mayer (2000).

The difficulty rating scale contained the following question followed by a 7-point rating scale (1 as very easy and 7 as very hard) and was intended to determine the student's perception

of learning difficulty: "How difficult was it for you to learn about the process of the business communication model?" The retention test contained the following instructions at the top of the screen: "In the text box below, please type an explanation of how the business communication model works." The transfer test consisted of the following four questions, each appearing on separate screens on the computer monitor: (a) "According to the business communication model, what must occur before a sender transmits a message?" (b) "According to the business communication model, what can be done to decrease channel noise?" (c) "Suppose the sender wants to encourage feedback. According to the business communication model, how might this be done?" (d) "According to the business communication model, how does the sender know when successful communication has occurred?" Figure 2 illustrates the communication process in business communications.
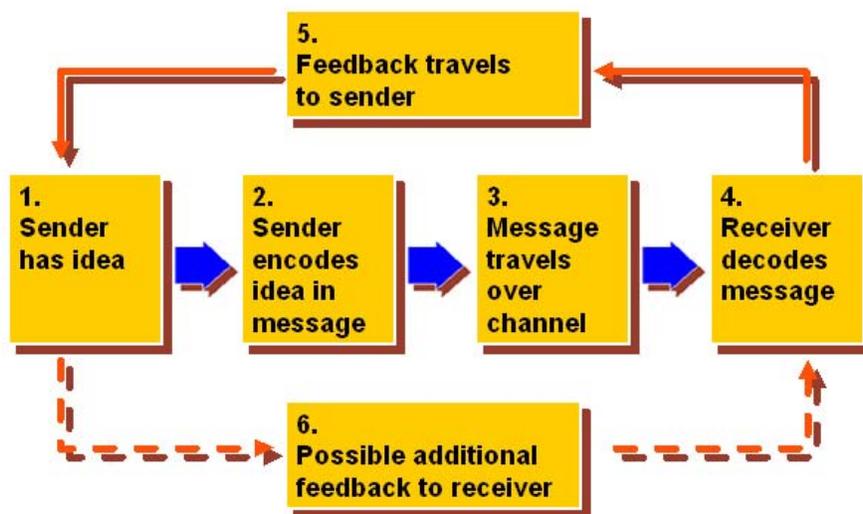
Figure 2. The communication process model in business communications (Guffey, 2004).

The multimedia presentations on how the business communication model process works consisted of six computer programs. The versions of the computer program corresponded to the aforementioned experimental conditions (I-P, I-W, I-WP, NI-P, NI-W, NI-WP versions). Each program consisted of a sequence of six frames illustrating the causal chain of events leading to the process of business communication (e.g., encoding, decoding, and feedback). The six frames represented these events either in pictures (P), words (W), or words and pictures (WP). After a short training session about dragging and dropping frames in the correct order, the three interactive groups (I) were presented with a random sequence of the six frames and given 4 minutes to organize them in the correct sequential order. Corrective feedback was given for each frame movement by displaying the word *Correct!* on top of the frame when it was successfully dragged and dropped in its place, or by returning the frame to the original position when wrongly placed. After the 4 minutes expired the six frames were shown in the correct order for 1 additional minute. Groups in the non-interactive condition (NI) were presented with an identical

program, except that the frames were presented in the correct sequential order for 4 minutes. On the computer screen, the P and W versions looked identical to the WP versions except that the bottom text or the top picture was deleted, correspondingly.

Procedure

Participants were randomly assigned to one of the six treatment groups, and placed in front of an individual computer system. After participants completed the electronic subject questionnaire, the computer indicated that it would now begin the presentation of how the business communication model works and that, when the program was over, participants would be questioned to determine how much they had learned. Next, the corresponding version of the program was presented once to all participants. When the presentations were finished, the computer program administered the difficulty-rating scale for students to complete at their own pace, the retention test to be completed within 5 minutes, and the four problem transfer test to be completed within 12 minutes (3 minutes for each question). Upon completing the program, the computer instructed participants to exit the room.

Scoring

A scorer (faculty in the College of Business) who was not aware of the treatment condition of each participant determined the business knowledge, difficulty, retention, and transfer scores. A second rater (faculty in the College of Business) scored a randomly selected subset of 20% of the tests. Agreement between both scorers was 100% on level of prior knowledge and difficulty, 87% on the retention test, and 89% on the transfer tests. Differences between the two scorers were solved by agreement.

Data Analysis

The data was analyzed using a multivariate analysis of variance (MANOVA) with code (P, W, or WP) and interactivity (I or NI) as between-subjects factors, and retention, transfer, and difficulty as dependent measures, to conclude if the treatment groups differed on the dependent measures. Data was screened for extreme or missing values, and statistical assumptions for MANOVAs were considered. Alpha was set at .05 when assessing tests of significance. Subsequent multiple two-way analyses of variances (ANOVA) were performed on each dependent variable (conducted as follow up test to the MANOVA), and pairwise comparisons were conducted using Tukey's HSD.

RESULTS

Experiment 1

Data Cleaning

Utilizing the demographic survey items in Table 3, participants were assigned a (1) for placing a check next to the item and a (0) for no placement of a check next to the item. Next, the demographic survey asked participants to circle the number that most closely indicated their knowledge of business concepts. The five-item scale ranged from 1 as very little to 5 as very much. Participants received between 0 and 5 points for the five-item knowledge checklist and between 1 and 5 points for the five-item self rating scale. A new aggregated variable labeled "priorknow" was created from the five-item knowledge checklist and five-item self-rating scale for each participant's level of prior business knowledge.

Table 2
Demographic Survey Five-item Knowledge Checklist

Demographic Survey Knowledge Checklist
_____ I regularly read business articles in magazines and newspapers.
_____ I know what business is.
_____ I can explain the scope of business activity.
_____ I know the methods for solving business problems.
_____ I know the characteristics of management, finance, marketing, and accounting.

Two procedures were used to exclude participants that lacked substantial prior knowledge of business concepts from the data set. The first procedure was the assessment of general business pre-requisites required in order for students to enroll in the business courses that served as the sample population. If students were permitted to enroll in a business course, but did not have the normally required pre-requisites they were removed from the study. Using the first procedure, 9 participants were excluded from the data set. The second procedure utilized the scores from the "priorknow" variable. If participants received a score of 3 or less, 1 standard deviation below the mean of 6.45, they were removed from the data set. Using the second procedure, 7 participants were excluded. In total, the data of 16 participants was removed from the data set and not used in any analyses.

Descriptive Statistics

The demographic descriptive statistics for the 100 students who participated in this study will be outlined in this section. The demographic data displayed the following tendencies. Male students accounted for 53% of the participants while female students represented 47% of the participants. The mean age of the participants in Experiment 1 was 22.43 years, with a standard deviation of 3.15 years. Participants ranged in age from 19 years to 43 years. The plurality of the participants (44%) was general business and management information systems majors. The

remaining participants majored in business disciplines that included marketing and management (38%) and accounting, economics, and finance (18%). The mean grade point average (GPA) was 3.04. The mean number of online courses taken by participants was 3.74. The mean level of prior business knowledge was 6.45.

The data were analyzed using a multivariate analysis of variance (MANOVA) with code (P, W, or WP) and interactivity (I or NI) as between-subjects factors, and retention (rettest), transfer (transfer), and difficulty (difscale) as dependent measures, to conclude if the treatment groups differed on the dependent measures.

Retention (retest) scores for each participant were computed by counting the number of major idea units that the participant produced on the retention test, with possible scores ranging from 0 to 6, with a mean 4.64 and a standard deviation of 1.32. A score of 0 indicated no successful student response on how the business communication model worked, and a score of 6 indicated a correct response, including all six major idea units, on how the business communication model worked. Transfer (transfer) scores for each participant were computed by counting the number of acceptable answers that the participant submitted across the four transfer problems, with possible scores ranging from 0 to 4, with a mean 2.43 and a standard deviation of 1.08. A score of 0 indicated no successful student response to any of the four transfer questions, and a score of 4 indicated a correct response to all four transfer questions. Difficulty (difscale) scores for each participant were reported on a continuous scale, with possible scores ranging from 1 to 7, with a mean 2.06 and a standard deviation of 1.27. A score of 1 indicated that it was very easy for the student to learn about the process of the business communication model, and a score of 7 indicated that it was very hard for the student to learn about the process of the business communication model. Table 3 contains the Mean and Standard Deviation for the post-measures by condition (I-P, I-W, I-WP, NI-P, NI-W, and NI-WP).

Table 3
Descriptive Statistics for Code (P, W, WP) and Interactivity (I, NI) Variables- Experiment 1

Group	N	M	Retention SD	M	TransferSD	M	Difficulty SD
I-P	17	4.24	1.48	2.41	1.28	2.88	1.83
I-W	16	4.88	1.59	2.44	.96	2.31	1.14
I-WP	17	5.59	1.00	2.59	1.23	1.53	.62
NI-P	16	4.06	.68	2.19	1.05	2.19	1.17
NI-W	17	4.76	1.20	2.35	.86	1.59	.87
NI-WP	17	4.29	1.31	2.59	1.12	1.88	1.27

HYPOTHESIS AND RESEARCH QUESTIONS

Several questions guided this research that led to the data collection. In this section, the data collected on the post-measures will be used to analyze the following questions. The data was analyzed using a multivariate analysis of variance (MANOVA) with code (P, W, or WP) and interactivity (I or NI) as between-subjects factors, and retention, transfer, difficulty as dependent measures to conclude if the treatment groups differed on the dependent measures.

Data was screened for extreme or missing values, and statistical assumptions for MANOVAs were considered. Alpha was set at .05 when assessing tests of significance. The scores were analyzed using the Statistical Package for the Social Sciences (SPSS).

The MANOVA revealed significant differences among the code groups, F (6, 184) = 2.19, $p < .05$, and between the different interactivity groups, F (3, 92) = 2.71, $p = .05$, on the dependent measures. There were no significant interactions between code and interactivity.

Research Question 1: Do students with prior business knowledge construct better models of causal systems when they are presented with two representation modes rather than one in an online learning environment?

Using retention as a dependent measure, subsequent multiple two-way analyses of variance (ANOVA) revealed a significant main effect for code, F (2, 94) = 3.88, $p < .05$. Although the ANOVA showed that the means were significantly different, the effect size was small to modest. The partial Eta squared was .076, which means that code by itself accounted for only 7.6% of the overall variance. A successive Tukey HSD procedure indicated that only the group means for Group WP and Group P were significantly different from each other.

Successive multiple two-way analyses of variance (ANOVA) also revealed a significant main effect for code on difficulty, F (2, 94) = 4.13, $p < .05$. While the ANOVA confirmed that the means were significantly different, the effect size was small to modest. The partial Eta squared was .081, which means that code alone accounted for just 8.1% of the overall variance. The results for this analysis are presented in Table 8. Group mean difficulty scores demonstrated an inverse pattern to that of retention mean scores, with Group P mean difficulty scores higher than Group W, and Group W mean difficulty scores higher than Group WP on assessment of how difficult the causal model was to learn (*M*s = 2.55, 1.94, and 1.71; *SD*s = 1.56, 1.06, and 1.00 for the P, W, and WP groups, respectively). However, the Tukey HSD procedure indicated that only the group means for Group P and Group WP were significantly different from each other. In addition, subsequent multiple two-way analyses of variance (ANOVA) revealed no significant effect for code on transfer, F (2, 94) = .61, $p > .05$.

Thus, Group WP and Group W had the highest instructional efficiency for retention. Group P demonstrated moderately higher cognitive load and lower performance on difficulty and retention, a situation reflecting minimal instructional efficiency and meaningful e-learning.

Research Question 2: Do students with prior business knowledge construct better models of causal systems when an online learning system prompts them to organize the causal chain themselves rather than when the materials are pre-organized?

Using retention as a dependent measure, subsequent multiple two-way analyses of variance (ANOVA) revealed a significant main effect for interactivity, F (1, 94) = 4.43, $p < .05$. While the ANOVA showed that the means were significantly different, the effect size was small to modest. The partial Eta squared was .045, which means that interactivity alone accounted for just 4.5% of the overall variance. Mean retention scores showed that Group I had higher scores

than Group NI (*M*s = 4.90 and 4.38; *SD*s = 1.46 and 1.12 for the I and NI groups, respectively). Thus, Condition I had the highest instructional efficiency for retention, and Condition NI had lower performance on retention, a situation reflecting a lesser amount of instructional efficiency and meaningful e-learning. Successive multiple two-way analyses of variance (ANOVA) revealed no significant main effect for interactivity on transfer, $F (1, 94) = .22$, $p > .05$. The results for this analysis are presented in Table 10. Additionally, subsequent multiple two-way analyses of variance (ANOVA) revealed no significant effect for interactivity on difficulty, $F (1, 94) = .2.15$, $p > .05$.

DISCUSSION

The purposes of this study were focused around two areas of inquiry. First, the goal was to examine the relationship between cognitive load and learning effects of dual code and interactivity, two multimedia principles intended to promote meaningful e-learning. The second goal was to replicate and extend the study by Moreno and Valdez (2005), in which the same variables were explored in a different discipline (i.e., meteorology), learner sample (i.e., unfamiliar), and environment (i.e., traditional).

Experiment 1

There were two primary questions that guided Experiment 1. First, do students with prior business knowledge construct better models of causal systems when they are presented with two representation modes rather than one in an online learning environment? The multivariate analysis of variance (MANOVA) revealed significant differences among the code groups on the dependent measures. Further investigation of instructional efficiency and cognitive load, using multiple two-way analyses of variances (ANOVA) and post hoc tests, confirmed that the group using words and pictures (Group WP) had higher instructional efficiency for retention than the group using only pictures (Group P). The group using only pictures (Group P) demonstrated moderately higher cognitive load on difficulty and lower performance on retention, a case of low instructional efficiency and meaningful e-learning. Thus, contrary to the aforementioned predictions regarding Experiment 1, the findings revealed that students learn equally well when the instructional materials offer two representation codes (i.e., word and pictures) or words only, as a result of the relatively higher performance attained with relatively lower cognitive load. However, when instructional materials only present pictures cognitive load increases and instructional efficiency decreases. The findings contradict what Moreno and Valdez found in terms of the differences between code and retention. Further, the current findings revealed significant differences between difficulty and code and failed to reveal any significant difference between code and transfer.

The second question that guided Experiment 1 asked whether students with prior business knowledge construct better models of causal systems when an online learning system prompts them to organize the causal chain themselves rather than when the materials are pre-organized. The multivariate analysis of variance (MANOVA) showed significant differences between the

different interactivity groups on the dependent measures. Further investigation of instructional efficiency and cognitive load, using multiple two-way analyses of variances (ANOVA), confirmed that the interactive group (Group I) had the highest instructional efficiency for retention. The non-interactive group (Group NI) demonstrated moderately lower performance on retention, a case of low-instructional efficiency and meaningful e-learning. Thus, consistent with the interactivity hypothesis, the findings from Experiment 1 revealed that students learn best when the instructional materials present them the opportunity to make rather than take meaning (i.e., self-organization techniques) in the multimedia program, as a result of the relatively higher performance attained. In addition, students' difficulty ratings were higher for I conditions than for NI conditions, which may possibly reflect a basic assumption of cognitive load theory, that asking students to knowingly engage in the processing of new material results in germane load, load that is contingent on how much effort the learner supplies to figure out the instructional materials (Paas, Renkl, & Sweller, 2003; Paas, Tuovinen, van Merriënboer, & Darabi, 2005).

The findings were not consistent with what Moreno and Valdez found in terms of the differences between interactivity and retention and interactivity and transfer. However, there were several differences between the Moreno and Valdez (2005) study and the present study.

Thus, the utilization of a different learner sample (i.e., familiar), discipline (i.e., business), and causal model (i.e., non-scientific, business communication model) uncovered that students demonstrate higher learning efficiency in groups presented with interactivity (e.g., self-organization techniques). In addition, the differences between the Moreno and Valdez study and the present study may have lead to non-significant differences between interactivity as related to transfer scores.

FUTURE RESEARCH

This study sought to examine the cognitive load and learning effects of dual code and interactivity, two multimedia principles intended to promote meaningful e-learning, in an online learning environment within the discipline of business. In addition, this study attempted to extend the findings of a previous study conducted by Moreno and Valdez (2005). This study produced a combination of findings that varied somewhat from those of Moreno and Valdez. The most notable difference was found in Experiment 1 pertaining to the interactivity hypothesis. The interactivity hypothesis supported in the present study is derived from the cognitive theory of multimedia learning (CTML) and predicts that students learn better when they have the chance to make rather than take meaning. Moreno and Valdez (2005) believed that their interactivity hypothesis was not supported because their self-organization technique proved to hurt students' learning because it lacked appropriate feedback. Moreno and Valdez felt that this was especially important in the consideration of novice learners such as those used in their study, because they may have lacked the necessary schemas to direct them in the process of making meaning (Clarke, Ayres, & Sweller, 2005; Kalyuga & Sweller, 2005). However, based upon cognitive load theory, the present findings suggest that perhaps the previous study applied levels of intrinsic cognitive load that were too high to allow novice learners to make meaning (i.e., germane cognitive load). Thus, based on the current findings and careful examination of the study by Moreno and Valdez, it appears that the different type of learner (i.e., college students

who were familiar with business concepts), discipline (i.e., business), and causal model (i.e., non-scientific, business communication model) used in the present study may presumably have affected the results. However, further research is needed to examine the multimedia principle of interactivity (i.e., self-organization technique) with more than one kind of learner. In addition, a learner-centered approach, such as the self-organization technique used in this study, where students actively participate in the learning process raises another question as to which type of students respond well to learner-centered approaches. Recent research suggests that the largest and most diverse generation thus far, known as Millennials, respond well to learner centered approaches (Huba & Freed, 2000). Millennials (1982-2002) have been raised in a technology-driven world that seems virtually limitless. Their exposure to computers, Internet, cell phones, MP3 players, and more has changed the landscape of today's communication. The multi-tasking characteristics distinctive to this group could also have numerous implications for instructional design. Thus, future research in the area of cognitive load and the cognitive theory of multimedia learning (CTML) should address the characteristics and learning styles of the latest generation of college students.

In addition, the present study yielded mixed results with regard to the dual code hypothesis. Contrary to previous predictions, the findings revealed that students learn equally well when the instructional materials offer two representation codes (i.e., word and pictures) or words only, as a result of the relatively higher performance attained with relatively lower cognitive load. However, when instructional materials present pictures only cognitive load increases and instructional efficiency decreases. The findings contradict what Moreno and Valdez found in terms of the differences between code and retention. However, because the study was limited to only one type of learner future research is needed to investigate the multimedia principle of dual code with more than one kind of learner (i.e., familiar versus unfamiliar). In addition, appropriate levels of intrinsic, extraneous, and germane cognitive load should be considered with regard to learner expertise and content domain.

CONCLUSION

In conclusion, multimedia environments have the potential of promoting meaningful e-learning by varying the degree of student interactivity. The present study reinforces the importance for instructional designers to consider the type of learner and learning environment as a way to help students meaningfully process information. On the practical side, the present study provides an effective method that instructional designers may employ in the design of materials to be used in online learning environments. The results of this study provide stimulating questions to be answered by future empirical research specifically in the areas of interactivity and feedback in online environments with students of varying levels of expertise. In addition, the principles relative to cognitive load and the cognitive theory of multimedia learning (CTML) should assess whether current recommendations are applicable to various learning styles.

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CONNECTING WITH STUDENTS THROUGH FACEBOOK: THE IMPACT OF CREATING A SOCIAL MEDIA MARKETING PLAN FOR ACADEMIC LIBRARIES

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ABSTRACT

The expansion of technology in academic libraries and the decrease in physical items needed or available reveals the movement toward service-based organizations, where marketing and reaching out to users through social media may be useful in order to stay relevant for college students. This analysis examines the impact of integrating a marketing plan focused on social media in academic libraries, and explores the idea of marketing and outreach becoming more of a necessity as academic libraries transition to service-based organizations. Examining the current library trends indicates an opportunity for academic libraries to better cater to the needs and wants of users through developing marketing plans. Although marketing plans are generally associated with for-profit businesses, the basic components can be applied to non-profit organizations, and specifically academic libraries. Social media, and especially Facebook, may act as a promotional and communication tool to connect with students. After reviewing the benefits of using Facebook in an academic library setting including communication, cost effectiveness, and brand awareness, as well as the negative aspects including negative attitudes, time, and communication challenges, it is evident that integrating Facebook into a marketing plan within an academic library is an achievable goal. Success is dependent on several key factors including training staff to effectively use Facebook, making sure enough time is given to develop the page, and continually finding ways to best connect with students in a reliable, convenient way. Flexibility and adaptation are also necessary in staying current with college students, as social media is constantly changing and improving.

INTRODUCTION AND BACKGROUND

As technology changes and develops, academic libraries face decisions regarding marketing and outreach to students (ACRL, 2012). Today's library is about more than just physical books and items available. Many items such as journal articles, newspapers, and statistics are now available online through databases and may be accessed with minimal effort. Search engines such as Google provide access to almost unlimited amounts of information.

Libraries, and the information available to its users, have changed significantly over history (ACRL, 2012).

The expansion of technology in academic libraries and the decrease in physical items needed or available reveals the movement toward service-based organizations, where marketing and reaching out to users through social media may be useful in order to stay relevant for college students. For the purposes of this analysis, it is important to review the definition of service organizations. The service sector within a business context includes individuals and businesses that produce services instead of physical goods (Scott, 2009). Within the United States, the service sector includes education, finance, communications, health care, and many other fields (Scott, 2009). Because libraries are beginning to offer more services rather than physical items for students, academic libraries fall under the definition of the service sector. This change poses several questions including: How would the integration of a marketing plan focused on social media impact academic libraries? Is marketing and outreach becoming more of a necessity as academic libraries transition to service-based organizations?

In order to answer these questions, this analysis will look at current academic library trends, define a marketing plan, and discuss connections of a marketing plan with the trends in academic libraries. Next, the use of social media, with a focus on Facebook, will be discussed for college-age students, as well as how Facebook can specifically be applied to marketing plans. Positive and negative effects of Facebook usage on academic libraries and specific examples will be provided. Finally, implications and conclusions will be drawn based on the research provided.

CURRENT ACADEMIC LIBRARY TRENDS

Examining the current library trends will reveal the direction that the library is headed in the future. Some of the major relevant trends include the expansion of information technology, user behaviors and expectations, changes or cuts in library budgets, and the movement toward libraries becoming mostly service-oriented organizations (ACRL, 2012).

The first trend deals with an expansion of information technology. Students constantly desire to have access to information through social media and technology at any time or place (ACRL, 2012, p. 313). In a 2011 study of undergraduates, results found that 55% of undergraduates own smart phones, 62% own iPods, 21% have a tablet. Over two thirds of these undergraduates use these items for academic reasons. In addition, 59% use these items to get information online, and 24% access library resources (ACRL, 2012, p. 314). The majority of students have technology that enables them to access library materials online, with about one fourth of these undergraduates using these devices to access materials available from library websites (ACRL, 2012, p. 314). Another technological trend that is affecting libraries is the increased usage of smart phones. 52% of smart phone owners are 18-29, and 28% of users utilize their smart phones for most of their online activity (Smith, 2011, p. 6, 14). As students are

moving further toward accessing materials online, libraries are developing new ways to cater to students' needs in the future.

Another trend faced by academic libraries focuses on user behaviors and expectations. Convenience plays a major role in the study usage of library materials and in looking for information. The current challenge for libraries is to provide immediate information and sources for research in order to compete with more convenient search engines such as Google (ACRL, 2012). Students need librarians to be more available through social media, chat and text services, as these are mediums that students use most often. Because students use more technological devices, libraries are finding it necessary to provide better access to their collections and services to students (Breeding, 2012). Mathews explains, "The process begins when we stop pretending that we know what students want and instead genuinely attempt to understand their needs and preferences – and speak to them in their language" (2009, p. 2).

An additional trend that is affecting academic libraries is the significant changes or cuts in library budgets. Just as the United States' economy has been suffering, the overall library economy also is affected by major budget cuts that may never be completely restored (Breeding, 2012) Academic libraries continue to reduce hours, decrease purchases of books, journals and other materials, and also may be forced to lay off staff members (Mantel, 2011). A combination of the economic recession of 2008 and less funding from the federal level led to cuts in budgets (Bosch, 2011). During that time period and up until now, serial prices continue to increase at an alarming rate. Serial prices increased by six percent in 2012, compared to the 2.9 percent increase in the Consumer Price Index (Bosch, 2012). This shows that serials inflation goes far above general price inflation. In a survey conducted in February 2012, 69 percent of libraries reported that their budgets for the year remained the same or decreased (Bosch, 2012). Because of increased prices, many librarians have to cut programs or eliminate the availability of serials to online or print only (Bosch, 2011).

A final important trend in the world of academic libraries is the movement toward becoming mostly service-oriented organizations. Within the past several years, many articles and books focus on the topic of marketing within an academic library. The movement from physical books and materials to eBooks and journal articles found through online databases demonstrates a change in the focus of the academic library, especially as students' needs change as well. As of 2010, 21% of college students demand an increase in customer service, while 29% of students request that services be added or updated (OCLC). More often, students need guidance to find credible information. 43% of students recognize that information from libraries is more credible than from search engines, however, 83% of students begin their information search on search engines (OCLC, 2010). Search engines such as Google Scholar also often limit what access is available to informational articles. For example, an article found on Google Scholar may cost $20 to access, while it may be accessed through a library database for free. As books are becoming less prominent in libraries, the service of helping students find credible and trustworthy sources of information becomes more important.

These current library trends indicate a movement of academic libraries toward service-based organizations where reaching out to users through the use of technology is becoming more important. Creating a marketing plan provides an opportunity for academic libraries to better cater to the needs and wants of users.

DEVELOPING A MARKETING PLAN

A marketing plan should fit in with the strategic plan of the organization as a whole. Once an organization has established a strategic plan and analyzed the environment, then a marketing plan may begin to take form. A marketing plan consists of situation analysis, market segmentation, selecting a market strategy or strategies, and finally analyzing the market mix of the decision (Bangs, 1998).

In the case of an academic library, a marketing orientation is best defined as "the adoption by an organization of a customer focus" (Robinson, 2011, p. 6). Creating a customer focus and truly becoming market oriented requires the establishment of a marketing plan. A marketing plan not only creates a customer focus, but also becomes integrated into the overall strategic planning process (Robinson, 2011). Rowe explains that marketing "entails a process of creating an effective exchange relationship between the products and services of a library and its current and potential users" (2009, p. 37).

The first step is to examine the environment through situational analysis. It is important to realize that the environment affects the success of marketing programs within an organization (Rowe, 2009). Situation analysis evaluates the organization, customers, competitors, and the external and internal environment (Bangs, 1998). This begins by looking at the specific goal and analyzing the individual products and services offered (Bangs, 1998). Next, the customers are evaluated to discover how they perceive the organizations' value of products and services. This is important because an organization must know how products or services are perceived in order to make the good marketing decisions (Bangs, 1998). Competitors are also evaluated in order to learn about their strengths and weaknesses, as well as find a way to hold the competitive advantage (Bangs, 1998). The assessment of the external environment looks at political, economic, social, and technological aspects and the positive or negative impacts on the organization. An assessment of the internal environment within the organization provides a clear picture of the organization's current position and ways in which it can improve. The SWOT analysis technique assesses the internal strengths and weaknesses, as well as the existing external opportunities and the threats faced (Rowe, 2009). The environmental analysis provides an overview of what is happening within and outside of the organization, which in turn aids in defining specific marketing strategies.

Once the external and internal environments of the organization are assessed, market segmentation may take place. This can be the most controversial and difficult part of the plan, because it requires identifying specific customers that will most likely respond to the

organization's products or services (Rowe, 2009). The market may be split based on geographics, psychographics (a customer's inner-feelings and tendency to behave in certain ways), or demographics such as age, gender, income-level, occupation, and so on (McDonald, 2009). In the case of academic libraries, sample segments may consist of first generation college students compared to other students, faculty compared to students, or segments comparing students based on years in college (Rowe, 2009).

The next step is to develop a marketing strategy based on looking at the situational analysis and market segmentation. Once a strategy is chosen, the marketing mix is analyzed, which includes product/service, price, place, and promotion (Bangs, 1998). Products and services are analyzed for their benefits to customers as well as perceived value. Pricing strategy is evaluated, especially focusing on market penetration and the market's sensitivity to price changes. Place is analyzed based on location, physical or virtual, of the organization. Finally, promotion is examined for advertising, public relations, promotional programs, and the budget for marketing related expenses (Bangs, 1998).

Although marketing plans are generally associated with for-profit businesses, these basic components can be applied to non-profit organizations, and specifically academic libraries (Rowe, 2009).

CONNECTIONS OF MARKETING PLAN WITH ACADEMIC LIBRARIES

Marketing within the setting of an academic library is not a new concept. However, the idea has faced criticism mostly from librarians. In order to show the current use of marketing in academic libraries, this section will discuss the past and present uses of marketing compared to the business marketing plan, the obstacles and challenges faced by developing a marketing plan, and current marketing plans present in academic libraries.

There has been an increased interest in marketing within academic libraries, especially after the International Federation of Library Associations and Institutions developed a new section on Management and Marketing in 1997 (Parker, 2007). Many academic libraries have started to use marketing techniques, but can their objectives and goals be considered part of a marketing plan? According to Parker, very few libraries have reached a marketing orientation, as marketing is viewed as a set of tactical activities instead of part of the overall strategic perspective. Also, marketing is seen as having an external and competitive focus, which according to some librarians is not appropriate in an academic library environment (Parker, 2007).

Marketing techniques and strategic plans are often interconnected, and marketing strategies are developed, but without necessarily following the structure of a marketing plan. For example, the George T. Harrell Health Sciences Library outlined a new mission and core values. The library also completed a SWOT analysis and developed a five-year strategic plan. However, the library did not follow a marketing plan, but instead merely developed a few marketing

strategies (Robinson, 2011). Rowe and Britz provide a more detailed framework for developing a marketing plan directly related to academic libraries. The components of a marketing plan according to Rowe and Britz include a statement of mission, situational analysis, market analysis and segmentation, developing a marketing strategy, and analyzing the marketing mix (2009). The marketing mix is defined using the 4C's instead of the 4P's: customer value, convenience for the user, cost to the user, and communication (2009). The 4C's appear to cater more toward service-based organizations, rather than businesses that primarily market products. However, there are many similarities between the two concepts. For example, customer value corresponds to product and cost to the user corresponds directly with price. Convenience and communication cater more specifically to services rather than products, but correlate directly to place and promotion. The 4C's provide a model of the marketing mix that directly relates to marketing plans for libraries, but it appears to be one of the few articles available on the subject.

When developing a marketing plan, academic libraries face challenges and obstacles, especially as this is a fairly new idea to be applied in a library setting. One major obstacle is pushing past librarians' attitudes toward introducing marketing into an academic library setting. Many librarians do not fully support the idea of marketing and also do not have an understanding of what marketing involves (Parker, 2007). In a study of librarians from different settings, the college and university libraries had the lowest positive marketing attitudes compared to public, school, and special libraries (Parker, 2007). Another barrier is librarians viewing staff expertise to be more important than students' perceived needs. In this case, librarians develop more of a selling orientation rather than a marketing orientation (Parker, 2007). Lastly, most librarians do not have a business background, so have a limited involvement with and understanding of marketing (Parker, 2007). Because of these obstacles, libraries have not fully embraced using a marketing plan as a tool to better serve students' needs.

Within a marketing plan for academic libraries, one promotional or communication tool that may be used is Facebook and social media. Before applying Facebook to the use of a marketing plan within an academic library, it is important to examine the current trends in social media usage, especially for college-age students.

THE USE OF SOCIAL MEDIA AND FACEBOOK BY COLLEGE-AGE STUDENTS

The use of social media by college students has significantly increased over the past several years (Rosa, 2010). In recent years, social media has begun to be interconnected with social networking because of the blend between sites such as Facebook and Twitter with media such as YouTube. Social networking sites including MySpace, Facebook, and Twitter provide students with the ability to communicate with others through the medium of the Internet. Social networking may best be defined as, "web-based services that allow individuals to construct a public or semipublic profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others

within the system" (BRASS, 2011). In essence, students connect with other users, which usually consist of family, friends, or acquaintances, and may even include businesses or groups. Over the past several years, there has been a significant increase in the usage of social media, especially for college-aged individuals. It is essential to explore the trends in social media, as well as introduce Facebook as a medium for use in a marketing plan.

One of the major trends includes using social media for academic purposes. In a study completed by California State University San Marcos (CSUSM), results found that 90% of students that had both a MySpace and Facebook page used it to communicate with other individuals about classes, school, or professors (Chu, 2008). This recent trend indicates that college students do not merely use social networking for personal reasons, but also for coursework.

Another trend includes that social media is used by businesses as a way to reach out to the community. Khan (2012) states that social media allows businesses and organizations to inform individuals in the community with information they need through a very convenient and accessible medium. Individuals that may not actively seek out information are instead provided with an easier way to find answers. Mansfield (2012) adds that if an organization does not have a presence on a social networking site such as Facebook, then it is virtually nonexistent with the hundreds of millions of people that utilize the site worldwide.

A final important trend to note is the movement toward using social media from mobile devices. With the huge increase in the ownership of smartphones, more often individuals are utilizing mobile social networking tools, location-based communities, or photo-sharing applications (Mansfield, 2012). Because of this, organizations are beginning to modify outreach to include marketing to individuals through mobile applications. For example, more people on Facebook use the site from mobile devices than desktops. Facebook also has a location-based service that was launched in 2012 where users can check in their smartphones to indicate where they are located (Mansfield, 2012). Morgan Stanley analysts predict that mobile internet users will outnumber internet desktop users by 2015, numbering up to 1.6 billion users (Meeker, 2010).

One of the most popular social networking sites is Facebook. Following are some of the reasons why Facebook is appropriate for use in a marketing plan within an academic library setting. These reasons include Facebook's outreach to users around the world, the trends in demographics, and the way that individuals utilize Facebook.

Since launched in 2006, Facebook now reaches over one billion monthly active users (One Billion, 2012). The site has also expanded to mobile users. As of September 2012, 600 million Facebook users accessed the site through mobile devices (One Billion). As a result, Facebook now reaches more individuals than any other social networking site. The Pew Research Center found that 92% of social networking site users are on Facebook, which is an overwhelming majority (Rainie, 2011). Of these users, about 52% utilize the site every day. Over time, the median age of Facebook users has decreased from 26 in August of 2008 to 22 in

September of 2012 (One Billion), which indicates that the majority of users fall into the category of college-age individuals. More specifically, according to a current Gallup poll, 73% of adults ages 18-29 have a Facebook page (Morales, 2011). It is evident from these statistics that many college students use Facebook to stay connected to others, often using the site daily.

Now that it is evident that college-age individuals utilize Facebook often, the question remains about how Facebook is utilized. In a normal day, 15% of Facebook users update their status, 22% comment on another's status, 20% comment of photos uploaded by users, 26% "like" others' content, and 10% send private messages (Rainie, 2011). This indicates that students utilize Facebook for a variety of reasons, which shows that there are many ways that libraries can connect with students and market services.

THE APPLICATION OF FACEBOOK TO MARKETING PLANS IN AN ACADEMIC LIBRARY SETTING

Now that the current trends in social media and specifically Facebook have been discussed, it is important to investigate how Facebook can be applied to a marketing plan, especially within an academic library setting. This section will discuss how Facebook can be applied to the marketing plan described previously, within the categories of situation analysis, market segmentation, selecting a market strategy, and finally analyzing the market mix of the decision.

The first aspect of a marketing plan is completing situational analysis through the use of SWOT and PEST analysis to examine the external and internal environment. An academic library may look specifically at the internal strengths and weaknesses of using social networking, as well as opportunities and threats provided by this specific technology. For example, the previous examination of trends in social media revealed a movement toward individuals utilizing Facebook in an academic setting. Also, because of Facebook's widespread popularity, this may indicate a great opportunity for academic libraries. However, there may also be threats such as the time and knowledge needed to keep up with current technology trends, as well as other networking sites such as Twitter that provide competition to Facebook. It is also important to investigate the role of the library as a whole as related to the environment. According to Woodward (2009), this includes how the library fits into the academic community, the attitudes of the college administration toward the library, and the needs of users. PEST analysis examines political, economic, social, and technological aspects, which are important to think about in relation to the use of social media within a library. Environmental conditions are important to analyze in order to give a clear picture of the library and its surroundings, as well as provide a picture of the future, and what challenges the library may face (Woodward, 2009). Libraries may also examine the social media accounts of other similar libraries in order to see what types of posts are successful, how often people post on their wall, and how many fans or followers the library has (Petit, 2011).

Facebook may also be incorporated into market segmentation. Besides examining geographics, psychographics, and demographics, a library specifically may examine the usage of Facebook or social media and openness to connecting with the library for academic purposes, as well as information literacy skills (Rowe, 2009). An academic library may subdivide the market into categories based on the diverse needs of beginning undergraduate students, graduate students working on dissertations, faculty members, and community members (Woodward, 2009). Determining what users need will help to provide the most useful content. For example, Mathews (2009) recommends to not just create a storefront to sell library products, but instead to integrate helpful library staff into the social network in order to respond and promote library services as students need them. Defining a specific market segment helps to focus the content and specific goals and objectives of the Facebook page. According to current social media trends discussed previously, the market segment that may be most successful for Facebook is focusing on undergraduate students, especially within their first year.

Once a specific market segment is chosen, then the academic library may define a market strategy. Within the overall market strategy, Facebook may be used as a promotional and communicational tool with students by promoting library services, reaching a certain level of "likes", increased usage of library products such as databases, and many others. Other specific objectives could include encouraging and facilitating the participation of users in the services offered by the library, improving user experience, increasing the visibility and positive image of the library (Mathews, 2009). Also involved in developing Facebook as a promotional tool within a marketing plan is deciding who will be responsible for the social media outreach as a whole or how tasks will be divided, what tools will best be utilized to fulfill objectives, and managing the online communication with users (Romero, 2011). However, within an academic library setting, marketing components should be flexible, especially with the rapid development of technology (Romero, 2011).

Finally, the marketing mix is analyzed once Facebook or social media presence is established and tactics are evaluated for their effectiveness. The marketing mix is defined by businesses as the 4Ps, which consist of product, price, place and promotion. However, in nonprofit organizations and specifically libraries, another definition of the marketing mix consists of the 4Cs, which include customer value, convenience for the user, cost to the user, and communication. Within a marketing plan focused on utilizing Facebook, customer value may be evaluated through surveys and specifically examining what type of social media users currently use as well as what the users are currently saying about the library and social media (Petit, 2011). Convenience for the user may be examined by looking at students' views on social media within a library setting and how the social media will make student requests and questions easier and more convenient to answer (Petit, 2011). Facebook has no cost to the user, which makes it a good option in this category. Finally, if Facebook is utilized effectively then communication will be improved between students and librarians (Petit, 2011).

A marketing plan provides a framework for the adoption of Facebook into the academic library. Going through the process to create a marketing plan helps to provide a written plan to follow in order to fulfill objectives and tasks in an organized way, as well as provide a continual reminder of the market strategy (Romero, 2011). However, flexibility is crucial as technology constantly changes and academic libraries may find more effective ways to reach out to students.

POSITIVE EFFECTS OF FACEBOOK USE ON ACADEMIC LIBRARIES

After reviewing the use of Facebook specifically in marketing plans for academic libraries, it is evident that using social media provides both positive and negative impacts on the academic library as a whole. Facebook usage positively affects libraries through increasing communication with students, providing a cost effective way of marketing available services, and increasing brand awareness.

Communication

One benefit of using Facebook within a marketing plan for an academic library is increasing communication between librarians and students. Chu (2008) explains that social networking sites allow students a more convenient and less risky way to ask librarians for help. Librarians also become more visible, approachable, and relatable to students (Mathews, 2009). Facebook can act as an extension of the library webpage rather than a substitute, which allows students to access the same information, but from a site that they are more comfortable with (Mathews, 2009). Adding a Facebook page may also strengthen ties between librarians and students, as well as establish new connections (Chu, 2008). Marketing goes far beyond advertising, as students often look for authenticity and content right at the time they need it, which is another positive impact of utilizing Facebook within academic libraries (BRASS, 2011).

Cost Effectiveness

An additional benefit of Facebook is that it is a cost effective marketing tool. Any library can easily create a Facebook account at no cost besides staff time to maintain the site, and the technology is easy to use (Petit, 2011). Facebook advertisements may also be used as another marketing tool at a low-cost and effective approach at targeting specific market segments (Chu, 2008).

Brand Awareness

Another positive impact of utilizing Facebook is increasing brand awareness and establishing an online presence that relates to college students. Social networking sites such as

Facebook may be used as a way to promote library services and events, as well as establishing a known image or brand for the library (Chu, 2008). Additionally, Facebook can easily be integrated with other marketing tools such as e-mail, newsletters, and websites (BRASS, 2011). Libraries can also utilize Facebook to promote certain available services. For example, The University of Michigan Libraries at Ann Arbor developed a catalog application along with a JSTOR database search tool (Mathews, 2009). Other apps that may be used for Facebook include note-sharing software, group project planning tools, and citation tools (Mathews, 2009). Although academic libraries have a captive audience, it is important to retain interest and further connect to students.

One example of social media success within libraries is the New York Public Library menu project. In April 2011, the library began recruiting volunteers to help upload 10,000 menus digitally from its historical restaurant menus collections to make the menus searchable through the catalog. The project was promoted only through social media sites such as Facebook and Twitter. After 3 months, volunteers were able to transcribe over 450,000 dishes from 8,500 menus (Petit, 2011). This is one of the best examples of how a library can utilize social media to promote library services or projects.

NEGATIVE EFFECTS OF FACEBOOK USE ON ACADEMIC LIBRARIES

Although there are many positive impacts of establishing a social media presence through Facebook in an academic library setting, librarians face several challenges and negative effects. The most significant challenges include overcoming the negative attitudes of librarians, the time needed to implement and continually update social media, and being able to successfully connect with students.

Negative attitudes

One of the major challenges currently faced by libraries is overcoming the often negative attitudes that library staff have toward marketing and social media within the context of the library. Marketing is not a new concept within an academic library setting, but very few libraries have fully achieved a marketing orientation that involves creating a detailed marketing plan (Parker, 2007). One quote that best summarizes the negative attitudes explains:

> All too often the concept of marketing leaves a bad taste in the mouths of librarians. We associate it too much with for-profit institutions, the process of making money for money's sake, and the efforts to convince people to use unneeded services or products. (p. 322)

Often librarians view a marketing orientation as implying an external and competitive focus (Parker, 2007). Because of this, library marketing has often been limited to short-term marketing activities. As a result, libraries have not been able to move past the outdated brand image of libraries being seen as merely storehouses of books (Parker, 2007).

Time

Another significant challenge faced by libraries when creating a Facebook profile is to have enough time to continually update and utilize the technology with a successful outcome. One indirect cost faced by utilizing Facebook includes staff time to maintain the site (Petit, 2011). The time spent on social media may take away from other important activities. Library staff members are often overbooked with daily schedules that do not allow flexibility to make time to update social media (Parker, 2007). Social networking also often takes time to catch the attention of students, which may discourage those who are developing the Facebook page (Petit, 2011).

Communication with students

The final challenge to libraries is successfully communicating with students through Facebook. Even when a library's Facebook page has many fans, there is not a guarantee that users will utilize the site to make requests or ask reference questions (Petit, 2011). Also, libraries may develop great marketing plans for Facebook, but they must follow through and provide interaction and feedback continually in order to continue to receive benefits (BRASS, 2011). In the past, most library decisions about programs, services and collections available have been made based on staff expertise rather than users' needs.

IMPLICATIONS AND CONCLUSIONS

This analysis examined several questions including: How would the integration of a marketing plan focused on social media impact academic libraries? Is marketing and outreach becoming more of a necessity as academic libraries transition to service-based organizations? In order to answer these questions numerous issues were examined including current library trends, the development of a marketing plan and its use within an academic library setting, social media trends, and finally the positive and negative impacts of integrating Facebook and social media into a marketing plan for an academic library.

The top four current trends within academic libraries include the expansion of information technology, user behaviors and expectations, changes or cuts in library budgets, and the movement toward libraries becoming mostly service-oriented organizations. These current library trends indicate a movement of academic libraries toward service-based organizations

where reaching out to users through the use of technology is becoming more important. Creating a marketing plan provides an opportunity for academic libraries to better cater to the needs and wants of users.

A marketing plan consists of situation analysis, market segmentation, selecting a market strategy, and finally analyzing the market mix of the decision. Although marketing plans are generally associated with for-profit businesses, these basic components can be applied to non-profit organizations, and specifically academic libraries. Currently within the academic library, marketing techniques and strategic plans are often interconnected, and marketing strategies are developed, but without necessarily following the structure of a marketing plan. Marketing is not a new topic within libraries, but most libraries do not fully develop a marketing plan to guide their actions. Marketing plans within an academic library setting also face criticism as many librarians have negative attitudes toward the subject.

Another current trend within the academic library is the use of social media. Facebook specifically is now being used by libraries as a marketing tool, but is rarely integrated into a marketing plan. Social media trends include using social media for academic purposes, using social media to reach out to the community, and the movement toward using social media from mobile devices. Because the majority of college students utilize Facebook on a daily basis, this specific form of social networking may be applied to a marketing plan. Before utilizing Facebook as a marketing tool, it is important to follow the steps of a marketing plan in order to analyze the internal and external environment in regards to social media as well as choose a specific strategy with certain objectives and goals. From the research provided, it is evident that applying Facebook to a marketing plan can be done.

Utilizing Facebook as a marketing tool within an academic library provides both positive and negative consequences. Facebook usage positively affects libraries through increasing communication with students, providing a cost effective way of marketing available services, and increasing brand awareness. Some of the challenges or barriers that affect academic libraries include overcoming the negative attitudes of librarians, the time needed to implement and continually update social media, and being able to successfully connect with students.

After examining the evidence, one can conclude that integrating Facebook into a marketing plan within an academic library is an achievable goal, however many obstacles may get in the way throughout the process. Success is dependent on several key factors including training staff to effectively use Facebook, making sure enough time is given to develop the page, and continually finding ways to best connect with students in a relatable, convenient way. As seen by previous examples, when a library fails to address these challenges, Facebook is not as successful.

One final question remains: How can success of social media use within an academic library be measured? The extent of a fan base on a Facebook page does not necessarily indicate success. Instead, utilizing surveys and questionnaires to receive continual feedback may be an effective way to create a successful Facebook page that is able to meet continually changing and

fluctuating students' needs. If Facebook usage is tied to a strategic goal then it will also be easier to measure. Flexibility and adaptation to change are key in staying current with college students. Social media is constantly changing and improving, which means that libraries will need to monitor what medium best serves students' needs. In future years, Facebook may be obsolete, so libraries need to be familiar with current trends.

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THE RELATIONSHIP BETWEEN ADOLESCENT PERSONALITY AND LEADERSHIP

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ABSTRACT

Personality and leadership in adolescents is a complex research area. There is an abundance amount of research in adults in the area of personality and leadership; however in adolescents there is a need for further development and analysis. This paper examines personality and leadership in adolescents utilizing the *Mini-International Personality Item Pool* (McCrae & Costa, 1987) and the *Roet's Rating Scale for Leadership* (Roets, 1997) instruments to conduct a multiple regression research analysis. It was found that extraversion, gender (female), and the number of clubs and organizations the participant belonged to were significant factors in self-ratings of leadership.

INTRODUCTION

Leadership is a business discipline regarding several related disciplines (e.g. management, organizational behavior), as well as, facets which involve different theories starting with the Great Man Theory (Carlysle, 1850) to GLOBE (House et al, 1994). Arguments have been made regarding whether leaders are born or made. If leaders are born, does it begin at birth? If leaders are made, does it begin at birth through the experiences the person goes through in life? This debate will surely go on for many years to come. This study examines the relationship between adolescent personality and leadership.

When it comes to examining leadership in adolescents, the first notion is to review scholastic grades, or the talents of the individual, such as, whether the person is a star athlete, or student council president, for example. Often times, within these scenarios, it is perceived that the adolescent has leadership abilities, and rightfully so, because it does take leadership qualities to be a leader on a sports team or within a club or organization. It takes determination to win the game, self-confidence to play and participate, and sociability skills to effectively function within a group or team. When it comes to examining personality traits in adolescents, the most known traits are whether an adolescent is outgoing or quiet, mean or nice, or whether the adolescent makes outstanding versus mediocre grades in school. These are some of the more observable characteristics. However, adolescents are encompassed with many emotional-type personality traits, for example, are the adolescents happy or funny, or pushy and calm? These are just a few of the varying different degrees of behaviors that can surface within an adolescent at such an unpredictable time in his/her life.

REVIEW OF THE LITERATURE

The literature shows through various studies found through teacher evaluations that the more open to new experiences, conscientious, extraverted, and agreeable the students were the more likely the students could adjust well to school (Graziano & Ward, 1992). Additional studies found that the more peers had expectations; the more likely their goals would be realized (Filisetti, Looney, & Wentzel, 2007). Another study found that the more anti-social the adolescent was, the less likely he/she would adhere to group interactions (Bates, et al., 2003). Various studies found that males had more anxiety, and had more negative attitudes than females (Kenny, 2009; Costanzo et al., 2009; and Reynolds, Riccio, & Sullivan, 2008). Alternate studies showed that boys and girls with career goals had higher self-esteem levels (Chiu, 1990). One study found that the age of the older sibling was related to projected goal outcomes (Hildy Ross et al., 2006). Another study found that the older the participant, the more prone to emotional problems he/she had (Sellers et al., 2006).

Numerous studies found that older children were more apt to instigate conflict over their younger siblings Older siblings were also more likely to blame their younger siblings for wrongdoings (Hildy Ross et al., 2006). Another study found that the specific birth order of the sibling contributed significantly to the level of sociability skills the participant portrayed (Daniels, 1986). Several studies found within the African-American culture, the more aggressive the participant; the more the participant pressured his/her peers (Costanzo et al., 2009). An additional study found the higher socio-economic status of the participant, the harder it was for the participant to stay focused. Additionally, the study found that the higher the socio-economic status of the individual, the happier the individual was (Masten, 1986). Family income was found to be a significant factor on getting along with others (Powell & Steelman, 1985). Lastly, it was found that the higher the socio-economic status of the participant, the less self-esteem he/she had (Huebner & Mancini, 2004).

An additional analysis indicated that group members had significantly higher scores on sociability, and positive socio-metric nominations than did nonmembers (Chang et al., 2003). An additional study found that the more transformational of a leader the participant was, the more he/she rated having effective peer relationships, and more satisfaction with his/her peer relationships (Barling et al., 2000). Another study found females scored higher over males on perceived competence (Filisetti, Looney, & Wentzel, 2007). Another study found that boys had lower scores on leadership than did girls (Chang et al., 2003). One study found that older siblings' age was related to the strategies used by older and younger siblings. Younger siblings were less likely to suggest plans, and more likely to request assent to plans, and to agree to plans (Hildy Ross et al., 2006). Another study found significant differences between the age of the participants, empathic skills, and social confidence (Oberklaid et al., 2001). An additional study found that biracial black/white adolescents showed more self-deprecation, and feelings of alienation, over the mono-racial counterparts (Cheng & Lively, 2009).

Another study showed that Hispanic students out-performed White students during the twelfth-grade (Battle & Pastrana Jr., 2007). Another study found that Black/White adolescents are significantly more likely to feel alienated in school than are mono-racial White adolescents (Cheng & Lively, 2009). Another study (Bohnert, et al, 2008) found, in regards to, African-

American adolescents; the more motivated, and engaged the participant was, the more confident the person felt, and the more motivated, and engaged the participant was, the less alienated the person felt. Lastly, one study found the higher the socio-economic status, the higher the White students out-performed the Hispanic students for eight-grade status (Battle & Pastrana Jr., 2007).

METHODOLOGY

Overview

The current research examined the relationship between adolescent personality, and leadership. The personality assessment instrument ratings will measure the *Big Five* (McCrae & Costa, 1987) personality traits within the sample including, conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The *Roets Rating Scale for Leadership* (Roets, 1997) was used to measure how the student self-rates on differing leadership scales. A multiple regression analyzed the results of the relationship between the personality and leadership in adolescents.

Participants

The sample for this research consisted of a total of five groups in public and private sectors in the greater Gulf Coast area. The groups included Galena Park High (Galena Park, Texas); St. Pius X High School (Houston, Texas); Girl Scouts Troops (Houston, Texas); Houston Mayor's Youth Council, and friends in family (Alabama/Florida). The total sample consisted of 264 adolescents. Sample subjects were 43% male and 57% female, with 72% Hispanic, 17% Caucasian, and 11% were classified as Other. The mean age was 15.5 years.

Instruments

The research survey was given in two forms, administered in person with paper surveys, and administered online at www.surveymonkey.com. The survey was constructed of three sections, the demographic section, *Mini-International Personality Item Pool Assessment (Mini-IPIP)*, based on McCrae and Costa (1997) rating of personality and the *Roets Rating Scale for Leadership (RRSL),* from Roets, 1997. The *RRSL* is a self-rating scale for students ages 8-18 years old. It is a measurement for students to rate themselves. It measures leadership (already active, or in the daydream stage), ambition, and desires.

Research Design

This study was a multiple regression analysis. Research area one addressed the relationship between the participant's personality, as defined by the *Big Five Factor Model* (McCrae & Costa, 1987) of personality, and the participants' self-rating of leadership, based on

the *Roet's Rating Scale for Leadership* (Roets, 1997). Research area two examined adolescent leadership and predictors of personality.

NULL HYPOTHESIS

H₁: There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and overall leadership.

Ho2:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and critical thinking leadership.

Ho3:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and guidance leadership.

Ho4:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and courage leadership.

Ho5:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and charismatic leadership.

Ho6:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and tolerant leadership.

Ho7:   There is no relationship between adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and willpower leadership.

Ho8:   There is no relationship between adolescents' leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and conscientiousness.

Ho9:   There is no relationship between adolescents' leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and agreeableness.

Ho10:   There is no relationship between adolescents' leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and neuroticism.

Ho11:   There is no relationship between adolescents' leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and openness to new experiences.

Ho12:   There is no relationship between adolescents' leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, extraversion.

EXPLORATORY FACTOR ANALYSIS

An exploratory factor analysis was conducted using a Principal Components Method for the *Roet's Rating Scale for Leadership* (Roets, 1987). Six components were found with an Eigenvalue greater than .5 or less than -.45. The first component, which measured critical thinking leadership, had an Eigenvalue of 3.09 which explained 11.88% of the variance. Using

a Varimax rotation, five questions loaded on this component with an Eigenvalue vector score greater than .45 or less than -.45. The second component, which measured guidance leadership had an Eigenvalue of 2.34 and explained 9% of the variance. Using a Varimax rotation, three questions loaded on this component with an Eigenvalue vector score greater than .45 or less than -.45. The third component, which measured courage leadership had an Eigenvalue of 2.32 and explained 9% of the variance.

	Thinking	Guidance	Courage	Charismatic	Tolerant	Willpower
Table 1 **ROTATED COMPONENT MATRIX**						
L23	**.713**	.076	.179	.120	.119	-.021
L21	**.584**	.230	.006	.157	.061	.069
L3	**.496**	-.021	.124	-.016	.493	.226
L24	**.493**	.153	.365	.265	.018	-.335
L22	**.478**	.130	.180	.222	.250	.084
L20	**.468**	.296	.044	.299	.145	.320
L10	.193	**.788**	.088	.111	.065	.123
L9	.304	**.782**	.050	.024	.047	.122
L8	.051	**.515**	.347	.118	.450	.010
L13	.281	.181	**.677**	.030	-.041	-.069
L1	.022	-.012	**.585**	.037	.216	.204
L11	.352	.107	**.535**	.055	.112	.248
L4	.004	.071	**.526**	.389	-.119	-.128
L5	.168	.048	.283	**.628**	.096	.079
L19	.356	-.056	-.053	**.599**	.221	-.051
L15	.408	.265	.115	**.470**	-.096	.132
L6	-.140	.144	.064	**.469**	.014	.551
L17	.148	.069	.020	.004	**.719**	.078
L16	.419	.040	.006	.333	**.502**	.037
L12	.063	.370	.405	.159	**.454**	.138
L7	.284	.177	.045	-.043	.055	**.680**
L2	.046	-.036	.424	.170	.185	**.476**
L26	.356	.175	.182	.053	.167	.200
L18	.235	.214	.102	.431	.113	.182
L14	.400	.306	.342	.340	.032	.086
L25	.008	.402	.066	.331	.425	-.110

Using a Varimax rotation, four questions loaded on this component with an Eigenvalue vector score greater than .45 or less than -.45. The fourth component, which measured charismatic leadership had an Eigenvalue of 2.21 and explained 8% of the variance. Using a Varimax rotation, four questions loaded on this component with an Eigenvalue vector score greater than .45 or less than -.45. The fifth component, which measured tolerant leadership had an Eigenvalue of 1.93 and explained 7% of the variance. Using a Varimax rotation, five questions loaded on this component with an Eigenvalue vector score greater than .45 or less than

-.45. Table 1 shows the rotated component matrix of the six components of leadership including critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership. Table 1 shows the rotated component matrix of the exploratory factor analysis.

FINDINGS

> *Ho1:* *There is no relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home, and overall leadership.*

In order to test null hypothesis 1, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and overall leadership. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used for both blocks.

Number of clubs and organizations explained 12% of the variance in leadership scores ($R^2 = .12$, $\beta = .27$, $r_p = .27$, $p = .00$). The partial correlation of .27 indicated that the higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a leader. The number of younger siblings explained an additional 3% of the variance in leadership scores ($\Delta R^2 = .03$, $\beta = -.20$, $r_p = -.21$, $p = .00$). The partial correlation of -.21 indicated that the higher the number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a leader. Gender explained an additional 3% of the variance in leadership scores ($\Delta R^2 = .03$, $\beta = .18$, $r_p = .19$, $p = .00$). The results of a *t*-test, $t(264) = -3.371$, $p = .00$, found that girls (*M2* = 52.04) rated themselves higher on leadership than boys (*M1* = 46.57). Age explained an additional 1% of the variance in leadership scores ($\Delta R^2 = .01$, $\beta = .14$, $r_p = .14$, $p = .05$). The beta weight of .14 indicated that the older the adolescent was, the higher the adolescent rated him/herself as a leader. Extraversion explained an additional 2% of the variance in leadership scores ($\Delta R^2 = .02$, $\beta = .13$, $= .15$, $p = .02$). The partial correlation of .15 indicated that the higher the adolescent scored in extraversion, the higher the adolescent rated him/herself as a leader.

> *Ho2:* *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, the number of computers at home, and critical thinking leadership.*

In order to test null hypothesis 2, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, the number of computers at home, and critical thinking leadership. Two blocks of data were used in the regression. Block 1

contained age, gender, ethnicity, number of number of clubs and organizations, number of older siblings, number of younger siblings, and the number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used in both blocks.

Number of clubs and organizations explained 11% of the variance in critical thinking leadership scores ($R^2 = .11$, $\beta = .29$, $r_p = .31$, $p = .00$). The partial correlation of .31 indicated that the higher number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a critical thinking leader. Gender explained an additional 6% of the variance in critical thinking leadership ($\Delta R^2 = .06$, $\beta = .27$, $r_p = .29$, $p = .00$).The results of a t-test, $t(264) = -4.812$, $p = .00$, found that girls ($M2 = 13.47$) rated themselves higher on critical thinking leadership than boys ($M1 = 11.21$). The number of younger siblings explained an additional 3% of the variance in critical thinking leadership scores ($\Delta R^2 = .03$, $\beta = -.17$, $r_p = -.19$, $p = .00$). The partial correlation of -.19 indicated that the higher the number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a critical thinking leader.

> Ho3:   *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, the number of computers at home, and guidance leadership.*

In order to test null hypothesis 3, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, the number of computers at home, and guidance leadership. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used in both blocks.

Number of clubs and organizations explained 7% of the variance in guidance leadership scores ($R^2 = .07$, $\beta = .26$, $r_p = .26$, $p = .00$). The partial correlation of .26 indicated that the higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a guidance leader. Extraversion explained an additional 2% of the variance in guidance leadership ($\Delta R^2 = .02$, $\beta = .13$, $r_p = .13$, $p = .04$). The partial correlation of .13 indicated that the higher the adolescent scored on extraversion, the higher the adolescent rated him/herself as a guidance leader.

> Ho4:   *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and courage leadership.*

In order to test null hypothesis 4, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and courage leadership. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings,

number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used on both blocks.

Number of younger siblings explained 2% of the variance in courage leadership scores ($R^2 = .02$, $\beta = -.15$, $r_p = -.15$, $p = .02$). The partial correlation of -.15 indicated that the higher number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a courage leader. Extraversion explained an additional 2% of the variance in courage leadership scores ($\Delta R^2 = .02$, $\beta = .15$, $r_p = .15$, $p = .00$). The partial correlation of .15 indicated that the higher the adolescent scored on extraversion, the higher the adolescent rated him/herself as a courage leader.

> *Ho5:*   *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and charismatic leadership.*

In order to test null hypothesis 5, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used in both blocks.

The number of clubs and organizations explained 8% of the variance in charismatic leadership scores ($R^2 = .08$, $\beta = .19$, $r_p = .19$, $p = .00$). The partial correlation of .19 indicated that the higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a charismatic leader. Gender explained an additional 2% of the variance in charismatic leadership scores ($\Delta R^2 = .02$, $\beta = .15$, $r_p = .16$, $p = .02$). The results of a *t*-test, $t(264) = -2.61$, $p = .01$, found that girls ($M2 = 8.23$) rated themselves higher on charismatic leadership than boys ($M1 = 7.40$). The number of younger siblings explained an additional 2% of the variance in charismatic leadership scores ($\Delta R^2 = .02$, $\beta = -.14$, $r_p = -.15$, $p = .04$). The partial correlation of -.15 indicated that the higher number of younger siblings the adolescent had, the lower the adolescent rated him/herself as an charismatic leader. Age explained an additional 2% of the variance in charismatic leadership scores ($\Delta R^2 = .02$, $\beta = .15$, $r_p = .15$, $p = .03$). The beta weight of .15 indicated that the older the adolescent was, the higher the adolescent rated him/herself as a charismatic leader. Extraversion explained an additional 2% of the variance in charismatic leadership scores ($\Delta R^2 = .02$, $\beta = .15$, $r_p = .16$, $p = .01$). The partial correlation of .16 indicated that the higher the adolescent scored in extraversion, the higher the adolescent rated him/herself as a charismatic leader. Openness to new experiences explained an additional 2% of the variance in charismatic leadership scores ($\Delta R^2 = .02$, $\beta = .13$, $r_p = .14$, $p = .03$). The partial correlation of .14 indicated that the higher the adolescent scored in openness to new experiences, the higher the adolescent rated him/herself as a charismatic leader.

Ho6:   *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and tolerant leadership.*

In order to test null hypothesis 6, a multiple regression was conducted to predict the relationship between the adolescents' personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and tolerant leadership. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used in both blocks.

The number of clubs and organizations explained 9% of the variance in tolerant leadership scores ($R^2 = .09$, $\beta = .23$, $r_p = .22$, $p = .00$). The partial correlation of .23 indicated that the higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a tolerant leader. Gender explained an additional 2% of the variance in tolerant leadership scores ($\Delta R^2 = .02$, $\beta = .16$, $r_p = .17$, $p = .02$). The results of a *t*-test, $t(264) = -2.86$, $p = .01$, found that girls (*M2* = 9.27) rated themselves higher on tolerant leadership than boys (*M1* = 8.09). The number of younger siblings explained 2% of the variance in tolerant leadership scores ($\Delta R^2 = .02$, $\beta = -.13$, $r_p = -.13$, $p = .03$). The partial correlation of -.13 indicated that the higher the number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a tolerant leader. The number of computers at home explained an additional 2% of the variance in tolerant leadership scores ($\Delta R^2 = .02$, $\beta = .13$, $r_p = .13$, $p = .04$). The partial correlation of .13 indicated that the higher the number of computers the adolescent had at home, the higher the adolescent rated him/herself as a tolerant leader.

Ho7:   *There is no relationship between personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and willpower leadership.*

In order to test null hypothesis 7, a multiple regression was conducted to predict the relationship between the adolescent's personality, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and willpower leadership. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the personality dimensions of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion. The stepwise method was used for both blocks.

The number of clubs and organizations explained 5% of the variance in willpower leadership scores ($R^2 = .05$, $\beta = .20$, $r_p = .20$, $p = .00$). The partial correlation of .20 indicated that the higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent rated him/herself as a willpower leader. The number of younger siblings explained an additional 2% of the variance in willpower leadership scores ($\Delta R^2 = .02$, $\beta = -.14$, $r_p = -.15$,

$p = .02$). The partial correlation of -.15 indicated that the higher number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a willpower leader. Openness to new experiences explained an additional 2% of the variance in willpower leadership scores ($\Delta R^2 = .02$, $\beta = .12$, $r_p = .13$, $p = .04$). The partial correlation of .13 indicated that the higher the adolescent scored in openness to new experiences, the higher the adolescent rated him/herself as a willpower leader.

> *Ho8:   There is no relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and conscientiousness.*

In order to test null hypothesis 8, a multiple regression was conducted to predict the relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and conscientiousness. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the leadership subscales of critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership.

Age explained 8% of the variance in conscientiousness scores ($R^2 = .08$, $\beta = .11$, $r_p = .11$, $p = .02$). The beta weight of .11 indicated that the older the adolescent was, the higher the adolescent scored in conscientiousness. Charismatic leadership explained an additional 2% of the variance in conscientiousness scores ($R^2 = .02$, $\beta = .15$, $r_p = .15$, $p = .02$). The partial correlation of .15 indicated that the higher the adolescent scored in charismatic leadership, the higher the adolescent scored in conscientiousness.

> *Ho9:   There is no relationship between leadership, gender, age, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and agreeableness.*

In order to test null hypothesis 9, a multiple regression was conducted to predict the relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and agreeableness. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the leadership subscales of critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership.

The number of clubs and organizations explained 5% of the variance in agreeableness scores ($R^2 = .05$, $\beta = .17$, $r_p = .17$, $p = .00$). The partial correlation of .17 indicated that the higher number of clubs and organizations the adolescent belonged to, the higher the adolescent scored in agreeableness. Charismatic leadership explained an additional 2% of the variance in agreeableness scores ($R^2 = .02$, $\beta = .15$, $r_p = .15$, $p = .02$). The partial correlation of .15 indicated

that the higher the adolescent scored in charismatic leadership, the higher the adolescent scored in agreeableness.

> *Ho10:* *There is no relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and neuroticism.*

In order to test null hypothesis 10, a multiple regression was conducted to predict the relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and neuroticism. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the leadership subscales of critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership. The stepwise method was used in both blocks. Gender explained 7% of the variance in neuroticism scores ($R^2 = .07$, $\beta = .15$, $r_p = .19$, $p = .00$). The results of a *t*-test, $t(264) = -2.212$, $p = .01$, found that girls *(M2 = 11.60)* rated themselves higher on neuroticism than boys (*M1* = 10.92).

> *Ho11:* *There is no relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and openness to new experiences.*

In order to test null hypothesis eleven, a multiple regression was conducted to predict the relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and openness to new experiences. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the leadership subscales of critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership. The stepwise method was used for both blocks.
Ethnicity explained 2% of the variance in the openness to new experiences scores ($R^2 = .07$, $\beta = -.11$, $r_p = -.11$, $p = .03$). A comparison of means indicated that "other" ethnicity (*M* = 15.08) scored higher on openness to new experiences over the Hispanic ethnic group (*M* = 14.13). Charismatic leadership explained an additional 2% of the variance in openness to new experiences scores ($\Delta R^2 = .02$, $\beta = .15$, $r_p = .14$, $p = .02$). The partial correlation of .14 indicated that the higher the adolescent rated him/herself on charismatic leadership, the higher the adolescent scored in openness to new experiences.

> *Ho12:* *There is no relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and extraversion.*

In order to test null hypothesis twelve, a multiple regression was conducted to predict the relationship between leadership, age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, number of computers at home, and extraversion. Two blocks of data were used in the regression. Block 1 contained age, gender, ethnicity, number of clubs and organizations, number of older siblings, number of younger siblings, and number of computers at home. Block 2 contained the leadership subscales of critical thinking leadership, guidance leadership, courage leadership, charismatic leadership, tolerant leadership, and willpower leadership. The stepwise method was used in both blocks. Courage leadership explained 2% of the variance in extraversion. ($R^2 = .02$, $\beta = .30$, $r_p = .15$, $p = .02$). The partial correlation of .15 indicated that the higher the adolescent rated him/herself in courage leadership, the higher the adolescent scored in extraversion.

DISCUSSION OF FINDINGS

A person's personality disposition is a complex element involving several factors of conscientiousness, agreeableness, neuroticism, openness to new experiences, and extraversion, among new and developing factors. Do personality factors, as well as, the demographic characteristics of an individual predict leadership behaviors? Within research area one, this study examined the relationship between adolescent personality and predictors of leadership and found that ethnicity, the number of older siblings a person has, nor does the personality dimensions of conscientiousness, agreeableness, and neuroticism predict leadership behaviors in adolescents. However age, gender, number of clubs and organizations (group affiliation), number of younger siblings, number of computers at home (SES indicator), openness to new experiences, and extraversion did predict leadership behaviors in adolescent leaders. The strongest predictors of leadership were the number of clubs and organizations the adolescent belonged to, gender (Female), and extraversion. The number of younger siblings the adolescent had was also a strong predictor with an inverse relationship. The higher the number of younger siblings the adolescent had, the lower the adolescent rated him/herself as a leader.

Females rated themselves higher as leaders than boys. An ANOVA post hoc analysis indicated that girls rated themselves higher as leaders on 11 of the 26 items. The higher the number of clubs and organizations the participant belonged to, the higher the participant rated him/herself in overall leadership, critical thinking leadership, guidance leadership, charismatic leadership, tolerant leadership, and willpower leadership. The higher the participant scored in extraversion, the higher the participant rated him/herself in overall leadership, guidance leadership, courage leadership, and charismatic leadership. An ANOVA post hoc analysis showed that the St. Piux X High School group (Student Council and Honors Students) scored higher on overall leadership, openness to new experiences, conscientiousness, extraversion, and agreeableness.

In regards to research area two, the relationship between adolescent leadership and predictors of personality; age, gender (Female), number of clubs and organizations, charismatic leadership, and courage leadership were the strongest predictors of personality. The older the participant was, the higher the participant scored in conscientiousness. The higher the participant rated him/herself on charismatic leadership, the higher the participant scored on

conscientiousness, agreeableness, and openness to new experiences. The higher the number of clubs and organizations the adolescent belonged to, the higher the adolescent scored on agreeableness. Females scored higher on neuroticism. The "Other" race scored higher on openness to new experiences over the Hispanic race; and the higher the participant scored on courage leadership, the higher he/she scored on extraversion.

SUMMARY OF FINDINGS

In regards to research area one, the higher the number of clubs and organizations that the adolescent belonged to strongly predicted leadership behaviors, as well as extraversion, and gender (Female). The higher the number of younger siblings showed an inverse relation to predicting leadership. In regards to research area two, charismatic leadership predicted the personality dimensions of conscientiousness, agreeableness, and openness to new experiences.

LIMITATIONS OF FINDINGS

The limitations of this study included that the sample did a self-rating as a leader; the sample base was a convenience sample which required parental consent; and the sample was almost entirely Hispanic.

RECOMMENDATIONS FOR FUTURE RESEARCH

The recommendations for future research are to focus on other ethnicities, repeat the study with different leadership instruments, and repeat the study with different age groups, for example 11 – 14 year olds.

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IS THERE AN IDEAL GROUP SIZE? PREPARING UNDERGRADUATES FOR SUCCESSFUL ENTRY INTO THE 'REAL WORLD' OF BUSINESS

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ABSTRACT

Group work is a staple of college, but there are so many dynamics to consider. Using both face-to-face and online courses at both lower-level and upper-level classes, this study will illustrate students' perceptions of group work and what they perceive as the ideal group size in a college setting. Findings show that students prefer smaller groups, however this may not be realistic in workplace settings.

INTRODUCTION

Whether it is called a group, team, task force, or committee, students must learn to work together. Part of the learning experience in college is designed to help students make the transition into a workforce that will require collaboration skills. Group work has been a widely-used tactic for teaching concepts. According to Gottschall and Garcia-Bayonas, "Group work is also considered by many instructors as a methodologically sound way of utilizing class time and a robust technique for students to interact and learn from each other" (p. 4). This is reinforced by the Association to Advance Collegiate Schools of Business (AACSB), who encourages teamwork in its Standard 13 that states students should be involved in the learning process through collaboration and cooperation. This can be assessed by reviewing in-class group activities, both formal and informal (AACSB, 2012). This shows the importance of students working in groups, and The National Survey of Student Engagement (NSSE), reports that 49% of seniors in higher education work with other students during class time and 61% of seniors work on projects with other students outside of class time (NSSE, 2012).

According to the AACSB, "Each student is a resource who brings unique experience and knowledge to combined tasks. Students need to acknowledge their responsibilities to their fellow students by actively participating in group learning experiences" (2012, p. 58). Learning these skills is essential for the workforce, where collaborative skills are needed for success. Companies use teamwork to meet goals, and textbook authors Gitman and McDaniel (2002) state

that "using a team-based structure can increase individual and group motivation and performance" (p. 299).

With this focus on learning to work together, faculty members struggle finding the right parameters to help students learn the valuable skills for their future careers. Group work is a staple of college, but there are so many dynamics to consider. One aspect to consider is how many students should be included in a team. Aggarwal and O'Brien (2008) contend that reducing the size of the group will help with free-riding, and therefore improve the group experience. In this case, reducing the number of members "will make it harder for social loafers to hide behind the shield of anonymity provided by the larger group" (p. 262) and making it easier to meet outside the classroom. Gentry (1980) used a simulation for his class which found that larger groups caused more disagreement among members, but there did not seem to be any difference in performance.

A quantitative study by Gottschall and Garcia-Bayonas (2012) found that students majoring in Business Administration were more likely (54.5%) to have a negative attitude toward group work than Education or Science majors. Respondents indicated that trying to meet outside class time was the major obstacle in group work. Free-riding was more prevalent in Education and Science majors.

Working in a business environment undoubtedly requires good team skills; however, the above study shows that business students are unhappy with the process. If these negative attitudes carry into the workforce, it can be detrimental for students. Working in groups can be cumbersome for both instructors and students. Also, with the steady increase in enrollment in institutions of higher education, but continued emphasis on budget cuts, many faculty members are experiencing increased class sizes. These phenomena are expected to increase the likelihood of more group projects in classrooms.

THE STUDY

In an unusual semester, Instructor A found that he had an unusually large class for his upper-level business class. To balance the workload, he decided to increase his group sizes upwards to eight students. He felt that the larger group sizes would help to divide the workload into smaller units for the students and help with the grading process. In this semester, he had two face-to-face classes and one fully-online course for a total enrollment of 221 students. The teams were randomly generated using the Groups tool with the learning management system, Desire2Learn (D2L). These teams were then assigned a real-world business case study in the textbook to analyze. The teams were structured to mimic real-world self-managed work teams as closely as possible.

Self-managed work teams (SMWTs), also referred to as self-directed work teams, are typically composed of 10-15 people given many of the responsibilities of their former supervisors (Robbins, 1996). Similarly, Yeatts and Hyten (1998) state that SMWTs usually

consist of 5-15 people. Based on these sources, students can expect to work in larger groups than they may have experienced in college. These SMWTs, which operate with a degree of autonomy with minimal direction from their former supervisors, are responsible for their own work scheduling, work approach methods, workload distribution, and performance monitoring (Muthusamy, Wheeler & Simmons, 2005). This performance monitoring is reflected in the peer reviews conducted by members of the team. The utilization of SMWTs by Fortune 1000 companies grew from 28% in 1987 to 72% by 1999 (Muthusamy, Wheeler & Simmons, 2005). A significant amount of research surrounding the use and effectiveness of SMWTs has been conducted over the years. Examination of recent research gives no indication of any substantial change in the size, structure, autonomy, or use of SMWTs over the last 25 years.

Electronic communication tools, such as discussion boards, emails and chat rooms, were created for each team within D2L. These tools were created to facilitate information sharing outside the boundaries of face-to-face team meetings. While the project had specific format guidelines regarding the finished product, latitude was given to the teams to formulate their own project approach planning and workload distribution. At the conclusion of the project each team member submitted peer evaluations of each of their team members, evaluating those individuals' performance and contributions throughout the project. These evaluations were taken into consideration when assigning individual grades for the project.

Instructor A hypothesized that the larger group sizes of approximately eight students would be better received by the students and yield a better product. The instructor did not provide any type of team building lessons, but set the groups like a SMWT. Almost all of the students were business majors, so it was assumed the students had a business communication course that taught some aspects of teams.

Instructor B had normal-size classes in lower-level business communication classes that had both business and non-business majors enrolled. She kept her group sizes at 3-4 students, with most groups having four members. She felt that keeping the groups small would help the students to coordinate their schedules and divide the work easier. In this semester, Instructor B had three face-to-face classes with an enrollment of 94 students. Groups were assigned by a mixed method: both self-selection and randomization. Students were allowed to pair up, then pairs were "shuffled" to form a group of four. Upon group formation, each group was to complete a written team agreement that specified how the work was to be divided and established some group norms.

Communication tools were also created in D2L and discussed with classes, however it was not required that students use the tools. In fact, few of the groups showed activity in these tools. The group chose a research topic, completed individual research, wrote a summary report, then presented their findings in an oral presentation. The project was broken into smaller units with dedicated deadlines. This helped each group to divide the tasks, and preliminary work was graded on an individual basis. At the end of the approximately four week project, the groups

submitted their findings in both written and oral forms as a team grade. In addition, each group member evaluated other members for a small portion of the individual's grade.

Instructor B hypothesized that the smaller group sizes of four students would be better received by students and avoid the problem of free-riders. Prior to beginning group activities, the students learned background information about forming groups and group dynamics.

At the end of the semester, the students were given an eight question survey administered through D2L. Students were asked about their general view of group work, how large their group size was, what they thought the group sizes should be, and how they should be evaluated. The survey ended with an open-ended question that allowed the students to provide additional input if they chose. Students were given a small credit in their grades for completing the survey. Overall, 79 students in Instructor A's classes completed the survey for a response rate of 35.7% and 78 students in Instructor B's classes completed the survey for a response rate of 83%.

THE RESULTS

Overall, both class groups had 58% of students indicate they had a generally positive attitude toward group work. Only 22% stated having a negative attitude. Instructor A's classes, which are majority business students, had more indicate negative attitudes. These results contradict the Gottschall and Garcia-Bayonas study previously cited which indicated 54.5% of business students having a negative attitude toward groups.

Figure 1 **Responses from All Classes to the Question: Considering your group work for this class, what is your** **perception of the biggest issue related to the number of people in your group?**					
	Instructor A		Instructor B		All
My group size was just the right size.	35	44.3%	57	73.08%	58.60%
My group was too large and it was difficult to divide the work evenly.	12	15.19%	3	3.85%	9.55%
My group was too large and that caused more members to "free ride."	21	26.58%	5	6.41%	16.56%
My group was too large which made it more difficult to reach consensus.	10	12.66%	3	3.85%	8.28%
My group was too small which made all members work harder to complete the work.	0	0%	4	5.13%	2.55%
My group was too small because it limited the amount of ideas and talents brought to the project.	0	0%	5	6.41%	3.18%
My group was too small which made it harder to divide the work evenly.	1	1.27%	1	1.28%	1.27%

Only 44% of Instructor A's classes indicated they thought their group was the right size, whereas 73% of Instructor B's classes said the same. Other responses indicated that Instructor

A's classes were too large and that allowed for more free-riding (27%), created difficulty dividing the work (15%), and caused problems with meeting outside class time (13%). These results are show in Figure 1 below. In another question, 49% of these students indicated that four members was the ideal group size.

At first glance, it would appear that smaller group sizes are better for underclassmen. However, a further analysis of the data shows that the class format may be a bigger indicator of student satisfaction in group work. All classes that were surveyed, with the exception of one, were traditional face-to-face courses. The two face-to-face classes indicated satisfaction with their group size only 5% and 11% of the time. However, the one on-line course showed different results: 28% of students felt the larger group size was just the right size. This detail is shown in Figure 2 below.

Figure 2 **Responses from Instructor A's Classes to Question: Considering your group work for this class, what is your perception of the biggest issue related to the number of people in your group?**						
	Face-to-Face Class 1		Face-to-Face Class 2		Online Class	
My group size was just the right size.	4	5.06%	9	11.39%	22	27.85%
My group was too large and it was difficult to divide the work evenly.	3	3.80%	5	6.33%	4	5.06%
My group was too large and that caused more members to "free ride."	5	6.33%	7	8.86%	9	11.39%
My group was too large and that made it more difficult to reach consensus.	1	1.26%	7	8.86%	2	2.53%
My group was too small which made all members work harder to complete the work.	0	0%	0	0.00%	0	0.00%
My group was too small because it limited the amount of ideas and talents brought to the project.	0	0%	0	0.00%	0	0.00%
My group was too small and that made it harder to divide the work evenly.	1	1.26%	0	0.00%	0	0.00%

Because some students maintain a neutral or negative attitude toward group work, it is important to understand some of the issues that cause problems. Overall, communication was cited as the biggest obstacle to group work, with 42% of students reporting this problem. This was followed by free-riding at 19%, procrastination at 17%, and dividing the task at 12%. There was a larger disparity between classes. Instructor A's class indicated that 61% of students felt that communication was the biggest problem; a large majority. However, Instructor B's class only ranked it first 23% of the time, but this was balanced with other factors almost equally problematic. This may be explained by the fact that more class time was used to help students manage the project in smaller segments. These results can be seen in Figure 3 below:

Figure 3 What do you see as the biggest obstacle in group work?					
	Instructor A		Instructor B		All Classes
Dividing the tasks.	1	1.27%	17	21.79%	11.46%
Communication among members.	48	60.76%	18	23.08%	42.04%
Too many trying to be the leader.	2	2.53%	6	7.69%	5.10%
Someone acting like a free rider.	17	21.52%	13	16.67%	19.11%
Personality conflicts.	2	2.53%	7	8.97%	5.73%
Procrastination.	9	11.39%	17	21.79%	16.56%

DISCUSSION

Survey responses seem to support the previous study by Gottschall and Garcia-Bayonas (2008) that business students have a lower perception of group work. Also, the finding that smaller group sizes are preferred reinforces Aggarwal and O'Brien (2008). However, smaller group sizes may not be the norm for real-world business settings. If this is the case, groups in college should increase group sizes to emulate this and expose students to the complexities of working with more people.

One must further investigate to find what factors contribute to student success. In this study, these dynamics differ for an online class. The face-to-face classes stated that 67% felt their groups were too large for various reasons, compared to only 41% in the online class. The class was somewhat split in that 44% of them said it was the right size.

The qualitative response to the last question on the survey may provide some insight. Many student comments in the face-to-face class were about difficulty in scheduling out-of-class meetings and the challenge of combining work (writing styles) from so many different people. Comments from the online course also mentioned scheduling problems. Both classes commented that "the way it was set up" made the larger groups work. These students may be referring to the use of the online communication tools provided in D2L. The instructor reinforced the idea that students should use this forum to communicate because it provided documentation of activities for students and the instructor. The online students were probably more likely to use this feature because the groups did not have the benefit of the face-to-face class meetings. The increase of virtual team work in businesses reinforces the idea of continuing to teach team skills in college. The online course resembles this trend of bringing together workers who are geographically dispersed.

This study is limited in that it used student responses from only one semester. Depending on specific student and course characteristics during that semester, the results may not represent all cases of student group work. Further research that looks at more classes will help with generalizability of results.

One student in the face to face class commented, "…any size group will work as long as the members are willing to participate and work together." One student in the online class eloquently sums up the group experience, "Collaborating is an everyday setting now in the corporate force work [sic]. As the economy is becoming more global, scholars such as ourselves must learn to interact and constructively work together to combine our unique personalities and backgrounds to create exemplary results. For two is better than one."

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THE FUTURE OF DE NOVO BANKS

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ABSTRACT

In today's environment, it is very difficult to obtain a charter for a de novo (meaning a new bank) bank. This study will examine the current environment for chartering de novo banks, and examine the literature in the field of de novo banks. It will set out the critical elements for obtaining a charter, such as examining market demographics, evaluate competition, show need, the specific plan, professional involvement, and meeting with regulators. Since the economic downturn in late 2008, very few charters have been granted. In the years preceding the economic meltdown, there were hundreds issued over the United States. Opportunities for future de novo charters will be discussed.

INTRODUCTION

At a bank executives meeting in 1981, William Isaac, then Chairman of the Federal Deposit Insurance Corporation stated that there should be free entry into and exit out of the banking industry as opposed to the rigid constraints of the past. In spite of the financial issues of the 1980s and 1990s, 4,888 de novo (new) bank charters were granted between 1985 and 2011, with most of the charters being granted pre-2010. Subsequently, with the more recent bank crisis more care has been taken to limit the number of new banks chartered.

From 1985 thru 2007, on average there were over 200 de novo bank charters granted per year. During the recent financial crisis the regulatory agencies took a different approach to the granting of new bank charters. There were only 43 de novo charters granted in 2008. During the full year of 2009, only 20 charters were granted. As the financial crisis continued to deepen, only 2 charters were granted during all of 2011and one charter was granted in 2012. The issue becomes where does the chartering of new banks go from this point?

LITERATURE REVIEW

Most of the literature relating to success and performance of de novo banks was prior to the recent financial crisis. Perhaps, the lack of current literature is a result of the limited number of de novo banks chartered since the crisis. A positive resulting from older literature on the subject is the similarity between the banking crises of the 1980s to 1990s to the current financial

crisis impacting banking. Cope (2007) indicated that a well thought out business plan is the key to a de novo bank's success. DeYoung (2003) noted that one in four new (de novo) commercial banks failed during the 1980s resulting from the banking crisis. In a study conducted by Hunter and Srinivasan (1990) it was determined over an eight-year period over 70 percent of the de novo banks were financially successful as a result of effective credit policies, expense controls, and higher capital. They concluded that economic conditions were not a factor. Brislin and Santomero (1991) found that de novo banks tended to focus on riskier loans which made success more difficult.

THE PROBLEM

From the literature and the statistics from the Federal Deposit Insurance Corporation (2013) several issues impact the sustainability of the new de novo during its first seven years of operation. The data that they collected indicated a number of issues that impact their ability to stay sufficiently capitalized and be profitable. Contrary to what Hunter and Srinivasan (1990) found, the F. D. I. C. indicated that the economic conditions impacted the success of new banks.

Additionally, they noted that a lack of experience on the part of bank management and bank directors played a major role in the unsuccessful de novo banks. Not following a solid business plan played a large role in the demise of a number of de novo banks. Some of the other issues attributed to the higher rate of failure included taking excessive risks to obtain loans, a lack of revenue, and an unstable deposit base. As a result of these issues, the F. D. I. C. has determined that de novo banks should have controlled supervision for the first seven years of operation. Their rules are set out below in the discussion on the future of de novo banks.

ISSUE: DE NOVO VERSUS ACQUISITION

With all of the issues, special regulations, and time requirements, why would a group choose to obtain a de novo charter as opposed to acquiring an existing bank? There are a number of things that can influence the direction to enter the banking arena. The Bank Network (2013) made some sound arguments for and against de novo and acquisition which are set out below.

Acquisition

Regulatory bodies have seen a substantial number of failures in de novo banks during the first seven years of operations; hence they are reluctant to charter more banks during these difficult economic times. Also, with all of the problems with the financially troubled existing banks, the authorities do not want to increase their burden by charter more banks. The cost to charter a de novo would use more of their available capital than an acquisition.

Some of the disadvantages would include a rigorous examination of the bank's condition with special attention devoted to the quality of the loan portfolio. Another issue is negotiating a price that the acquirer feels will not exceed fair market value nor impair the ability to have a profitable bank. The final negative issue is the detailed information and time required to file a change of control application with the Federal Reserve.

De Novo

The de novo certainly has its share of advantages. The founding group starts an organization that has a clean record. They get to set their guidelines, policies, and their appetite for risk. There are no bad loans or undesirable deposits at the start. An additional advantage with a new charter is the air of excitement of new beginnings with the shareholders, directors, officers, and employees motivated to build a successful bank.

The primary disadvantage of obtaining a de novo charter at this time is the limited number of charters that the regulatory authorities are willing to grant due to the current economic conditions. If they are willing to grant a charter, the time required for approval and the process of documentation of filing instruments is substantial. If a de novo charter is granted, the time to profitability can sometimes exceed five years. During the initial charter period, the erosion of capital can easily exceed ten percent of the initial capital of the bank.

THE FUTURE OF DE NOVO BANKS

In a recent article, Rozycki (2010) noted that the Federal Deposit Insurance Corporation had seen a trend in which new depository institutions below seven years of age failed at a much higher rate than more seasoned institutions. Some of the issues attributed to the higher rate of failure included taking excessive risks to obtain loans, a lack of revenue, and an unstable deposit base.

As a result of the Federal Deposit Insurance Corporation's concern relating to the failures, the agency published the Enhanced Supervisory Procedures for Newly Insured FDIC-Supervised Depository Institutions (FIL-50-2009) in which they set out some stringent new guidelines to attempt to mitigate the risk associated with de novo institutions. Some of these changes included increasing the "de novo supervision" from three to seven years. During the seven years, the banks will have heightened supervision in risk, compliance, and the Community Reinvestment Act.

FIL-50-2009 stated" Troubled or failed institutions have demonstrated these common elements during the first seven years of operation.

- Rapid growth
- Over-reliance on volatile funding, including brokered deposits

- Concentrations without compensatory management controls
- Significant deviations from approved business plans
- Noncompliance with conditions in the deposit insurance orders
- Weak risk management practices
- Unseasoned loan portfolios, which masked potential deterioration during an economic downturn
- Weak compliance management systems leading to significant consumer protection problems
- Involvement in certain third-party relationships with little or no oversight"

The foregoing cautionary information truly sets the stage for the need to careful planning, quality policies, experienced directors, and experienced management. Regardless of the economic conditions or environment, careful planning and execution tend to make for a successful operation in financial institutions, without reference to age of the organization.

As in any successful operation, good preparation meets opportunity! Therefore, it is important to establish the practices necessary to successfully obtain a de novo bank charter. The process includes examining market demographics, evaluating competition in the market, establishing what will set the de novo apart from the competition, developing a need for the charter, formulating a business plan, and meeting with the chartering regulators.

Examining Market Demographics

There are a number of data sources such as SNL Financial, state, county, and city economic data, chamber of commerce, and numerous others. The market data should address the ages and incomes in the market. Income data to include household median and average income is helpful in determining the income group the new bank will serve. Due to the diversity in most markets, the data should also breakdown the ethnicity of the population.

Evaluating the Competition

Unless it can be established that the market can support a competing financial institution, the regulatory authorities will not approve a de novo charter. Therefore, it is necessary to evaluate the loan growth and the deposit growth in the subject market. Also, how profitable are the banks in the existing market? What are the strengths and weaknesses of the competition?

Setting the Bank Apart

An evaluation of the elements that will set the proposed de novo bank apart from the other area financial institutions is vital for success in obtaining a charter. The establishment of the three or four key segments to be served such as small business, executive/professional, and consumer is important. Serving an "unbanked" area will set the bank apart. The level of

personalized, quality service to be provided should be included. The hours of operation and the products to be offered should be included.

Developing a Need for a Charter

Unless a need can be proven, a charter will not be granted. Banks are chartered for two primary purposes. It must render a service to the community and provide a return to the shareholders. The chartering agency expects the de novo request to show a reasonable and logical need for the charter to be granted.

The Business Plan

As Cope (2007) noted, regulators are not going to allow a new bank to be chartered without a well thought out business plan. The plan should set out a specific location for the proposed bank. This would include a map and the type facility in which the bank would be located. A complete evaluation of the primary market that the proposed bank would serve would be required. In the market evaluation, a detailed report on other financial institutions located in the market, their share of the market, and how the bank would compete in the market. Capital is normally considered the most important element for regulators to grant a new charter. Therefore, a plan for the capitalization of the proposed bank must be presented in detail, noting how the funds would be raised. At least five individuals are required to organize a bank. These organizers are required to provide detailed information concerning their background, financial resources, finger prints, and the name of the person who will be the president of the bank. Since the attack on 9/11, the vetting of the organizers is even more detailed in requirements. The plan must include detailed information concerning the services to be offered to its potential customers. With the listing of the services, the pricing of the services needs to be discussed. Detailed financial projections will be required. The projections must give a best case, most likely case, and worst case scenarios.

Pre-Charter Meeting

Before filing the official de novo charter application, it is desirable to arrange a meeting with the chartering regulatory agency and furnish preliminary data. At the meeting, bring all proposed directors/organizers, attorney for the group, and consultant. Everyone should know the business plan and be prepared to give good answers. However, there should be a spokesman for the group and only that spokesman, attorney, and consultant should speak. Others present should only speak when a question is posed to them. The key result from the meeting should be getting a feeling from the regulators about the proposal.

Filing the Charter Application

All of the information in the business plan would be incorporated into a formal application following all of the requirements of the specific laws and regulations required by the chartering agency. Usually, the application is prepared by the attorney and the consultant. The attached Table 1 is the table of contents for the Office of the Comptroller of the Currency's requirements for charter, which shows the detailed nature of the application.

CONCLUSION

While there are a limited number of charters being granted at this time due to the financial crisis, history has proved that there is a need for additional charters. Care must be taken to ensure that the new bank has a quality business plan that is being followed, a management and board of directors with banking experience, a quality loan portfolio, adequate cash flow, and substantial capital to sustain the start-up bank. In stable times, as many as several hundred de novo banks are chartered a year. The requirements will continue to be more rigid as a result of increasing regulations.

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TABLE 1

OCC CHARTERS TABLE OF CONTENTS