

LEARNING IN HIGHER EDUCATION

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van der Klooster Marie Louise Australia Victoria Deakin University	Valle Matthew "Matt"	United States	NC	Flon University	
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Reviewer	Reviewer Country State/ Region		Affiliation	
Vehorn, Charles	United States	VA	Radford University	
Voss, Richard Steven	United States	AL	Troy University	
Voss, Roger Alan	United States	TX	Epicor Software Corporation	
Wade, Keith	United States	FL	Webber International University	
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A Perspective on Student Evaluations, Teaching Techniques, and Critical Thinking

Prashant Tarun

Missouri Western State University Craig School of Business St. Joseph, Missouri

Dale Krueger Missouri Western State University Craig School of Business St. Joseph, Missouri

ABSTRACT

In the United States System of Education the growth of student evaluations from1973 to 1993 has increased from 29% to 86% which in turn has increased the importance of student evaluations on faculty retention, tenure, and promotion. However, the impact student evaluations have had on student academic development generates complex educational issues. These issues involve teaching critical thinking skills, teaching to the student evaluations, types of tests, grade inflation, student interest in the subject matter, and a student's sense of entitlement. To avoid the moral and ethical issues associated with educational development and student evaluation instrument with another student evaluation instrument. The purpose of this research is to explain the impact of different types of tests with different types of subject matter in an attempt to clarify and reduce distortions, and biases associated with a system of learning that encourages academic development.

INTRODUCTION

This paper covers several important aspects of learning in the United States: type of tests, the critical thinking associated with the tests and the impact of student evaluations on evaluating faculty for promotion and tenure. The introduction first addresses the type of tests and secondly proceeds with the regulations and impact that has developed regarding how to regulate and interpret student evaluations.

First, in the United States multiple choice tests have become heavily used, which raises the question whether multiple choice exams are used too extensively (Phelps, 1996). These exams consist of a stem and a set of options or answers that the person taking the exam can choose the option that has the correct answer called a key and the incorrect answers called distractors (Kehoe, 1995). This type of test does not require the teacher to interpret answers, which helps eliminate teacher bias (DePalma, 1990). The advantages pertain to limited types of knowledge that allows for one answer, which limits testing to lower-order subject matter that has a specific structure. Subject matter that involves problem solving and higherorder reasoning skills are better suited using the essay. Essays are used to judge the comprehension of the material which requires the student to write their answers in an organized presentation.

The essay takes on a number of different forms and styles. The cause and effect requires a causal chain that connects ideas. Categorization breaks ideas into smaller parts. The comparison and contrast analyzes differences between concepts and ideas whereas the descriptive essay provides details usually associated with emotional, physical and intellectual state of the topic. The dialectic and critical essay focuses on an argument or supports a position and usually has examples to clarify a position of strategy. The last two dialectic and critical are usually utilized in Strategy Management classes.

Second, for student evaluations the State of Missouri Legislature passed a law requiring all state colleges and universities to post all student evaluations for all faculty members. Therefore, eliminating student evaluations was not an option at Missouri Western State University or within the Craig School of Business. To assess and improve the use of student evaluations a committee was formed in the Craig School of Business to develop a more in depth perspective on how to interpret student evaluations. At the same time the first step was to develop a new student evaluation instrument that had greater validity and reliability. The second step was to analyze the differthird step was to provide information on a comprehensive system of learning associated with business courses. . Because of the different business disciplines, this study analyzes grades, type of tests, types of students (left or right side of brain, class size, different types of courses (lower and higher level), different critical thinking levels, different course materials, various teaching methodologies and student perceptions.

The research for student evaluations was done at Missouri Western State University, a regional university with 6000 students. It is an open door university broken down into three separate schools: Liberal Arts, Professional Studies, and The Craig School of Business. Within each school various departments set their own admission requirements. For admission into The Craig School Business students have to have a 2.5 grade point average or an ACT of 21. The average ACT in the School of Business is 21-22. After admission students have to declare a major in one of the four disciplines: accounting, finance, marketing, and management.

The initial step in analyzing student evaluations was very straight forward. There are occasionally "outliers" or rogue respondents in college classes who demonstrate no interest in accuracy or fairness in student evaluations of teaching. Anyone who has taught for a decade or so can probably recall student evaluations done in 20 seconds or less that had all "5's" or all "e's" [whatever the lowest mark was] for every question. In small classes when these are counted at full value with the others, they tend to bring down average scores significantly. For example, in one 400 level evening class that Professor M had at this school, there were 8 students. Seven students filled in evaluation forms. Two of the seven consistently rated the instructor at 3^1 ; and the other five were mostly 1 and 2 ratings. The result was that the instructor had an average rating of 1.82 with a Ø.78 standard deviation. Without the two outliers, the instructor would have an average rating of approximately 1.40. The 1.4 would place the instructor in the top half of instructors university-wide (mean = 1.555) and still higher in the school of business (mean = 1.894). The question is whether the differences are statistically significant to warrant a decision on who is the better teacher? According the statistical research the statistical significant research can be strong or weak and small or large. For example, the difference between student evaluations of 1.90 and 1.94 at a significant level of .05 with a standard deviation of .8 requires a sample size of 3074 using a Z test of independent samples (McClave & Benson, 2008).

Despite the statistical difficulty of measuring student evaluations we proposed to pilot an evaluation instrument that would contain five or so factual questions. For-

ences between multiple choice tests and essay tests. The mally, we hypothesized that the "rogue respondents"² or "outliers" would answer the factual questions accurately. Privately the speculation is that this might not be true. If this hypothesis were false and the speculation true, then an initial sort to screen out student responses on the conduct of the class that were factually wrong should make the remaining evaluations more reliable. For example, a student who is so disengaged from the class as to be unable to answer how many exams there have been or when did the instructor pass out the syllabus for the course may not answer the question accurately. If the factual questions are not accurately answered this cancels the reliability of the respondent to questions about the pedagogy of the course. Again, this was the initial hypothesis. Another hypothesis was that the use of responses only from respondents who were at least approximately correct on the factual questions would not affect the scores for most instructors. We did not have a firm grasp regarding this second hypothesis. As a result our recollections had been limited to outliers who were determined to "punish" instructors for various, frequently [but not always]"imagined" slights or transgressions (Greenberger, 2008).

> To present on student evaluations research other variables into some type of context and framework, a review of the literature on educational progress grade inflation, student interest in subject matter, critical thinking and the type of subject matter, perception of students toward left brain and right brain subjects, student assessment about the difficulty of obtaining a grade in various courses, and the implications and suggestions for evaluating student evaluations was undertaken.

> This study attempted to compare two evaluations instruments the present one in use at Missouri Western state University and a newly designed instrument that incorporated various aspects student learning (critical thinking) along with questions that hopefully provided more appropriate criteria on improving the reliability and validity of student evaluations of the instructor. In addition multiple choice tests and essay test results were compared between Strategic Management and Principles of Management that permitted an analysis associated with an integrated system of learning.

REVIEW OF THE LITERATURE

In 1981, the National Assessment of Educational Progress identified critical skills that workers will need to survive in the 21st century: "Skills in reducing data, interpreting it, packaging it effectively, documenting decisions, explaining complex matters in simple terms and persuading" (NAEP, 1981). These skills point toward the need for colleges and universities to identify and develop students' abilities to "to turn facts into concepts, to turn concepts into a policy or plan, and to see the issue and define the the reliability and validity of the ratings. Unfortunately, there is no substantial evidence to support the fact that problem within a problematic situation" (Flower, 1990). Since 1981 periodically attention has been drawn to adult student evaluations improve instructional quality (Adliteracy and the problem associated with workers that do ams, 1997), and yet the research indicates college instrucnot have the ability to perform work tasks that are increastor's should be measured against seven dimensions: (1) instructor knowledge, (2) testing procedures, (3) studenting becoming more complex and technical. The problem isn't people who can't read and write, but those who read teacher relations, (4) organizational skills, (5) communiand write at lower levels than the task demands (Grimsley, cation skills, (6) subject relevance, (7) utility of assign-1995). Despite the attention to the goal of improving our ments (Robbins, 2000). Although these dimensions have educational system and concomitantly the skills of our been identified, the problem is universities and colleges students not much progress has been made by our eduhave tried to implement classroom evaluations to gather cational system other than articles on how to make our information on students perceptions of what transpired schools better for our children (Symonds, 2001). in the classroom during the duration of the course to ob-

tain information for promotion, retention, and feedback. The goal of developing critical thinking skills in students These evaluation instruments have fall short. For examand the goal of improving student evaluation numbers in ple, one aspect of the research indicates non-verbal behavhigher educational institutions has generated moral and ior warmth and supportiveness (interpersonal behavior) professional conflicts for college and university adminisare related to the teacher's student evaluation (Ambady trators and faculty. An important question that should be & Rosenthal, 1993). However, these dimensions need addressed is whether educators are focusing their efforts criteria to support the seven dimensions. For this study on addressing educational improvement or have rather two evaluation instruments were compared to provide a adapted their tests, courses, and classroom demeanors to possible benchmark and greater understanding of student improve their student evaluation numbers? The research evaluations and the impact on critical thinking, which inpoints toward faculty pandering to modern students' cludes differences between test multiple choice tests and sense of entitlement. This sense of entitlement appears essay tests. to be widespread, and depending upon the amount of administrative pressure placed on faculty to generate Because of the emphasis in higher education on student evaluations, grade inflation seems to correlate with the increased use of anonymous semester-ending student evaluations. In 1987 27% of the high school students taking the SAT test had GPA's in the A-plus to A to A minus range, and by 2007 the percentage of "A-students" taking

"good" evaluations, the amount of pandering appears to be substantiated by a number of studies against the use of student evaluations for retention, tenure, and promotion (Baldwin and Blattner, 2003; Green, Calderon, and Reider, 1998). the SAT had increased to 43% (Caperton, 2009). This Studies that deal with student evaluation criteria and adgrade inflation contributes to what students perceive as ministrative cognitive processes in performance appraisal self-entitlement. This self-entitlement translates into stuthat were conducted in field settings raises questions about dents pressuring professors for higher grades based on the usefulness of this practice. Despite the lack of reliable their special needs and preferences (Greenberger, Lessard, and valid information business schools use the evalua-Chen, & Farrugia, 2008). At the university level recent tions for a number of purposes (Cleveland, Murphy, Wilresearch has pointed out that student evaluations are posiliams, 1989). The results of these evaluations are used for tively correlated with grades (Weinberg, Hashimoto, & various human resource decisions. However, if the objec-Fleisher, 2009); many faculty contend that student evalutives in the evaluation instrument are unclear and the criations play a very significant role in tenure and promotion. teria measuring those objectives are vague, there will be an Therefore, it is not unusual for faculty to resort to open unsatisfactory payoff for the employee, the organization, book exams, more true-false questions, and essay exams and the evaluative participant. The result can be confuthat emphasize lower levels of critical thinking to generate sion and misapplication. For example, student evaluations higher grades and better student evaluations rather than may depend on the context of other students, on previous focus on educational development. Harvard reported student performance, the level of student development, "one-fourth of all grades given to undergraduates are now the type of subject matter, student's interest in the subject A's and another fourth are A-'s (Mansfield, 2001). matter, testing difficulty, instructor's knowledge, teacherstudent relationships, the teacher's organizational skill, The most recent article on complex reasoning and writing communication skill, and the content difficulty. skills (General collegiate skills appeared in the Chronicle

of Higher Education on January 20, 2011. (Vedder, 2011). To unravel the evaluation process researchers have at-Using the Critical Leaning Assessment (CLA) to measure tempted to design standardized instruments to improve the gains in critical thinking, reasoning, and writing skills college students. Over four years of college work 36% of the students did not show improvement in learning, which is perhaps traced to the time spent in academic pursuits. The study indicated students spent less than thirty hours per week on academics, and seniors had not completed a course with 20 or more pages of writing in a previous semester. However, there were differences in majors. Liberal arts students had somewhat higher gains in critical thinking, reasoning and writing compared to students in business, education, social work, and communication. What was significant was the time spent studying alone: five hours. The Arum and Roksa study indicated studying alone was more effective than collaborative learning (Arum and Roksa, 2011).

METHODOLOGY

This project included the designing and piloting an alternative student evaluation instrument. The process was to incorporate five factual questions into the instrument. This approach embraced the idea that if these factual questions were correct, then the remaining questions within the student evaluation instrument would improve validity and reliability. For example, using the Missouri Western State University evaluation instrument the student who is so disengaged from the class as to be unable to answer how many exams there have been in the course would not be able to respond appropriately to questions about the pedagogy of the course. The alternative student evaluation instrument requires students to answer factual questions. If these factual questions were not correct, then the instructor's overall student evaluation ranking would not be correct.

To statistically compare the two student evaluations instruments the null and alternative hypotheses follow:

Null Hypothesis:

- H_{a} There is no difference between the instructor's overall teaching effectiveness rating for a class obtained using the old survey instrument and the instructor's likeability rating for a class obtained using the new survey instrument.
- Ho: There is no difference between multiple choice and essay exams

Alternate Hypothesis:

HA: There is a difference between the instructor's overall teaching effectiveness and likeability rating for a class obtained using the old survey instrument and for a class obtained using the new survey instrument.

the findings did not show measureable improvement for Three instructors used the new evaluation instrument in the following classes:

- Instructor one: class 1 Management of Organizations, classes 2-4 Strategic Management
- Instructor two: class 1 Advanced Income Tax, classes 2-3 Business Law
- Instructor three: class 1: International Finance, class 2: Finance Principles, classes 3-4: Introduction to Statistics
- Ha: There is a difference between multiple choice exams and essay exams

A Comparison of the Two Survey Instruments

Assumptions: In order to compare the old (current university form) with the newly piloted form, we had to make certain assumptions. They were:

- 1. Likert scales for old and new survey instruments are comparable; and
- 2. Instructor's likeability ratings from the new survey instrument can be compared with the ratings of instructor's overall teaching effectiveness from the old survey instrument.

To statistically compare the two evaluation instruments the Mann Whitney U Test was utilized.

In evaluating the statistical results using the Mann-Whitney for five senior level courses and six sophomore-junior level courses, the teaching effectiveness for the old instrument and teaching effectiveness and the likeability rating for the new instrument supported the null hypothesis and produced no statistically significant difference between the two evaluation instruments. There was no significant difference between the old instrument and the new instrument.

Although the Mann-Whitney helped to analyze the Likert scale questionnaires further statistical procedures were tested for association patterns (co-linearity) between the 25 questions on the new instrument. To test for association patterns between survey questions Chi-squared (nonparametric) was used. There were 209 surveys given to a total of 209 students in 11 classes taught by three different instructors. The survey had 25 multiple choice questions. For each of these questions, the answer choices were entered as numbers 1, 2, 3, 4, and 5 for choices a, b, c, d, and e, respectively. The instrument was designed to contain 6 embedded "fact" questions that we intended to use on a preliminary sort to eliminate those students whose course involvement was so tenuous as to prevent them from anright about the classes they are taking. In order to support our hypothesis that association patterns exist with student evaluation instrument, various scenarios were constructed for each of the eleven instructor-class combinations based upon students' answers to the fact-based questions Q1, Q3, Q4, Q13, Q21, and Q25. The next step was to explore how answers to the fact-based questions might have been influenced by answers to the likeability question (Q18).

swering what we thought of as simple questions of fact of class awareness or participation so as to get their facts relating to the course. To test for likeability question (numbered 18) asked the students to respond to this statement: "Indicate your agreement with this statement: 'I like the instructor for this course."3 When we checked on association patterns using the Null Hypothesis that there was "No association between two variables (or questions), it was discovered that Q 18 was associated with almost two-thirds (15 of 24) of the questions. Therefore, question 18 determined the overall average for the instructor. To explore this as-Out of eleven classes, only one instructor in one class [Insociation link between questions further analysis was restructor #1- Class #1] had consistently lower likeability quired.

ratings, when students were unable to answer the factual questions correctly. They were excluded from the calcu-On this next round of analysis the results were broken lation. For the other ten classes, when the non-attentive down by instructor and the classes they taught in spring students were excluded, the evaluation of teaching scores semester 2009. To maintain anonymity, instructor names improved. If student evaluations scores and "attentiveand classes were not identified in this report. Instead, we ness" were independent, the expectation is that 5 or 6 of assigned arbitrary numbers to the instructors and to the the 11 classes classes so that "11" represented instructor #1 class #1; "12" designated instructor #1 and class #2, and so on and so would have higher student evaluation scores when non-atforth. Each student's answers to the fact-based questions: tentive students were included and the other 6 or 5 would Q1, Q3, Q4, Q13, Q21, and Q25 were evaluated to idenhave lower student evaluations when non-attentive stutify students that did not agree with the answers picked dents were included. Obtaining a 10 to 1 outcome from by majority of students in the class. If there were differ-11 tries of a 50/50 event is possible, of course, but only ences between some student evaluations and the majority 67 times in 10,000 probable. (Chi-Square P= .006656) of student answers, then class/instructor evaluations be-In other words, there is both descriptive/intuitive and come skewed by students who do not display a basic level statistical evidence suggesting a correlation between stu-

		Тав	LE 1						
Results for Old Survey Instrument					TABLE 2				
Instructor	Class	Class	Instructor	's Teaching	RESU	LTS FO	R NEW	SURVEY INST	RUMENT
		Size	Effectivenes the Enti	ss Rating for ire Class	Instructor	Class	Class Size	Instructor's Rating for th	ELikeability e Entire Class
			Mean	Std. Dev.				Mean	Std. Dev.
1	1	28	2.214	Ø.91 7	1	1	29	2.24	Ø.98
	2	1Ø	1.6	Ø.699		2	1Ø	1.5	1.2
	3	1Ø	3	1.333		3	11	2.64	1.21
	4	32	2.6875	Ø.965		4	32	2.53	1.Ø8
2	1	1Ø	1.4	Ø.699	2	1	1Ø	1.1	Ø.32
	2	28	2.321	1.09		2	29	2.17	1.19
	3	13	1.923	Ø.954		3	16	2.31	1.19
3	1	18	1.444	0.705	3	1	18	1.33	Ø.485
	2	24	1.79	Ø.93		2	17	1.41	1
	3	26	1.3846	Ø . 571		3	26	1.19	Ø.4
	4	12	1.25	Ø.452		4	11	1.18	Ø.4
1- Exceptional, 2- Average, 3- Below Average, 4- Fair, 5- Poor				1-5	Strongly 4-Disa	Agree, gree, 5-S	2-Agree, 3- Ne Strongly Disagi	eutral, ree	

TABLE 3 SUMMARY OF HYPOTHESIS TESTS:								
Instructor	tor Class Hypothesis Test Results							
	1	U = 406 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 28$ and $n_2 = 29$, $U_{\text{critical}} = 282$ We fail to reject H_0 since $406 > 282$. Also, since $p = 1.00$ is greater than 0.05, we fail to reject H_0 .						
1	2	U = 37 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 10$ and $n_2 = 10$, $U_{critical} = 23$ We fail to reject H_0 since $37 > 23$. Also, since $p = 0.35$ is greater than 0.05, we fail to reject H_0 .						
	3	U = 47 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 10$ and $n_2 = 11$, $U_{\text{critical}} = 26$ We fail to reject H_0 since $47 > 26$. Also, since $p = 0.60$ is greater than 0.05, we fail to reject H_0 .						
	4	U = 572.5 We fail to reject H_0 since $572.5 > U_{\text{critical}}$ at $\alpha = 0.05$ for $n_1 = 32$ and $n_2 = 32$. Also, since $p = 0.42$ is greater than 0.05, we fail to reject H_0 .						
	1	U = 39.5 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 10$ and $n_2 = 10$, $U_{\text{critical}} = 23$ We fail to reject H_0 since $39.5 > 23$. Also, since $p = 0.44$ is greater than 0.05, we fail to reject H_0 .						
2	2	U = 362 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 28$ and $n_2 = 29$, $U_{\text{critical}} = 282$ We fail to reject H_0 since $362 > 282$. Also, since $p = 0.49$ is greater than 0.05, we fail to reject H_0 .						
	3	U = 121 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 13$ and $n_2 = 16$, $U_{\text{critical}} = 59$ We fail to reject H_0 since 121 > 59. Also, since $p = 0.47$ is greater than 0.05, we fail to reject H_0 .						
	1	U = 156 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 18$ and $n_2 = 18$, $U_{\text{critical}} = 99$ We fail to reject H_0 since 156 > 99. Also, since p= 0.86 is greater than 0.05 , we fail to reject H_0 .						
2	2	U = 135 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 24$ and $n_2 = 17$, $U_{\text{critical}} = 129$ We fail to reject H_0 since 135 > 129. Also, since $p = 0.07$ is greater than 0.05, we fail to reject H_0 .						
5	3	U = 283.5 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 26$ and $n_2 = 26$, $U_{\text{critical}} = 230$ We fail to reject H_0 since 283.5 > 230. Also, since p = 0.32 is greater than 0.05, we fail to reject H_0 .						
	4	U = 61.5 Critical Value of the Mann-Whitney U test at $\alpha = 0.05$ for $n_1 = 12$ and $n_2 = 11$, $U_{\text{critical}} = 33$ We fail to reject H_0 since $61.5 > 33$. Also, since $p = 0.79$ is greater than 0.05, we fail to reject H_0 .						

STUDENT EVALUATIONS AND **CRITICAL THINKING IMPLICATIONS**

and critical thinking is further complicated by the hundreds of different courses offered by the typical university that present a smorgasbord of critical thinking levels for students depending on the nature of course materials and teaching methodologies. Historically, Bloom classified different critical thinking levels in the cognitive domain nitive domain classifications start with knowledge and then proceed in the following order with the difficulty increasing in the following order: comprehension, analysis, synthesis, application, and evaluation. To expand Bloom's famous taxonomy of educational objectives, Gronlund divided Bloom's cognitive domain into instructional objectives and behavioral terms (Gronlund, 1978), which inof critical thinking based on different levels of difficulty. different types of courses with the different critical thinking levels and different educational objectives becomes an administrative issue. However, if the typical administrator/bureaucrat could get past student evaluation averages, student test scores, type of tests that produces differences in critical thinking then business school quality could increase. For example, the Graduate Management Adintegrative reasoning (Dammon, 2011), and a recent article in Business Education suggests a new rating system improvement (Rubin and Morrison, 2015).

This educational dilemma between student evaluations This conflict between student evaluations and student academic development has frequently had a negative impact on both academic skills and the social maturity that college graduates manifest. Self-confidence and self-respect may be seriously jeopardized. If a faculty member attempts to provide instruction that stimulates critical thinking and to construct examinations that actu-(Bloom, Engelhart, Furst, Krathwohl, 1956). These cogally measure student progress, such a faculty member will probably encounter a significant obstacle when it comes to the student evaluation process. When other variables are added to the mix such as cultural diversity, testing differences (types of tests), grades, brain preference, size of class, critical thinking differences, subject matter differences and different levels of preparation for higher education, anyone attempting to develop a student evaluation instrudicates different courses frequently require different levels ment that is fair and that provides valid feedback has an enormous challenge with the interaction of the numerous Comparing one instructor with another given the many variables that play a role in student evaluations.. At Missouri Western State University the original evaluation instrument has indications of co-linearity or association patterns. For example, on question five " The instructor presents the course material clearly and understandably" the evidence indicates that if the students rate the instructor between 2.0 and 2.5 on this question the overall evaluation average will be between one and two. mission Council for Business Schools is now testing for If the students rank the instructor 2.5 to 3.0 the evaluation average falls between 2.0 and 2.5. On the new instrument specific questions number 10 and 11 address critical for business schools that focuses on quality and learning thinking. Question 10 asks, to indicate your agreement with this statement: I like assignments and exam ques-Differences in testing procedures and the quality of stutions when the answers can be readily checked in the dents produce differences in student evaluations between book". The percentage of students that strongly agreed faculty members and also between classes for a single facwith the statement was 45.45% and the other five answer ulty member. These differences aggravate the evaluation percentages were agree at 34.35%, neutral at 17.70%, disproblem. Multiple choice exams differ from essay exams; agree at 1.44%, and strongly disagree .96%. In contrast and end of chapter essays may reflect specific concepts to question 10 the next question number 11 than asked in the chapter, but may be limited because they usually the students the following: Indicate your agreement with do not compare and contrast different concepts or ideas. statement: "I like assignments and exam questions whose As a result of testing differences and the different types answers allow for interpretation and creativity". The perof students enrolled in each class, we find differences in centage of students that strongly student evaluations not only between classes and between agreed with this statement was 10.53% and the other aninstructors but also between sections of the same class for swers were as follows: agree 27.75%, neutral 34.93%, disthe same instructor. Although there are differences, this agree 15.79%, and strongly disagree 11.00%. Question 10 research did not produce statistically different student focuses more on courses that are structured with facts and evaluations between courses and instructors. Current stuspecific procedures such as finance and accounting. Quesdent evaluation procedures are, thus, not reliable for protion 11 more on courses that require synthesis for applicamotion and tenure.

tion. Similarly questions 14, 15, 16 on whether the con-By adding the percentages of the newly student evalucepts were more interesting, valuable, and difficult did not ation instrument for whether students strong agree and produce any substantial deviations. However, in reviewagree on each of the questions associated with student ing some of the results by subject area, type of tests, and

dents' ability to answer factual questions in a class and instructor's likeability in that class. The statistics based on our scenario analysis supports our hypothesis that the students who are unable to answer factual questions satisfactorily/correctly tend to give lower likeability ratings to the instructor.

By excluding a student's set of responses because the student was not able to answer all six fact-based questions correctly the mean composite student evaluation score (average) for the instructor improved and the standard deviation for the class became smaller (indicating more consensus on teaching effectiveness). Apparently, the line

between fact and opinion is blurred when an undergraduate student decides that he/she does not like an instructor. The importance of this for our argument is that if nonattentive student responses about whether a syllabus was handed out cannot be relied upon, then their assessment of the instructor's value in helping to clarify difficult material must be at least suspect.

grades there were some differences that indicate student evaluations vary depending on the type of course.

evaluations by subject, type of tests, grades, size of class, major, produces additional insight on the difficulty and the complexity of interpreting student evaluations fairly. For example, question number 10, "I like assignments and exam questions when the answers can be readily checked in the textbook." The upper level courses MGT 419 Strategic Management, Tax, and International Finance the percentage of students favoring the question 10 was 69 % versus 82% for the lower level classes: Principles of Management, Business Law, Principles of Finance, and Business Statistics.

Question 11 asks students whether they like assignments and exam questions that allow for interpretation and creativity. The average percentage on question 11 for all subject areas was 40% whereas for question 10 where the assignments and exams are tied back to the textbook the average student percentage was 77% for all subject areas.

What is interesting is the difference in percentages for the two classes of MGT 419 one class average for question 11(assignments and exam questions allow for interpretation and creativity) was 60% and the other class was 36%. In checking the number of majors by subject the class makeup was quite different. The class that rated question 11 at 60% has 12 students with nine marketing and management majors and the class that rated question 11 at 36% had 14 students with 10 of the students majoring in finance and accounting. This percentage difference indicates a brain preferences(left or right) may play a role in student evaluations.

Turning to questions 14 and 15 substantial differences exist between the strategic management classes. Question 14 asked whether "the concepts in this course were more interesting than the concepts in most other courses I have taken," and question 15 asked "The concepts in this course were more valuable than concepts in most other courses I have taken". For question 14 the student ranking was 60% for the marketing and management majors and 18% for the finance and accounting majors. On question 15 the percentage difference was 70% for marketing and management majors compared to 36% for finance and accounting. However, on question 23 that asked, "The instructor stimulated my interest in this subject," the class with the marketing and management students ranked question 23 at 90% and the class with the finance and accounting students ranked question 23 at 18%. In short, questions 14 (interesting concepts), question15 (concepts were more valuable), and question 23 (instructor stimulated my interest) the differences were considerable, and yet on question 20 which asked "it was harder to get a good grade in this course than in other courses," there was no difference between the two Strategic Management (MGT 419) classes: 82% compared to 81%. Even though one class

had more finance and accounting students and the other class had more marketing and management majors. Then question arises whether the teaching and assignments were different between the two classes? The answer is no. In teaching Strategic Management 419 there was no difference in the lectures, exams, individual case studies, and the group case studies, and all exams and individual case studies were graded anonymously by having the students use an identifying mark that they selected. When the papers were handed back the students wrote their names on the papers, and instructor recorded the grades.

For the other upper level courses International Finance and Tax the concepts were more interesting than other courses (question 14) the percentages were respectively 72% and 50%, but for the lower level courses Principles of Management MGT 305; Business Law, GBA 211; Principles of Finance, FIN 301; and Business Statistics, GBA 210 the average was 33%. On question 15 (concepts in this course were more valuable than concepts in other courses) there was a variance. Principles of Management and Business Law more right brain subjects averaged 39% whereas Tax, Principle of Finance, Business Statistics the more(quantitative and procedural subjects averaged 68%.

Question 16 asks whether "The concepts in this course were more difficult than concepts in most other courses I have taken". The total average for question 16 was 59%. In comparison the tax course ranking was 80%. Question 20 asks whether "It was harder to get a good grade in this course than in other courses". The total average for question 20 for the tax course was 60%. However, the strategy courses were ranked higher at 80% and 82%, which is consistent with question 12 which indicated the strategy course required more work than other courses. Question 23 asks the students does "The instructor stimulate my interest in the subject". The average was 55% with a range of 24% to 90%. For question 23 on whether the instructor stimulated my interest in the course the upper level courses Strategic Management (two classes), Tax, and International Finance scores were 90%, 18% for Strategic Management. The 90% class had a predominance of marketing and management majors, and the 18% class had accounting and finance majors. For the other upper level courses Tax, and International Finance the scores were respectively 80% and 83%. Why the difference in the Strategy classes? To explain the difference between the two strategy classes remember one class was populated with 75% marketing and management majors and the other 75% finance and accounting, and the research indicates most marketing and management majors are right brain whereas finance and accounting majors are usually left brain (Krueger, 2009). . Therefore, brain preference stimulates interest in the subject matter and plays an important role not only in how students evaluate the course

8

and the instructor, but also indicates a strong connection three are selected for the test. For the Principles of Manbetween high student interest in the subject matter, and agement course student learning outcomes (Bergin 1999: Frymier, Shulthe fifty exam questions per test for a total of four tests. man, & Houser, 1996: HIDI, 1990; Schiefele, 1991, All the test questions were taken from the test bank, and 1996). According to Schiefele a student's subject matter twenty percent were ranked as easy by the test bank, and interest increases learning because subject matter interest the other forty questions were split between moderate and encourages student intrinsic motivation. Specific types of with ten percent considered difficult. Before the exam the tests that represent specific learning strategies that correinstructor reviewed the fifty multiple choice exam queslate with student interest and motivation lead to student tions. As for the teaching methodology for the Principles internalization and ownership of material (Dewey, 1913). of Management classes relied simply on the 125 questions These connections in turn lead to different levels of critiper chapter and the test covered three chapters including cal thinking and can produce differences student evaluathe final. The final did not have questions over previous tion differences, but again not significant statistical difchapters. For teaching the textbook power point was utiferences. lized..

Question 23 on whether the instructor stimulated my interest in the course the lower level courses Principles of Management, Business Law, Principles of Finance and Business Statistics averaged 49%. Why? The lower level classes students usually have not committed themselves to a specific major. Therefore, interest in the subject matter at this level becomes difficult to assess. WEDI LOCEDED

IMPLICATIONS

The different tests between the Strategic Management classes and the Principle of Management classes were dif-The research substantiates that student evaluations have inadvertently overtime increased grades in higher educaferent. In Principle of Management classes the multiple choice test grades decrease as the course proceeded from tion. This study provided evidence on how difficult it is to design a better student evaluation instrument and how to historical information on the first exam into more abplace student evaluations into a context. What we have is stract concepts on subsequent exams including the final, a conflict with student evaluations grades and the need for which again, was not comprehensive. faculty in higher education to focus more on developing In contrast to multiple choice exams the essay approach in to the second exam. In the Strategic Management classes the exam questions are handed out at the start of the se-

students. To further this development additional Strate-Strategic Management shows improvement from the first gic Management Classes were compared using different teaching techniques and different testing techniques and the alternative hypothesis indicated differences in grades mester, and the students are given points for developing and teaching techniques.. their answers to the questions before they take the exam. For Strategic Management there are eight Essay Ques-The instructor teaches to the exam questions and reviews tions for first exam: Porter's buyer and supplier power, one week before the exam so the students can make adcompetitive rivalry, Deming Quality Management, Barjustments to their answers. By using essay tests that have riers to Entry, Business Strategies, Corporate Strategies, an extensive writing and application approach in Strategic Management, the group student exam scores improved and an Econ Forecast. The second essay exam questions focus on International currency exchange rates includbetween the first and second exam with the grade scale at ing implications, forecasting models, Strategic Alliances 90% for an A, 80% for a B, 70% for a C, 60% for a D, and and joint ventures etc., BCG Matrix, Different Organi-60% for a F. At the end of the semester with the individual zational Structures, Company Cultures, Motivational case studies and the group case studies the group course Practices, and Global and Multinational Strategies. The grade point at the end of the semester averages between instructor's lectured centered on explaining in depth each 2.5 and 3.0. of the eight questions, and these are the eight questions However, in the Principles of Management course the that the students are required to take notes and then write multiple choice exams not only decreased with each exam, out answers for each of the eight questions for ten points. but the teacher at the end of the course had to lower the Then the instructor reviews the test questions before the grade scale: 85% for an A, 73% for a B, 63% for a D, and students take the exam. This approach enables the student 51% for an F. Even though the multiple choice exam questo prepare for the eight questions and out of the eight

tions are reviewed one week before each exam, the review did not produce an increase in test grades.

For the Principles of Management class course grade point average at the end of semester average was between 2.0 and 2.5 on a five point scale compared to 2.5 to 3 point for theStrategic Management classes

Why the difference in grades and student evaluation between the two courses? The upper level strategic management course that has abstract and complex concepts that have ten or more perspectives and various applications lends itself to teaching the concepts that the students have to explain, apply and then support. For the Principles of Management Course the power point presents an outline of the subject matter with little course depth and very little conceptual comparisons. The average student evaluations for the Principles of Management Course fell between the 2.2 and 2.6 on a five point scale and average about a half point less than the evaluations in the Strategic Management Course, which fall between 1.5 and 2.2.

Conclusion

This research statistically evaluated two different student evaluation instruments. The statistical results show no differences between the use of one student evaluation instrument compared to the other student evaluation instrument, but the type of tests, grades, interest differences in the subject matter (left and right side of brain preference), course difficulty, and student work load are variables that influence the student evaluations averages.

The essay exams in Strategic Management improve from the first exam to the second exam, and the grades for case studies usually avoids any grade below a C whereas the use of test bank multiple choice questions have a detrimental effect on grades in the Principles of Management Course. The grades decrease as the course progresses from exam to exam. By lowering the grade scale in Principles of Management the assumption is the instructor more than likely avoids extreme negative student evaluations. The other variables, subject matter interest, course difficulty may play a role in how students perceive the course, but the important implication is the teaching and learning methodology associated with the subject matter. Whether the subject matter fits the type of test, and requires the student to develop their organization skills, writing skills, and upper level critical thinking skills such as synthesis becomes the important question.

In the strategic management classes what is apparent the teaching techniques illustrate a system of learning that promotes academic Improvement and written about a few years ago (Stefani, 2011).

MGT 419	Table 4 Exam Results Strategic Man	AGEMENT
Exam 1	Exam 2	Percent Change
Fall 14	•	•
69.43	79.15	9.72
6-A	9-A	
6-B	8-B	
7-C	8-C	
3-D	5-D	
10-F	2-F	
Summer 2014		
70.62	74.68	4.06
3-A	4-A	
2-B	2-B	
6-C	1Ø-C	
6-D	D-1	
F-4	F-2 (attendance problem)	
Spring 2014		
75.42	83.56	8.14
3-A	7-A	
12-B	1Ø-B	
5-C	3-C	
1-D	1-D	
2-F	1-F	
Spring 2014		
68.84	74.89	6.04
3-A	4-A	
5-B	5-B	
3-C	7-C	
4-D	1-D	
3-F	2-F	
Fall 2013		
70.33	79.18	8.85
Ø-A	6-A	
7-B	11-B	
10-C	4-C	
4-D	2-D	
6-F	4-F	

|--|

MGT 419	Table 4 Exam Results Strategic Mai	S NAGEMENT	TABLE 5 Exam Results Principles of Management			
Exam 1	Exam 2	Percent Change	Exam 1	Exam 3	Final	
Summer 2012			Spring 14			
72 50	8/1 201	11.8	72.03	72.Ø8	73.67	
/2.50	<u> </u>	11.0	A-Ø	A-3		
4-A 2 B	5 B		B-2	B-4		
3-D	9-D		C-12	C-8		
<u>2-D</u>	0-D		D-8	D-7		
4-r	Ø-F		F-3	F-3		
Spring 2013 Day Cl	ass		Spring 2012	·		
77.42	75.54	-1.88	79.2	66.60	71 74	
1-A	1-A		Δ.2	A @	/1./1	
11-B	10-B		R-3	R-0		
7-C	4-C		<u> </u>	C 10		
5-D	D-8		D 7	D 10		
Ø-F	3-F		D-/	D-10		
Spring 2013 Evenin	g Class		F-Ø	F-3		
70.17	81.38	11.21	Spring 2012			
2-A	7-A		79.05	71.45	71.88	
8-B	10-B		A-4	A-2		
9-C	7-C		B-13	B-7		
2-D	4-D		C-8	C-8		
9-F	1-F		D-8	D-10		
<i>,</i> , ,			F-Ø	F-5		
			Spring 2011			
What this research	emphasizes is the	type of subject mat-	74.6	71.0	77.88	
er determines the	type of testing. (Courses that are spe-	A-4	A-1		
cific and procedural	l can be taught u	ising multiple choice	B-13	B-7		
exams. For example,	, in a 1994 journa	ll article it was found	C-8	C-5		
that in lower level	micro and macr	occonomics courses,	D-10	D-8		
tiple choice exams (Walstad and Bec	cker, 1994). More re-	F-3	F-4		

What this research emphasizes is the type of subject matter determines the type of testing. Courses that are specific and procedural can be taught using multiple choice
exams. For example, in a 1994 journal article it was found
that in lower level micro and macroeconomics courses,
there was not difference between essay exams and mul-
tiple choice exams (Walstad and Becker, 1994). More re-
cent research proposes constructed response questions in
addition to only multiple choice questions for computer
modeling and computer language programing (Simkin
and Kuechler, 2005). Further research supports the stu-
dent preference for multiple choice exams, but also, dem-
onstrates that when students are prepared for the essay
exam they appreciated the fairness and validity of the es-
say exam (Parmenter, 2009).74.671.077.88A-4A-1A-4A-1B-7B-13B-7B-10D-8D-10D-10D-8D-10D-8B-13B-7B-10B-10B-13B-7B-10D-10B-13B-7B-10B-10B-13B-7B-10B-10B-13B-7B-10B-10B-14B-10B-10B-10B-13B-10B-10B-10B-14B-10B-10B-10B-153B-10B-10B-10B-100B-10B-10B-10B-100B-10B-10B-10B-100B-10B-10B-10B-100</

onstrates that when students are prepared for the essay exam they appreciated the fairness and validity of the essay exam (Parmenter, 2009). Courses that lean toward conceptual abstraction require a higher critical thinking approach such as synthesis, where the student is required to compare and contrast the differing and learning methodology is far more important than the emphasis that has been placed on student evaluations. A recent article on faculty development suggested different assessment procedures for faculty that focuses on academic improvement (Fink, 2013).

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A "QUICK & DIRTY" STRATEGIC AUDIT

Dorothy E. Brawley, Ph.D. Professor of Management & Entrepreneurship Kennesaw State University Coles College of Business Kennesaw, Georgia

ABSTRACT

In teaching Strategic Management, it is imperative that students first learn how to audit the firm before they begin analysis, planning and implementation. Unfortunately this is a step often overlooked. Without a complete and up to date audit, any analysis conducted would have questionable validity and reliability.

This report focuses on an instructional tool that faculty can utilize to guide students through a strategic audit of a company. The objective in auditing the organization is to describe the firm in terms of its current position in the industry, its strategy, structure, and performance. This paper describes the Company Profile Sheet and explains how it can be an invaluable tool for the students to understand the company under review and the strategic management concepts.

INTRODUCTION

In looking at the nature of strategy, organizations, and strategic thinking, the field is:

- complex, messy and ambiguous;
- the stage in which strategic managers must perform is in a constant state of change; and,
- there are no universally accepted right answerseverything we do in managing strategically is contingent upon reality (environment), feasibility (resources) and desirability (goals).

Even experienced managers can become overwhelmed with the complexity and dynamic nature of the variables that must be considered in making, implementing, and managing strategic decisions. Imagine how hard it is to stay fresh, creative, visionary and focused on the future when the present is so demanding. As a result, much work in the area has focused on the strategic management process and the development of tools to help us get our arms around "the beast."

This paper focuses on an instructional tool to help students understand the elements that go into looking at a firm strategically. This template, the "Company Profile Sheet", guides the student through the preliminary process of conducting the strategic management audit.

THE STRATEGIC AUDIT

The objective in auditing the organization is to describe the firm in terms of its current position relative to its overall plans, configurations, and assets.

Strategy (plans and processes) looks at what the firm does and how it does it.

Structure (configurations) looks at how the organization integrates the parts.

Performance (assets) looks at the outputs.

In developing the template I thought about what students need to know to conduct an *effective* and *efficient* strategic audit. My objective in developing the Company Profile Sheet was to come up with a one page strategic audit that would cover the key elements that influence strategic behavior and decisions.

To plan for the future you need a baseline in the presentlike a doctor taking a patient history, a strategist needs to understand the current position of the firm prior to analyzing alternatives. Three areas led to the development of the Company Profile Sheet: lack of understanding of strategic *terminology*; inconsistent *operational definitions* and *metrics* to measure those concepts; and a *consistent platform* to conduct comparative analysis, both longitudinal and cross-sectional.

TERMINOLOGY

Strategic Management is usually taken at the end of the program of study in business-the capstone experience. Although students taking this course have been exposed to the basic concepts of business in their core courses (Management, Accounting, Finance, Marketing, Economics, Information Systems), their ability to apply those concepts in an integrative way into a company study is limited. Because of the dynamic and complex nature of the field of strategy there are many concepts and variables students must consider in conducting a strategic audit of a firm. Exposure to such concepts as company demographicssector, trading, company type, industry classification, distribution areas tend to be abstract concepts, not grounded in application. Strategic concepts including corporate/ business/functional level strategies, structural forms, and process strategies tend to be new variables to students, covered superficially in earlier courses but forgotten. Performance indicators including an ability to really look at balance sheets, income statements and ratios, analyzed and memorized for tests in earlier courses, have long been put aside as unimportant.

Additionally, students tend to have been exposed to *text cases*, where data is available in a concise, problem specific context. Reality is not written like a textbook case. Asking students to learn to pull current data from real company documents like the annual reports and 10k may be a new experience for them.

OPERATIONAL DEFINITIONS AND METRICS

It is one thing to be exposed to the concepts—it is another to understand the metrics required to operationalize those concepts. Most Strategic Management texts give theoretical definitions of terminology. My objective in developing the template with definitional instructions was to give the students a guide with operational metrics for each of the variables under audit.

CONSISTENT PLATFORM

The template provides a consistent platform for conducting a strategic audit.

- It serves as a map that guides the student through the key elements of the audit.
- It provides an integrative approach to strategic audit versus disjointed presentation of concepts.
- It provides the ability to examine not only a single company, but to conduct longitudinal and crosssectional company comparisons using an integrative template for data collection.

- It provides a foundation for more in-depth and qualitative narratives of strategy.
- It serves as a complement to case analysis.

THE COMPANY PROFILE SHEET

The Company Profile Sheet, **Appendix A**, provides a "quick and dirty" strategic snap shot of the firm. The company profile sheet is divided into three primary sections and is composed of 34 questions. Primary data can cover the most current year, but to really understand strategic change, it is good to look at data over several years.

The first section (items 1-10) includes **general information** on the firm: its name, address, phone number, trading name/ symbol/ markets, industry classification, dates founded/ incorporated/ public, sector, industry type, distribution areas, key subsidiaries, outlets, and employees.

The second section of template is **Strategy**, **Structure** information, items 11-18. Once you have collected general demographic data on the firm, you can begin to dig deeper into the strategy and structural configurations: business description, identifiable businesses, strategy of growth classification (single business or multi), competitive strategy, primary markets/ products/ brands, integration (vertical or horizontal), process of growth classification, and structure.

The third section of the profile includes **performance** information (items 19-34). Taking information from the income statement, balance sheet and key ratios this provides a quick look into financial standing of the firm. Performance looks at the outputs. A strategic manager must look at the financial numbers in order to understand what is going on in the company. It is critical that the student learn to appreciate and "love" the numbers in order to develop effective strategy.

DATA COLLECTION

Guiding students in data collection is the first step in the strategic audit process. Begin with documentary publications and self-reported firm information. If the firm under investigation is traded publically, have your students begin their research by reviewing the documents filed with the SEC-the annual report, the 10K, and proxy statements. Original company documents provide the cleanest information on the firm, and the pictures, letters, and narratives provide some insight into the company character, values and image. The company website and investor presentations provide essential information to understanding the company strategy, goals and performance. The company profile sheet can also help the students to focus interview questions when collecting primary data.



	20XX(n-1)	20XX(n)	
19. Net Revenues			27. P/E Ratio (date)
20. Net Income			28. Net Income/Rev
21. EPS			29. ROC
22. # Shares			30. D/E
23. Stock Price			31. Working Capita
24. Dividends			32. Marketing Expe
25. Total Assets			33. R&D Expense
26. Long Term Debt			34. Patents

On the first day of class I give the Company Profile Sheet team. At this point students discover they "knew more along with the instructions to the students. I assign a than they thought they knew" and they have begun to specific company to audit, so all students are working on learn how to draw information from real company docthe same case. (I refer to "real company analysis" as "live" uments. At this point students can begin collecting the cases). I usually pick a publically held firm where on-line data for their individual company reports on firms they access to the Annual Report/10K is available. Their aschose. Over the next month together we cover line by line signment is to complete the template as much as they can the concepts in the Company Profile Sheet. By the time over the week, recognizing that we have not yet covered we have completed reviewing the 34 questions, we have the material in class. This gives a *baseline* of what they covered most of the concepts in Strategic Managementcurrently know. When we come back to class I put them corporate, business, and functional level strategy. in teams and give them time to compare their work, and again complete the assignment as much as they can as a

SURE 1 ET-GENERAL INFORMATION								
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ployees 20XX (n-1)		_20XX(n)						
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dership or Differentiatio	n Market Focus: Nar	row or Broad	B2B and/or B2C					
ers, Joint Ventures, Strat	egic Alliances)							
ographic, holding, other)								
SURE 3 Sheet-Per	FORMANCE							
version rate: \$1USD=) 20XX(n-1)	20XX(n)					
e)								
evenue (profitability)								
(profitability)								
(leverage)								
tal (liquidity)								
bense								

I recommend that students be consistent in how they present data from a strategic perspective. Strategists read *left to* right, so it makes sense to present the data in that format (unlike the way Accountants present data). I recommend using annual data. When students mix guarterly and annualized data, everything gets confused. Another observation is that students have a hard time getting the units on the performance measures correct and consistent. More often than I would like to admit they think the company revenues are in the trillions!

Appendix B includes the instructions to guide the students in collecting the data and filling out the sheet, item by item. Upon completion of the data collection in the template, your students will have created a one page, indepth strategic audit of the firm.

SUMMARY

Completing the Company Profile Sheet is the first step in the strategic audit and provides a "quick and dirty" strategic snapshot of the firm. It highlights general company information, strategy and structure information, and performance information on one concise and integrated page. Page two of the sheet provides additional information on the company description, a breakout of its strategic segments including revenue and operating income by segment, and structure in support of the classifications on page 1. This sheet can be an extremely effective tool in helping the student in a strategic management course, or a business person, to get their "arms around the beast" we call Strategic Management, and can serve as a first step in conducting a strategic analysis of the firm.

I have found using the Company Profile Sheet assignment Coca Cola Company. (FYE 12/31:1993).10K, http:// helps the students in their final term

- to be exposed to real companies, with real data, in real time:
- to understand how to search out data on real companies using documents that are readily available outside of a textbook and outside of the university resources;
- to improve their confidence about what they have really learned in their program of study;
- to help them understand the integrative nature of the concepts;
- to establish meaningful discussion of strategy and business based on consistent terminology and operational metrics versus anecdotal stories;
- to collect data on companies they are interviewing or work with-and,

• to understand some key questions to ask when considering a potential company opportunity.

I have found using the Company Profile Sheet assignment helps the faculty

- structure class discussions using the template as a foundation for teaching strategic concepts;
- makes it easier to evaluate student work because it follows a consistent, standardized format:
- helps ensure that key concepts are covered and not forgotten;
- highlights the importance of doing a critical strategic audit prior to analysis and planning.
- Also, I have each student pick a different company to audit and as a result, I am exposed to many new and different firms I would not normally review each term.
- The template could also serve as a research platform for data collection for faculty conducting longitudinal and/or cross sectional company analysis.

A completed sample Company Profile Sheet for Time Warner, Inc. is included in Appendix C.

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URFUØM9UØVDVElPTl9FTlRJUkUmc3Vic2lk-PTU3, (May 5, 2015)

APPENDIX A COMPANY PROFILE SHEET

Exhibit 1.1 Strategic Audit Rater No					Rater Name		Date		
			3-D	COMPANY	PROFILE SHEET				
CENER IL DIFOR	A CONTRACTOR	S	FRATEGY	, STRUCTUR	RE, AND PERFORM	ANCE			
GENERAL INFOR	MATION		www			email	Dhana		
2 Trading Name/Syn	nhol	Trading Mar	tets (AME)	NVSE OTO	7		3 SIC Numbers		
4.Sector (Manufactur	Trading Markets (AMRA 1/16 COTC) 5.510 Miniots 5.510 Minio								
6.Industry Type (Sci	ence based; Non Sciend	ce) 7.Distribution areas (Le	ocal; regiona	l; national; int	ternational (%)			
8.Key Subsidiaries	,	, · · · · · · · · · · · · · · · · · · ·	, 9	· · ·	·				
9.Number of outlets		10.	Number of 1	full-time emplo	oyees 20XX (n-1)		20XX(n)		
**(n=current year; r	n-1=last year)								
STRATEGY, STRU	UCTURE INFORMAT	LION							
11.Business Descrip	otion								
12.Identifiable Busi	inesses (Corporate)(SQ	-G-R-L)							
13.Strategy of Grov	vth: (Single Business (Single line; Dominant);Multi	-business (R	celated; Unrela	ited))	20XX(1)	2022(-)		
1 3a.ratios	-Davidance discusts by	i (totol novionitori	Segment			20AA(n-1)	20AA(n)		
Delatedness Datio-D	-Revitargest discrete bu	to huo /total news							
12b stratage of grow	th alassification	te bus./total lev.	20XX(n 1)	20XX(n)					
150.strutegy of grow	Single Business	Single line (SR > 95)	1.1	1.1					
	Single Business	Dominant $(7 \le 8R \le 95)$	1.1	1.1					
	Multi-Business	Belated $(BB > 7)$	2.3	2.3					
$\frac{1}{10000000000000000000000000000000000$									
14.Competitive Stra	ategy (Business) Seg	ment	(ADF	(F) Cost lead	ership or Differentiatio	n Market Focus: N	arrow or Broad B2B and/or B2C		
15.Primary Markets									
Primary Products	/Brands/Patents,Copyri	ght,Trademark							
16.Integration	Vertical and /	or Horizontal							
17.Process of Growt	h Internal Deve	lopment and/ or External Pro-	cess (Acquis	itions, Merger	rs, Joint Ventures, Strat	egic Alliances)			
18.Structure	20X	$\frac{X(n-1)}{20XX(n)}$							
l	Functional I	1	202/2/						
I	Divisional 2	2 Iyj	pe 20XX(n)	(product, geog	graphic, holding, other)				
PEDEODMANCE	SOOOXXX	3 Ide	nuiy	Comare	ion rata: \$11/SD-				
I ERI ORMANCE	20XX(n-1)	20XX(n)		(Conversi	ion rule: \$105D	20XX0	a-1) 20XX(n)		
	207474(11-1)	20777(11)				207740			
19. Net Revenues			27. P/E	Ratio (date)					
20. Net Income			28. Net	Income/Reven	nue (profitability)				
21. EPS			29. RO	С	(profitability)				
22. # Shares			30. D/E		(leverage)				
23. Stock Price			31. Wo	rking Capital	(liquidity)				
24. Dividends			32. Ma	rketing Expens	se				
25. Total Assets			33. R&	D Expense					
26. Long Term Debt			34. Pate	ents					

L BUSINESS DESCRIPTION

STRATEGY - SEGMENT INFORMATION (Revenue; Operating Income by Segment

	202	XX(n-1)		Revenues/Operating Income	20XX(n)			
\$000XXX Rev	%Total Rev	\$000XXXOp Inc	%Op Income	(by segment)	\$000XXX Rev	%Total Rev	\$000XXXOp Inc	%Op Income
	100%			TOTAL		100%		

III. STRUCTURE - Draw it. Include position, titles and names Year 20XX

(Source:

IV. FINANCIALS: Include latest Income Statement & Balance Sheet.

als from 20XX(n-1) and 20XX(n) for trends/ significant

• (1) Identify financial Trends (year 200Xn-1 to 200Xn) from Income & Balance Sheet Statements; What do they tell you?;

• (2) Consider the key ratios (liquidity, leverage, operating, profitability); What do they tell you? (include formulas you used to calculate ratios)

• (3) Strengths/ Weaknesses of financials

• (4) What do the financials NOT tell you?

• (5) What else would you need to know to do a really effective financial due diligence from a strategic perspective? How would your analysis change if you were going to buy the company vs if you were selling the company?

APPENDIX B COMPANY PROFILE SHEET INSTRUCTIONS

The Company Profile Sheet, Appendix A, provides a "quick and dirty" strategic snap shot of the firm. The objective in completing the company profile sheet is to briefly describe the firm in terms of its overall strategy, structure, and performance. Data collection is the first step in the strategic audit process. Begin with documentary publications and self-reported firm information. If the firm under investigation is traded publicly, begin your research by reviewing the documents filed with the SEC---the annual report, the 10K, and proxy statements. Original company documents provide the cleanest information on the firm, and the pictures, letters, and narratives provide some insight into the company character and image. These filings are available upon request from the company, in most university and public libraries, and can also be retrieved on many on-line databases

GENERAL INFORMATION:

1. Firm Name, Website, Email, Address, Telephone Number

As you begin your research it is very important to make sure you have the correct firm name. Many firms have names that are very similar---for example, Coca Cola Company, Coca Cola Enterprises, Coca Cola Bottling Company, Coca Cola USA. However, each represents a distinctly different company unit. Make sure that you are collecting data on the right system.

2. Trading Name/Ticker Symbol/Trading

Information on the trading activity of the firm can be useful in your research. Begin by finding the trading name, ticker symbol and markets. These are not always intuitively derived, i.e. the Coca Cola Company ticker symbol is KO. It is important to understand where the firm stock is traded. Domestic trading markets are usually listed on the front page of the 10K, as well as the last page of the Annual Report. International trading markets may be more difficult to track down. However, if they are not listed in the Annual Report, call Investor Relations at the company and ask if they are traded on any international exchanges. Brokerage firms can also be helpful in securing this information, as well as providing summary information of firm trading activity, future projections, and industry forecasts.

3. SIC/NAICS Numbers

The SIC (Standard Industrial Classification) and NAICS (North American Industry Classification System) codes provide the key to securing information on the industries within which the firm competes. Developed by the government to aid in filing the multitude of information it collects, the SIC/NAICS have become the standard classification scheme for individual company, and in its aggregate form, industry information. Three or four digit codes in most cases will be the most useful in collecting industry information. However, by decreasing the digits we can broaden the industry classification, by increasing the digits the researcher can narrow and focus the industry. For example, SIC "20" is a classification for food/kindred products; "208" is Beverages; "2087" is canned and bottled soft drinks. Descriptions of the SIC/NAICS codes and their use can be found at *http://siccode.com/en*

Using SIC/NAICS classifications will facilitate your industry research. However, it should be undertaken with a grain of salt. Note: multi-business companies are not required to separate data fully by segment. Therefore, much data collected under an individual SIC/NAICS number will really be an aggregate of company data across all of its business units.

4. Sector: (Manufacturing; Service (Includes Retail, Wholesale, Distribution); Mining/Oil & Gas; Combined)

Sector refers to economic market classification, and is specific to an industry. Therefore, multi-business firms operating in several industries will require sector classification breakdowns across each business. Sector is used as a basic proxy for economic and market structure at both the industry and firm level. It is assumed that manufacturing firms, as a group, have certain similar economic/market properties---properties that differ from service firms and /or mining/oil and gas.

Classification by sector is important in understanding both the strategic resource allocation and socio-technical issues that will arise within the business unit. It should be noted that same sector firms in different industries would be more similar strategically, than different sector firms, same industry.

5. Date Founded/ Incorporated/ (Private/Public)

Noting the date founded, incorporated, and public gives the investigator some insight into the firm's history, availability and relative reliability of data. Date founded suggests the relative age of the enterprise. Date incorporated firm structure. It is especially important to note dates of reincorporation under different names and structural forms (i.e. holding company) in order to efficiently be able to find information on the firm. The Securities and Exchange Commission requires certain data filings. Once the firm goes public these filings are free and openly available to all interested parties. Filings include the prospectus, annual report, 10k, proxy statements, quarterly reports, as well as numerous other required reports. This availability of data is one of the reasons that public companies are scrutinized in so much detail, while activities of privately held companies, although they comprise the majority of the firms in the world, are less well documented. As a result of both the filing requirements and this increased scrutiny, data available on public companies is perceived to be more reliable than data that is not subject to such extensive external review.

6. Industry Type (Science Based; Non Science)

The industry type is a proxy for level of technology at the organization-environment interface. Controlling for science-based versus non-science based industry type appears to be a better predictor of strategy, structure, and performance than industry itself as designated by SIC category. Use of industry types as a proxy for level of technology is based upon the assumption that firms operating in high technology science based industries will exhibit a higher level and greater variety and magnitude of product and process technological change and innovation than firms in non-science based industries, product lifecycles will be different, as well as resource allocations.

A firm is generally classified as Science based if it operated in the following categories: bio-technology and pharmaceuticals, aircraft & spacecraft, medical, precision & optical instruments, radio, television & communication equipment office, accounting & computing machinery, electrical machinery & apparatus, motor vehicles, trailers & semi-trailers, railroad & transport equipment, chemical & chemical products, machinery & equipment. NAICS codes that constitute high technology industries are identified in Figure 1. However, it is imperative that you use your judgment in classifying your segments as segments that may not appear to be science based may have a significant science based component. For a quick designation, look at the company's R&D expenditures- high R&D probably indicates the firm is "science based." Firms operating in all other industries are classified as Non-Science based.

helps the researcher understand strategic changes in the **7. Distribution Areas (Local; Regional; National;** International)

Strategic complexity increases significantly as firms diversify their distribution areas from local to regional to national to international. Government, laws, regulations, monetary policies, politics, access, economics, business systems, structure, markets, social norms, cultural dynamics, language, geography, labor, money, transportation/communication, contracts, market research, advertising, expectations --- among many others--- change from county to county, country to country. As the firm strategically increases its differentiation among the markets where it distributes its output, it must also increase its integration mechanisms within the strategy machine--the organization--to cope with these different parts. This will impact resource allocations across the system, the necessity to effectively boundary scan, and the requirement of efficiently and effectively managing the strategic information system.

8. Key Subsidiaries

A subsidiary is defined as a company in which another corporation called the "parent company" owns more than 50% of the voting shares.

Understanding the strategy and structure of the firm requires an understanding of the critical parts of the system, and the key subsidiaries of the firm help define these boundaries. The firm subsidiaries will usually be listed near the last page of the annual report/10k with the information regarding headquarters, key officers, and business units. As you list the key subsidiaries, pay particular attention to how they are named and grouped. Also, be sensitive to whether the subsidiary is wholly owned by the parent firm. Some subsidiaries may be only partially owned by the firm under audit and this will directly influence the amount of control the firm will have over the subsidiary. For reporting purposes, firms are only required to list as subsidiaries, those units in which they maintain at least a majority (usually 70%) ownership position. It should also be noted that subsidiaries, if held as autonomous units, might be traded publically independent of the parent firm.

9. Number Of Outlets

In profiling the firm it will be helpful to know the number of outlets by type, retail distribution and /or manufacturing that the firm has established. The number of outlets can be a good indicator of segment and/or brand growth within the company. Therefore, longitudinal comparison can prove useful. In looking at growth in number of outlets over a period of time, be aware that the number

FIGURE 1 NAICS CODES THAT CONSTITUTE HIGH-TECHNOLOGY INDUSTRIES

http://www.nsf.gov/statistics/seind14/index.cfm/chapter-8/c8s6o55.htm

2002 NAICS code	2007 NAICS code	dustry				
1131	1131	Timber track operations				
1132	1132	Forest nurseries and gathering of forest products				
2111	2111	Oil and gas extraction				
2211	2211	Electric power generation, transmission, and distribution				
3241	3241	Petroleum and coal products manufacturing				
3251	3251	Basic chemical manufacturing				
3252	3252	Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing				
3253	3253	Pesticide, fertilizer, and other agricultural chemical manufacturing				
3254	3254	Pharmaceutical and medicine manufacturing				
3255	3255	Paint, coating, and adhesive manufacturing				
3259	3259	Other chemical product and preparation manufacturing				
3332	3332	Industrial machinery manufacturing				
3333	3333	Commercial and service industry machinery manufacturing				
3336	3336	Engine turbine and nower transmission equipment manufacturing				
3330	3339	Other general purpose machinery manufacturing				
3341	3341	Computer and periods and equipment manufacturing				
3342	3342	Computer and perpineral equipment manufacturing				
3343	3343	Audio and video equipment manufacturing				
3344	3344	Semiconductor and other electronic component manufacturing				
3344	3345	New and the electrone component manufactume at manufacturing				
2246	2246	Mavigational, measuring, electrometical, and control instruments manufacturing				
2252	3340	Restrict organized for the second sec				
3353	3353	According equipment manufacturing				
2260	3304	Other transportation equipment many fracturing				
3309	3309	Order transportation equipment manufacturing				
4234	4234	Professional and commercial equipment and supplies, merchant wholesalers				
4601	4861	Pipeline transportation of crude oil				
4862	4662	Pipeline transportation of natural gas				
4869	4869	Other pipeline transportation				
5112	5112	Software publishers				
5161	na	Internet publishing and broadcasting				
na	519130	Internet publishing and broadcasting and web search portais				
51/1	51/1	Wired telecommunications carriers				
5172	5172	Wireless telecommunications carriers (except satellite)				
5173	na	Telecommunications resellers				
5174	5174	Satellite telecommunications				
5179	5179	Other telecommunications				
5181	na	Internet service providers and Web search portals				
5182	5182	Data processing, hosting, and related services				
5211	5211	Monetary authorities, central bank				
5232	5232	Securities and commodity exchanges				
5413	5413	Architectural, engineering, and related services				
5415	5415	Computer systems design and related services				
5416	5416	Management, scientific, and technical consulting services				
5417	5417	Scientific research and development services				
5511	5511	Management of companies and enterprises				
5612	5612	Facilities support services				
na	561312	Executive search services				
8112	8112	Electronic and precision equipment repair and maintenance				

NAICS = North American Industry Classification System

NOTES: Data on high-tech industries for 2008 and earlier years were compiled using the 2002 NAICS codes. Data for 2009 and 2010 were compiled using the 2007 NAICS

of outlets reported historically will be revised to reflect cial contracts, provisions, and unionization. The number both internal growth and acquisition activity. If you want of employees can give the researcher some measure of a true picture of growth, it will be necessary to go back on growth within the firm. It can also be very misleading, if a year-to-year basis to collect the data, segmented by type not evaluated in light of the strategy of the firm overall. of growth. When looking at the number of employees, it is important to note the type and nature of business segments in which the firm operates, and the changes that have taken place 10. Number Of Full-Time Employees over the period of evaluation. The relationship of "labor intensive" to "capital intensive" technological processes For publically held firms, the number of full-time employacross segments is critical to understanding the relationees can be found in the 10k document in a special category

entitled "employees". This section also includes additional ship between the number of employees and revenues for human resource management information including speinstance. Consider also if the firm processes include Fabrication versus Assembly components.

FIGURE 2 Resource Intensity and Technology					
Resource Intensity	Technology				
High Labor	Customized, Job Shop				
	Batch, Mass				
High Capital	Process				

Two companies that appear on the surface to be similar but are quite different in terms of resource intensity and technological processes are the Coca Cola Company (1993,2015) and PepsiCo, Inc. (1993,2015). Why is there such a significant difference in number of employees? Take a look at the segment revenues across the two companies. Included is the data from both 1993 when restaurants were PepsiCo's largest segment as well as the 2015

data. Both years clearly highlight the differences between the two companies strategically.

As number of employees is a critical variable in evaluating the economic impact of a company, and in turn its political and social clout, firms will want to reflect the number of employees in the most favorable light. Be careful interpreting number of employees based on narratives presented. For example, a company may state in its annual report that it "employs worldwide, across its brands 250,000", however, its 10K states number of full-time employees are 39,000. This appears to be a significant deviation. However, note the wording---the larger number reflects employees of the brand, including all employees of franchisees. These represent indirect, not direct employees of the company. The number of employees may also be manipulated to indicate both full and part-time employees. Make sure you are pulling the appropriate number that reflects your objective with the greatest validity. Also, note that as you evaluate changes over time, it is important to reflect changes in employees relative to changes in strategy.

Figure 3 Coca Cola Company versus PepsiCo 1993/2015									
	COCA COLA COMPANY VERSUS PEPS				PEPSI				
	1993 2015			1993		2015			
Net Revenues (\$000,000)	\$13,963		\$44,294	\$25,02	1	\$63,056			
Full time employees	34,000		132,200	423,000		263,000			
	Soft drinks	88%	Concentrate ops 38%	Beverages	34%	Frito Lay NA	23%		
	Foods	12%	Finished prod ops 62%	Snack Food	28%	Quaker Foods NA	4%		
\mathbf{S}_{a}				Restaurants	38%	Latin Am	13%		
Segments (%)						North Am Bev	33%		
						Europe/SubSah/Af	17%		
						Asia/MidE/NAf	10%		
Gross Profit	\$ 8,8Ø3	•	\$26,812	\$13,07	5	\$34,672			
Operating income	\$ 3,108		\$ 8,728	\$ 2,907	7	\$ 8,353			
Net Income	\$ 2,176		\$ 7,351	\$ 1,588	3	\$ 5,452			

STRATEGY & STRUCTURE

The second area of evaluation is Strategy, Structure information, items 11-18.

Once you have collected general demographic data on the firm, you can begin to dig deeper into the strategy and structural configurations.

11. Business Description

Here you want a brief general description of the organization. You may include a more detailed description on page 2 of the Profile Sheet (Appendix A). As part of describing the business, we look at the Corporate, Business, and Functional Level strategies.

12. Identifiable Businesses: (Corporate Level) (Status-Quo, Growth, Retrenchment, Liquidation)

If it looks like a duck, walks like a duck, and quacks like a duck---even though it may not specifically meet the nor-Part I, first paragraph of the 10k usually gives a concise mative definitions presented for a duck, maybe you should description of the firm. This is followed by descriptive evaluate it more fully. Just make sure and substantiate segment information. Segment information can also be your classifications so that when asked how you arrived found in the financial disclosure section of the Annual at your conclusions you have the data available to support Report/10K. Companies operating in more than one your position. business segment are required to report revenues and certain operating data by segment. The segments identi-The four basic corporate level strategies are: status quo, fied should be consistent with the SIC/NAICS numbers growth, retrenchment, and liquidation. reported in item 3. Identification of critical business segments is the first step in evaluating corporate level strate-13. Strategy Of Growth gy: in answering the key corporate question---What business (es) has (past), does (present), or should (future) the Strategy of Growth is a representative measurement and firm operate? classification of the firm's overall commitment to growth through diversity at the macro organization level.

Several points should be noted:

• as stated, the organization itself and its boundaries are merely a conceptual construct;



- the measurements are not precise, nor do they represent an absolute criterion;
- selection of the SIC/NAICS category and the specificity (i.e. 2 digit code versus 6 digit code) will directly influence the way you classify the strategic business units:
- as movements toward both vertical and horizontal integration become fully institutionalized into the corporate level strategy of the firm the perception of the SIC/NAICS category will broaden and a firm that appeared to have multi-business related units will now appear to be a fully integrated single business firm with multiple diversified product/ market lines.

Single Business versus Multi-Business? Remember your inductive theory:

FIGURE 4 **CORPORATE, BUSINESS, AND FUNCTIONAL LEVEL STRATEGIES**

Corporate level: What business(es) do they operate? status quo, growth, retrenchment, liquidation Business level: How do they compete? attack, defend, retreat, flank product strategies: cost leadership, differentiation, market strategies: broad, narrow; B2B/B2C Functional level: What strategies do they

> operations, marketing, finance, research and development, mis, hrm, accounting



Rumelt (1974) developed classifications among the categories using the specialization and relatedness ratio calculations.

Specialization Ratio (SR): The specialization ratio is the primary measure of diversity and is defined as the propor-14.Competitive Strategy: (Business Level) (Attion of a firm's revenues attributable to its largest single tack, Defend, Retreat, Flank) strategic business unit. A single business unit is the set of activities associated with the production and market-Business Level strategy addresses the question: How does ing of a single product/service or a line of closely related the company compete? This question is industry segment products/services. Included within a business unit are all specific and must be answered for each of the individual products or product lines that require close coordination business segments in which the company operates. It or which share important resources. In deciding whether should be noted that a firm might follow different comtwo product-market activities are part of the same busipetitive strategies in each of its different business segness unit or not, it is helpful to ask this question: "Would ments. a major change in pricing, manufacturing processes, technology, materials used, etc., in one of these areas have a As a first step in defining the business level strategy for strong effect on the operations in the other area?" If not, the segment, look at the relationship between your internal strengths & weaknesses, and external opportunities & the two-product-market activities are separate and not part of the same business unit. threats (SWOT). There are four basic competitive strate-

Relatedness Ratio (RR): The relatedness ratio is the proportion of a firm's revenues that are attributable to the largest group of businesses that are related in some way to

	Single Business- M	Fig Aulti-B
	Classification	Defini
1.Single Business 70%-100%	1.1 Single line Firms with SR between .95 and 1.0	Firms t so that market
	1.2 Dominant Firms with SR between .7 and .95	Firms uct lin makin activiti
2.Multi- Business <70%	2.3 Related Firms with SR less than .7, and RR between .7 and 1.0 These may also be referred to as <i>Concentric</i>	Firms produc related no one
	2.4 Unrelated Firms with SR less than .7, and RR less than .7 These may also be referred to as <i>conglomerate</i>	Firms nologie ment s

one another. A business is part of a group of "somehow related businesses" as long as it is tangibly related to at least one other business in the group. The operationalizations of the classifications are shown in Figure 6.

- gies: attack, defend, retreat, and flank.
- Once the overall business level strategy is determined, than you want to look at the generic strategies within the segment relative to the *product* and the *market*.

gure 6 usiness classification system

ition

that grow by the expansion of one main product/market line at least 95% of net revenues lie within this singe product/ : business area.

which grow primarily by the expansion of one main prode but which in addition have added secondary business lines g up to 30% or less of the total sales volume. These secondary ies can be related to the primary activity or can be unrelated.

which grow by expansion by means of entry into related et /market businesses, by the use of a related technology, by vertical activities, or by some combination of these so that business segment accounts for 70% of the net revenues.

which grow by expansion into new markets and new teches unrelated to the original product /market business seguch that no one segment accounts for 70% of net revenues.



Porter (1985) defines the generic competitive strategies in terms of competitive scope and advantage. Porter defined two basic types of competitive advantage a firm can possess to establish its distinctive competencies: low cost or differentiation. These combine with the "scope" of a firm's operations (the range of market segments targeted) to produce "three generic strategies for achieving above average performance in an industry: cost leadership, differentiation, and focus" (namely narrow focus). To Porter, firms that wish to gain competitive advantage must "make a choice" among these: "being 'all things to all people' is a recipe for strategic mediocrity and below-average performance" A firm that is "stuck in the middle", engaging in each generic strategy but failing to achieve any of them will, in all probability, fail to identify what is fundamentally distinct about its business in the marketplace as perceived by its customers. Looking at customer type, Business to Business/Business to Consumer, can also be useful.

15. Primary Markets-Primary Products/ Brands/ Patents/ Copyrights/ Trademarks/ Registrations

Following item 14, primary markets and products are segment specific questions. Markets may include geographic,

customer type, or some combination. Understanding the primary market segments and product/brand components of strategy helps in understanding relative competitive positioning.

Also important, are the critical registrations that give a company "proprietary rights" over a technology, product, process or symbol. These can serve as market barriers to potential competitors. It is also important to note the area over which these proprietary rights are enforceable. Does the company have the local, state, national or international rights to use of a name or trademark?

16. Integration: Vertical/ Horizontal

The strategist must understand the degree and nature of vertical and horizontal integration strategies within and across the industry segments and sectors. A *commodity* is a product that is purely substitutable with no differentiating value added components.

Vertical integration is defined as extending the value added chain from the commodity to the end consumer---getting as close to the ultimate customer as possible. Forward vertical integration is moving the segment from where it is closer to the consumer. Backward vertical integration is moving the firm back towards the commodities required in fabrication.

Horizontal integration is extending the firm's market share with related or concentric products/ businesses. This may include buying out key competitors.

17. Process Of Growth: Internal Development Or External

From a strategic perspective, interest is not only in how businesses grow in terms of the strategic content, but also the process or method through which firms attain a certain strategy. Firms that grow and diversify through a process of internal investment and re-investment, wherein outputs of the firm reenter the system as inputs to support growth, are classified as utilizing an internal development process of growth.

Figure 8 Business Level: Product and Market Strategies							
	Competitive Advantage						
	Market/Advantage	Low Cost	Differentiation				
Competitive	Broad Target	Cost Leadership	Differentiation				
Scope	Narrow Target	Cost Focus	Differentiation Focus				

Firms which show a propensity to grow and diversify by cation strategy to the structure variable. For this reason, process strategies which require going outside the perthe more generic classifications are adopted for use here. ceived organizational boundaries including acquisition, Firms defining their major subunits in terms of the busimergers, joint ventures, and strategic alliances among ness activities (production and operations, marketing, others are classified as employing an external process of finance and accounting or stages in the manufacturing growth. process) are functionally structured.

In terms of complexity, utilizing a process strategy which Firms which are split into a number of quasi-autonomous requires going outside of the organizational boundaries units, each headed by a general manager and supplied with to secure resources for survival and growth is much more the resources necessary for it to operate as an independent complex than a strategy which utilizes a resource base ineconomic entity are divisionally structured. Structures internal to the firm. The level of differentiation introduced cluded under this category include product division, geointo the firm increases with the degree of external intergraphic division, and holding company forms. vention. Strategic alliances are relatively limited in impact and usually contractual in nature. Joint ventures require PERFORMANCE more negotiation, but boundaries across the systems are usually well defined and limited in project scope, nature, The third area of audit is Performance, items 19-34. Perand duration. The waters get much fuzzier and much more formance looks at the outputs. A strategic manager must strategically and structurally complex with mergers and look at the financial numbers in order to understand what acquisitions. Negotiated contracts serve to outline how is going on in the company. It is critical that the strategist the new company or unit will be governed. It is important learn to appreciate and "love" the numbers in order to deto know if the firm under evaluation is preconditioned to velop effective strategy. internal or external process of growth as this can impact the alternatives available.

18. Structure

Structure looks at how the organization integrates the parts. The organization represents the strategy machine, the corpus that both creates and executes the strategy. The structural configuration of the organization directly influences how well these functions are performed.

The DNA of formal organizations is authority, the right to command, initiate actions and make decisions. Authority is built into jobs-jobs that have two dimensions: scope and depth. Jobs are groups of combined tasks. Scope represents the number and variety of tasks included in a specific job; depth-the degree of discretion or authority an individual worker can exercise over his or her job. Jobs are combined into relationships such as chain of command, and exhibit characteristics- scalar chain, unity of command, span of control. These relationships may also represent line or staff functions, and may be centralized or decentralized. As the authority relationships are grouped, structural configurations emerge.

Two major structural types are identified: functional and divisional. These two types represent the "root" or generic categories upon which the more complex classification systems are based. In evaluating the research on structural configurations it appears that most of the inferences drawn using the more complex structural forms have involved pooling the data back into the two broad generic categories in order to relate growth and diversifi-

19-34. Performance

Performance on the Company Profile Sheet (items 19-34) involves evaluating select numbers from the income statement, balance sheet, and calculating a few significant ratios. In addition, expenditures on Research and Development, Marketing, and Patents are noted.

A few key questions to consider when evaluating performance:

- Identify financial Trends (year 20XXn-1 to 20XXn) from Income & Balance Sheet Statements; What do they tell you?
- Consider the key ratios (liquidity, leverage, operating, profitability); What do they tell you? (include formulas you used to calculate ratios)
- Strengths/ Weaknesses of financials
- What do the financials NOT tell you?
- What else would you need to know to do a really effective financial due diligence from a strategic perspective? How would your analysis change if you were going to buy the company versus selling the company?

A few tips to interpreting and presenting the financials from a strategic perspective:

• The numbers should presented *left-to-right*. This is how strategists read.

- *Revised versus Unrevised*: If there were any major changes to a company (ex. sold a business unit), the numbers need to be revised in order to compare year-to-year performance. If we want to look at the company historically, we would look at the original numbers; if we want to look at the future, we would look at the revised numbers.
- Basic versus Diluted numbers: Use basic if looking historically, use fully diluted if you are considering buying the company or are a very conservative investor.
- The numbers should also be *questioned* constantly as they can be manipulated to show what we want. For example, the stock price of a company can change daily. To make the stock appear like it is performing better, the value listed could be the high value of the year versus what the stock was trading at today or at the end of the fiscal year. Another issue is that assets are listed as book value versus market value.
- Finally, recognize that different people look at the numbers in different ways. Accountants perceive the numbers one way, finance people another way, and strategists yet another way. Be aware of the differences- this will affect not only what information you present but how you present it.

APPENDIX C SAMPLE COMPANY PROFILE SHEET, TIME WARNER, INC.

Exhibit 1.1 Strategic Audit

Rater Name Brawley Date _____April 2016 TimeWarner Company PROFILE SHEET STRATEGY, STRUCTURE, AND PERFORMANCE
 STRATEGY, STRUCT URE, AND PERFORMANCE

 www_wimexamer.com
 email in@timewarner.com

 1.Firm Name
 Time Warner, Inc
 Address
 One Time Warner Center, NY, NY 10019-8016
 Phone 212-448-48000

 2.Trading Name/Symbol
 TWX
 Trading Markets (AMEX NYSE DTC)
 3.SIC/NAICS Numbers 5121 Imovie;51321 cubie networks;51312 tv ;SIC 7812 motion pic/video

 4.Sector (Manufacturing; Service (includes retail, wholesale, distribution; Mining/Oil/Gas; Combined)
 5.Date founded1923/1927 incorporated 2001 (AOL-merger)/2003 (TWX) public 2001

 6.Industry Type (Science based; Non Science)
 7.Distribution areas (Local; regional; national; international)
 (USCanada 27%, Europe 16%, AsiaPacific Rim 6%, Latin America 5%, other 1%)

 8.Key Subsidiaries
 EAS 10.Hol+(1ots)Tume; Warner, Strume; Sortis, Castle Rock, New Line cinema; Time Warner, Strume Brothers; Time, HBO, Warner Communications, CNN, TEN, Tumer Sports, Castle Rock, New Line cinema; Time Warner, Strumer Struct, Strumer Struct, Struct Struct, Str

9.Number of outlets NA **(n=current year; n-1=last year)

STRATEGY STRUCTURE INFO

1.Business Descriptio	n (Corporate):	Leading media	and entertain	ment company					
2.Identifiable Busines	sses (Corporate)	(SQ-G-R-L) W	arner Brothers	s (G); Turner (G	i); HBO (G); Put	lishing (R/L:	: Divested)		
3.Strategy of Growth	: (Single Busine	ess (Single line	; Dominant);N	Aulti-business (I	Related; Unrelate	:d))			
3a.ratios				Segment			2013	2014	2015
Specialization Ratio=Rev.largest discrete bus./total revenues: Warner Brothers			12312/26461=.47	12526/27359=.46	12992/28118=.46				
Relatedness Ratio=Rev.largest group discrete bus./total rev:			All=WB+Tur	ner+HBO (+Pub	lishing 2013)) 29795/29759=1	27359/27359=1	28118/28118=1	
3b.strategy of growth classification			2013	2014	2015 2015				
	Single Busines	s Single line	$e(SR \ge .95)$	1.1	1.1	1.1			
		Dominant	(.7 <u><</u> SR <u><</u> .95)	1.2	1.2	1.2			
	Multi-Business	Related	(RR>.7)	2.3	2.3	2.3			
		Unrelated	(RR<.7)	2.4	2.4	2.4			
4.Competitive Strate	gy (Business)	Segment	Warner I	Brothers (AD)	RF) Cost leader	ship or Diffe	rentiation Market Focu	s: Narrow or Broad B2I	3 and/or B2C
5.Primary Markets:(ge	o)US/Canada, Eur	ope, Asia/Pacific	Rim, Latin Am	erica; (customers	-cable us)TW Cabl	le, Comcast, D	ish, Direct TV, ATT U-verse, V	erizon, Cox, Charter, Cablevision,	Bright House, Suddenlink
Primary Products/Br	ands/Patents, Co	pyright, Trade	mark Turner,	HBO, Warner I	Brothers, Time; 3	revenue line	es common to segments: Sub.	scription/Advertising/Content of	& Other
6.Integration	Vertical a	nd /or Horizon	tal						
7.Process of Growth	Internal D	evelopment an	d/ or External	Process (Acqui	sitions, Mergers,	Joint Ventur	es, Strategic Alliances)		
8.Structure		2013 2014	2015						
Fun	ctional	1 1	1						
Div	isional	2 2	2	Туре 2015 (рг	oduct, geographi	c, holding, ot	ther)		
Oth	er	3 3	3	Identify					
PERFORMANCE <mark>(\$n</mark>	nillion except sh	are data)			(Conversion r	ate: \$1USD=)		
	2013	2014	2015				2013	2014	2015
9. Net Revenues	\$26,461	\$27,359	\$28,118	27. P/E Ratio	(date-FYE)		69.72/3.99=17.47	85.42/4.42=19.33	64.67/4.69=13.79
20. Net Income	\$3,691	\$3,827	\$3,832	28. Net Incom	e/Revenue (profi	itability)	3691/26461=.14	3827/27359=.14	3832/28118=.14
21. EPS	\$3.99	\$4.42	\$4.69	29. ROC=net i	nc/(LTD+E)(profita	bility) 3	3691/(20061+29904)=.074	3827/(21376+24476)=.083	3832/(23594+23619)=.0
22. # Shares	920.0	863.3	814.9	30. D/E	(lev	erage)	38095/29904=1.27	38783/24476=1.58	40229/23619=1.70
23. Stock Price (close)	\$69.72	\$85.42	\$64.67	31. Working C	Capital CA-CL(li	quidity)	12531-8388=4143	13108-9204=3904	12513-8002=4511
24. Dividends	\$1.15	\$1.27	\$1.40	32. Marketing	Advertising Exp	ense	\$2,447	\$2,430	\$2,586
25. Total Assets	\$67,999	\$63,259	\$63,146	33. R&D Expo	ense		NI	NI	NI
26. Long Term Debt	\$20,061	\$21,376	\$23,594	34. Patents			NI	NI	NI

I. BUSINESS DESCRIPTION Time Warner, Inc, a Delaware corporation, is a leading media and entertainment company. The Company classifies its businesses into the following three reportable segments: • <u>Turner</u>, consisting principally of cable networks and digital media properties; • <u>Home Box Office</u>, consisting principally of premium pay television services domestically and premium pay andbasic tier television services internationally; and • <u>Warner Bros.</u>, consisting principally of television, feature film, home video and videogame production and distribution.

Note: Prior to 2013 TWX viewed it's segments as: Filmed Entertainment, Networks, and Publishing. In March 2013, TWX announced the divestiture of its Publishing Division, Time Inc. In June 2014, Time Inc. became a publically traded co

II. STRATEGY - SEGMENT INFORMATION (Revenue; Operating Income by Segment)

2013 (\$Millions)				Revenues/Operating Income		2014 (\$Millions)			2015 (SMillions)				
Rev	% Rev	Op Income	%Op Income	(by segment)	Rev	%Rev	Op Inc	%Op I	Rev	%Rev	Op Inc	%Op Inc	
\$9,983	38%	\$3,486	55%	Turner	\$10,396	38%	\$2,954	49%	\$10,596	38%	\$4,087	59%	
\$4,890	18%	\$1,791	29%	Home Box Office	\$5,398	20%	\$1786	30%	\$5,615	20%	\$1,878	27%	
\$12,312	47%	\$1,324	21%	Warner Bros.	\$12,526	46%	\$1,159	19%	\$12,992	46%	\$1,416	21%	
		(\$394)	(6%)	Corporate			(\$73)	(1%)			(\$367)	(5%)	
(\$724)	(3%)	\$61	1%	Intersegment Eliminations	(\$961)	(4%)	\$149	3%	(\$1,085)	(4%)	(\$149)	(2%)	
\$26,461	100%	\$6,268	100%	TOTAL	\$27,359	100%	\$5,975	100%	\$28,118	100%	\$6865	100%	
\$3,354				Publishing, Time Inc. (divested 2014)									
(\$20)				Intersegment Eliminations Publishing									
\$29,795													





III. STRUCTURE – Year 2015 Draw it. Include position, titles and name

NA=Not Applicable NI=No Information

Sources: TWX 2013/2014/2015 Annual Reports: TWX 10K 2013/2014/2015; TWX 4Q15 Earnings Release 021016

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MIDDLE GRADES STUDENT ACHIEVEMENT AND POVERTY LEVELS: Implications for Teacher Preparation

Lauren Dotson

Assistant Principal Hardin Park School Boone, North Carolina

Virginia Foley Associate Professor Educational Leadership and Policy Analysis East Tennessee State University Johnson City, Tennessee

ABSTRACT

This paper provides a history of the standardized testing and accountability movement, the curriculum standards attached to the accountability movement, and the attempted shift to common core. Student poverty and its impact on student achievement the focus of this paper. Recognizing the impact of poverty on student achievement as measured by standardized tests the authors question the explicit practices of teacher preparation programs in preparing teacher candidates to work with students of poverty.

INTRODUCTION

In a time of increased accountability measures and volatility of educational policy, public and legislative bodies have become increasingly focused on student achievement as reported in statewide standardized test scores. Having all students take the same standardized test is like saying that we have "standardized" children and that we all expect them to learn in the same ways and exhibit this learning in the same way--through these standardized assessments. What these "one-size-fits-all" assessments fail to take into consideration, however, are the varied backgrounds of our students. Many factors play an important part in a student's academic success, like special needs or environmental factors; this study focused on students' socioeconomic status and how this affects student achievement. This paper discusses the implications of this research on current and future teacher preparation programs in higher education at the undergraduate level.

STANDARDIZED TESTING

Popularity in standardized testing has risen dramatically after the publication of *A Nation at Risk: The Imperative for Educational Reform* by the Reagan administration in 1983; this report portrayed the American educational system as a failing entity and proposed that its only way to redemption was through stricter accountability measures (i.e., increased standardized testing) ("Is the Use of Standardized Tests Improving Education in America?," n.d.).

The use of standardized testing has become controversial as these tests have become "high-stakes" for students and school faculty and administrators. Why do legislators and the general public care about standardized test scores? Numbers are the easiest data to analyze, and "educational attainment is well recognized as a powerful predictor of experiences in later life," policymakers and the public assume that standardized testing data provide accurate reflections of student achievement (Brooks-Gunn & Duncan, 1997, p. 61). However, as the push for increased accountability through standardized assessment gained momentum it left many students falling through the cracks; standardized tests do not take the varying experiences of our students into consideration when it comes to test results, and as a result, achievement gaps became the norm for many subgroups but most noticeably for our economically disadvantaged children. Additionally, the recent downturn in our nation's economy has resulted in a greater income gap between our schools' wealthy and disadvantaged children: "...the Great Recession wreaked havoc among working-class families' employment. This has led to greater residential segregation and homogenously poor neighborhoods, leading to a higher concentration of poor students in certain schools" (Neuman, 2013, p. 18). The time frame that our nation experienced the Great Recession coincided with No Child Left Behind's deadline of having all children test as proficient in math and reading (according to standardized tests) by 2014; our nation did not meet this benchmark.

There are perspectives in favor of standardized assessments, in general, standardized tests are inclusive and non-discriminatory because everyone has to take them, regardless of race, gender, or ability. These tests can provide an indication of students' ability on a variety of topics while identifying areas of strengths and weaknesses, and they can also be a useful tool for assessing the schools themselves (Brown & Hattie, 2012, p. 290). Moreover, advocates of standardized assessments argue that these tests make certain that schools and faculty members are held accountable to taxpayers for their instruction and that many parents and teachers approve of these tests (Is the Use of Standardized Tests Improving Education in America?, n.d.)

Concerns regarding standardized testing include placing too much emphasis upon scores, student testing anxiety, "teaching to the test," skewed test results, cheating concerns, and socioeconomic and cultural bias (Brown & Hattie, 2012; Olson, 1999). Part of the concern regarding standardized testing comes from concern that there is too much emphasis placed upon them, leading to concerns about student testing anxiety, "teaching to the test," skewed test results, and possible cheating concerns (Olson, 1999; Brown & Hattie, 2012, p. 289). Because these tests are considered "high-stakes," poor student performance can lead to negative consequences for students and teachers alike: to protect both the test-takers and test administrators, "...just as students need an environment of psychological safety to make effective use of assessment, so too do teachers and school leaders need protection from negative consequences" (Brown & Hattie, 2012, p. 289). Some argue that the more important these tests become "in terms of being the basis for promoting or retaining students, for funding or closing down schools--the more that anxiety is likely to rise and *the less valid the scores become*" and that it ultimately "drives good teachers and principals out of the profession" (Kohn, 2000, p. 3; Renzulli, 2013, p. 1). Because the stakes of these tests are so high, test anxiety is now a common ailment amongst students across the nation; the Stanford-9 standardized exam, for example, even comes with instructions as to what actions the test administrator must to take if a student vomits on a test booklet (Ohanian, 2002). Stories like this add to the public sentiment that these tests are inflicting serious harm to children, both academically and emotionally, and these assessments do not result in improved cognition (Horn, 2003; Popham, 2001). Furthermore, despite the avalanche of funds allotted to standardized testing, there exists a great deal of evidence that standardized tests do not improve student learning or achievement; in fact, according to NAEP (the National Assessment of Educational Progress), American children are actually performing worse after the implementation of No Child Left Behind ac-

countability measures ("Is the Use of Standardized Tests Improving Education in America?," n.d.).

Perhaps most important is not what is being assessed but rather what is not being assessed, as what we measure is both invalid and misleading because student achievement depends on multiple factors that cannot be readily assessed, like ability, behavior, and socioeconomic status (Brooks-Gunn & Duncan, 1997; Wiggins, 2012). Because these examinations are designed to assess what is easily measured, they are inherently incapable of assessing what cannot be measured. These tests cannot ascertain "initiative, creativity, imagination, conceptual thinking, curiosity, effort, irony, judgment, commitment, nuance, good will, ethical reflection, or a host of other valuable dispositions and attributes" (Kohn, 2000, para. 45). This supports one of Albert Einstein's most famous assertions: "Not everything that counts can be counted, and not everything that can be counted counts."

SOCIOECONOMIC STATUS AND STUDENT ACHIEVEMENT

With regards to this study, socioeconomic status is viewed as a lens through which one measures student achievement. Correlational studies show a strong relationship between high poverty and poor academic performance (Sirin, 2005; White, 1982; White et al., 1993). This correlation begins at the beginning of a child's academic career, and even before, in some cases. Pawloski stated that poverty is more influential to academic performance than even gestational exposure to cocaine $(2\emptyset 14)$. In every state in the nation the economically disadvantaged subgroup never outperforms other nonlabeled students regardless of the grade level or subject area, supporting that the variable with the strongest correlation to academic achievement is socioeconomic status; correlations between SES and student achievement frequently range from .100 to .800 (Tienken, 2010; White, 1982). In a meta-analysis of research regarding economic status and achievement, Sirin found that the correlation between these two variables increased throughout the levels of schooling, climaxing in the middle school, and plateauing at the high school level (2005). This is also an important factor for why additional study on student achievement and SES at the middle level is crucial as "the [cognitive] effects of wealth [are] indirect and must accrue over time" (Willingham, 2012, p. 34).

Accountability measures were put into place to ensure a decline in achievement gaps between low income and higher income students; No Child Left Behind legislated a goal of 100 percent of students, regardless of identifying labels, test at proficient levels by 2014. However, a 2008 study forecast "nearly 100% failure" of California schools to meet these accountability measures; the study cited that the reason for this projected failure would be students cannot currently opt out of this curriculum if due to the poor results from limited English proficiency they live in a state that has adopted the standards ("NC students and high poverty students "(Is the Use of Stan-Common Core Explained: Frequently Asked Questions," dardized Tests Improving Education in America?," n.d.). n.d.) Unfortunately, NAEP data also supports this prediction; Wiggins (1991) asserted that a school has standards when the National Association for Educational Progress reportit communicates high expectations for all its learners, and ed in 2005 that nearly 50% of all immigrant, minority, many proponents of the Common Core standards argue and high poverty children would not graduate from high that this curriculum does just that. Those in favor of this school and that in the nation's largest cities, more than curriculum believe that, if implemented correctly, it moves 30% of the lowest-income students land in the lowest our nation's schools beyond superficial "test preparation" percentile rankings on standardized assessments in readcurriculum and gives teachers the opportunity for deep, ing and mathematics (Renzulli, 2013). Even the founder meaningful learning through fewer and more rigorous of the Educational Testing Service, Henry Chauncey, standards, helping our nation become more globally comhas been quoted as saying "if there is anything in heredpetitive (Conley, 2011; Wagner, 2013). Furthermore, by ity (such as tall parents having tall children), one would sharing a national curriculum, it will eliminate issues of expect children of high socioeconomic group parents to gaps appearing for students if they are moved from a state have more ability than children of low socioeconomic mid-year ("The Standards," 2010). It will also allow for group parents;" in other words, according to the architect the sharing of ideas and resources on a national level while behind a multi-billion dollar standardized testing comstill allowing for local flexibility and interpretation of the pany, public schools are now a Darwinian model of surstandards (Phillips & Wong, 2010). Several professional vival of the fittest--or perhaps the richest ("No Child Left education associations also support these new curricular Behind?" n.d.). standards, the most noteworthy being the nonprofit organization of the Association for Supervision and Curricu-ACADEMIC STANDARDS lum Development (ASCD). This association, founded in 1943, is a membership-based group of educational profes-After the implementation of No Child Left Behind, state sionals and experts, and it was one of the final educational standards (and standardized assessments aligned to these organizations to formally endorse the Common Core standards) became the norm to meet accountability meastandards. The ASCD only endorsed these standards after sures of this legislation. However, there was a common ara thorough yearlong review of the standards development gument that states could not compare data to one another and implementation of this curriculum, and it stressed the because each state's expectations was different from one importance of teacher and administrator input into these another; hence came the impetus for the Common Core standards, along with continuous professional developstandards, which is a national set of standards that are ment, to make these standards a success.

meant to be used as a curricular framework for all states

who adopted them ("In the States," 2012). Like standard-Perhaps it is because of improper support and lack of ized testing, there exists a great deal of controversy surappropriate professional development that opposition, both from political and educational realms, is beginning rounding the national implementation of these national standards. to grow in response to the implementation of Common Core standards. While a proponent of the common core In 2009 the National Governors Association, the Counhimself, Conley warned that, if executed poorly, these cil of Chief State School Officers, and the organization standards could result in "accountability on steroids, sti-"Achieve," all led by the organization "Student Achievefling meaningful school improvement nationwide" (2011, ment Partners" and the head of the College Board Orgapara. 2). Furthermore, Diane Ravitch, noted educational nization, David Coleman, wrote these standards. While historian, expressed that our schools are now comprised there were few educators in this group, there were many of "guinea pigs" trying out a largely untested curriculum testing representatives present (Ravitch, as cited in Strauss, (Ravitch, 2013). Ravitch also relayed her fear that issuing 2014). Because the U.S. Department of Education is legalnational curriculum could lead to a test-based meritocracy ly banned from controlling any curriculum in local public by ranking and rating every student, teacher, and school schools, it was prohibited from subsidizing the creation in the country (as cited by Strauss, 2014). Moreover, those of these standards. As a result, the Gates Foundation has opposed to the standards argue that there is no need for funded the cause with nearly \$200 million to jump start a national curriculum as a response to national mobility the implementation of these standards. It is important to rates; as of 2011, the inter-state mobility rate is a mere note that these standards are considered a starting point 1.6% of the total population, and of that population, only and will continue to be revised as new research arises, and 0.3% of these are school-age children ("Closing the Door

on Innovation: Why One National Curriculum is Bad for America," 2011). Tienken and Zhao (2010) argued: "Why would you allow your child to receive programmed, standardized, one-

In Tienken's (2011) research on the growing body of evidence supporting the Common Core standards, he discovered a lack of empirical evidence supporting these standards; this assertion was based upon the 2010 Benchmarking for Success report, which was also written by the same group that created the standards. Of the 138 references used in this report, Tienken asserted that many of them are repetitive sources and that only four could be considered truly empirical studies directly related to national standards and student achievement (2011). The standards themselves are also a source for dispute. College professors who have reviewed the standards at length argue that they are oddly worded and leave much open to interpretation, much like this English Language Arts standard: "Analyze different points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) creating such effects as suspense or humor" (Schmoker & Graff, 2011, p. 2). Other issues surrounding the standards themselves vary. Complaints expressed about English Language Arts are that they focus more on metacognition than content, they are too focused on informational texts (at least 50% of texts in grades 6-12 must be informational), and they convey vague expectations and reading lists (Carmichael et al, 2010; Luebke, 2013). Frustrations regarding mathematics standards include an avoidance of standard algorithms, fractions, and basic arithmetic skills, vague expectations for when to use a calculator, and the introduction of concepts before they are appropriate (such as introducing the idea of functions in first grade) (Carmichael et al, 2010).

Inevitably, growing constituencies of opponents are voicing their concerns that a "one-size fits all" curriculum is counterintuitive and counterproductive in a society that values individualization, differentiation, and customization and that it may place too much emphasis on standardized testing while discouraging teacher autonomy (Stancill, 2013; Westervelt, 2014; Tienken & Zhao, 2010). Furthermore, it ignores various subgroups like learning disabled students as well as disregards parent and teacher input in educational policy (Westervelt, 2014). Having a single set of standards is myopic in that it assumes that all students start and end at the same academic ability while overlooking student diversity (Tienken, 2011). This diversity has historically been viewed as a mark of strength in our educational system, and it is unfortunate that student diversity is now being viewed as negative as our system attempts to fit every student to the same constricted, standardized mold (Luebke, 2013). Opponents of a nationalized, standardized curriculum often draw the comparison of a doctor practicing medicine: would a person want a one-size-fits-all approach to one's medical treatment?

Tienken and Zhao (2010) argued: "Why would you allow your child to receive programmed, standardized, onesize-fits-all instruction? We would not allow that for our children and we do not see any evidence that standardizing instruction will improve education for other peoples' children" (p. 7-8).

Further undermining confidence in the Common Core movement has been its effect on standardized testing, the related decline in test scores. Ravitch, who has made herself a vocal opponent of Common Core standards, reported that the dramatic drop in test scores was intentional through testing design. In every state where these tests have been implemented test scores have dropped by approximately 30%, which on NAEP assessments has translated to less than 4 in 10 students being labeled as proficient using the new Common Core standards (Gewertz, 2013; Strauss, 2014;). Given that this steep decrease in test scores is across the general population of students, it only follows that these assessments will hurt students with disabilities, economic disadvantages, and limited English proficiency even more (Ravitch, 2013). Given the fact that many states are opting out of paper-and-pencil assessments in favor of online assessments, this leads to technology and additional funding concerns by states (Kober & Rentner, 2012). U.S. Secretary of Education Arne Duncan has been vocal in his rebuttal to concerns over the precipitous decline in test scores, arguing that "white suburban moms" are upset about the new Common Core tests because "their child isn't as brilliant as they thought they were" (as cited in Strauss, 2013, para. 2). As a result of the tremendous decline in scores and related concerns, as many as 10 states are now delaying implementation of Common Core assessments, and the board of New York's teachers recently unanimously voted to withdraw its support for the Common Core standards (Bidwell, 2014; Strauss, 2013). Principals who withdrew their support in New York testified that ...many children cried during or after testing, and others vomited or lost control of their bowels or bladders. Others simply gave up. One teacher reported that a student kept banging his head on the desk, and wrote, 'This is too hard,' and 'I can't do this,' throughout his test booklet" (Bidwell, 2014. para. 9).

With a sudden reversal of state support for the Common Core, the future of the program is uncertain at best. Although most states that originally adopted the initiative are still implementing the standards and their respective assessments, with the opposition growing, the effect of the standards on student learning is still undetermined at this time (Strauss, 2013).

At this point, after several years of research, development, and a nearly-nationwide implementation of the Common Core standards, abandoning the movement midimplementation may be disastrous. As the change process dictates, all implementations have an implementation dip where the process becomes more difficult before true, lasting change takes place. Several researchers believe that the Common Core standards implementation should continue through this "dip" but that some changes are necessary to make it succeed. These researchers believe that rather than as a tool for high-stakes testing, it should be used as a "low-stakes" tool to use for curriculum development and professional development. Furthermore, these researchers argue that Common Core standards and assessments should be subjected to field testing and revisions before using these standards for high-stakes assessments (Mathis, 2010).

RESEARCH FINDINGS

This nonexperimental quantitative study with secondary data analysis was designed to determine how socioeconomic status and student achievement on high-stakes assessments are related. The study was focused on middle grades students in North Carolina public schools during the 2012 and 2013 end-of-grade state assessments. Comparisons were made between the 2012 assessments (pre-Common Core implementation) and 2013 assessments (post-Common Core implementation).

In this study the level of socioeconomic status of the student, the academic year, and the grade of the student are the independent variables, and the dependent variable is academic achievement as indicated by proficiency levels (percentage of students labeled as proficient) on standardized assessments in the areas of reading and mathematics in the middle grades (grades 6-8). A paired sample t test was performed to compare proficiency averages between the 2012 and 2013 academic year for reading and math, which addressed research questions 1 and 2. A one way analysis of variance (ANOVA) was performed to determine if a significant difference exists between economically disadvantaged students' proficiency levels and standardized assessments in 2012 and 2013, which addressed research question 3. The Statistical Program for the Social Sciences (SPSS) was used to analyze data, all of which were analyzed at the .05 level of significance.

Research Question 1

Is there a significant difference between 2012 and 2013 academic achievement scores on mathematics standardized tests for middle grades students?

HO_{7:} There is no significant difference between 2012 and 2013 academic achievement scores on the mathematics standardized tests for middle grades students.

A paired-samples *t* test was conducted to evaluate whether a significant

difference exists between academic achievement proficiency scores on mathematics standardized tests for middle grades students between 2012 and 2013. Mathematics achievement scores were significantly lower in 2013 than in 2012. The results indicated that the mean proficiency score (M = 81.54, SD = 10.07) was significantly higher in 2012 than in 2013 (M = 34.83, SD = 15.74), t(1088)=107.61, p < .001. Therefore, the null hypothesis was rejected because test scores were significantly higher in 2012 than in 2013. The standardized effect size index, d, was 3.26, which is a large effect. The 95% confidence interval for the mean difference between the two years' scores was 45.86 to 47.56. A plot comparing the means of these scores is shown in Figure 13.

Research Question 2

Is there a significant difference between 2012 and 2013 academic achievement scores on reading standardized tests for middle grades students?

 $HO_{8:}$ There is no significant difference between 2012 and 2013 academic achievement scores on the reading standardized tests for middle grades students.



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whether a significant

difference exists between academic achievement proficiency scores on reading standardized tests for middle grades students between 2012 and 2013. Reading achievement scores were significantly lower in 2013 than in 2012. The results indicated that the mean proficiency score (M =70.40, SD = 12.65) was significantly greater in 2012 than in 2013 (M = 43.06, SD = 14.09), t(1088) = 76.06, p <.001. Therefore, the null hypothesis was rejected because test scores were significantly higher in 2012 than in 2013. The standardized effect size index, d, was 2.30, which is a large effect. The 95% confidence interval for the mean difference between the 2 years' scores was 26.63 to 28.04. A plot comparing the means of these scores is shown in Figure 14.

Research Question 3

Is there a significant difference between proficiency levels in both reading and mathematics standardized tests when compared by the schools' economic levels in 2012 and 2013 for middle grades students?

HO1a: There is no significant difference between proficiency levels in both reading and mathematics standardized tests when compared by the schools' economic levels in 2012 for middle grades students.

A one-way analysis of variance (ANOVA) was performed to determine whether significant differences existed be-



A paired-samples *t* test was conducted to evaluate tween students' proficiency levels in reading and mathematics standardized tests when compared by the schools' economic levels for middle grades students on the 2012 North Carolina state report card. The factor variable, the socioeconomic descriptor of the student population, included four levels: 1%-40% economically disadvantaged, 41%-60% economically disadvantaged, 61%-80% economically disadvantaged, and 81%-100% economically disadvantaged. The dependent variable was the percentage of economically disadvantaged students passing both the reading and mathematics end of grade test for 2012 in each of these SES levels. The ANOVA was significant, F(3,359) = 57.99, p < .001. Therefore, the null hypothesis was rejected. The strength of the relationship between economically disadvantaged proficiency levels and the four socioeconomic levels as assessed by h^2 was medium (.33).

> Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise difference among the means of the four groups. A Dunnett C procedure was selected for the multiple comparisons because equal variances were not assumed. There were significant differences between the means of students passing both the reading and math standardized assessments at every socioeconomic level. Schools with more students on free or reduced cost lunch scored significantly lower than schools with fewer students on free or reduced cost lunch. Schools with 1%-40% of students receiving free or reduced cost lunch scored significantly higher than schools with 41%-60% of students receiving free or reduced cost lunch, and the 41%-60% socioeconomic bracket scored significantly higher than schools with 61%-80% of the student population receiving free or reduced cost lunch. Likewise, schools in the 61%-80% socioeconomic bracket scored significantly higher than schools with 81%-100% of the student population receiving free or reduced cost lunch. The circles on the box plots denote outliers that are farther than 1.5 interquartile ranges (and closer than 3 interquartile ranges), and the star on the box plots denote the outlier that is farther than 3 interquartile ranges. The numbers next to the circles and star indicate the case number of the outlier. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the four socioeconomic levels, are reported in Table 13, and a box plot comparing the means between the groups is reported in Figure 15.

HO1b: There is no significant difference between proficiency levels in both reading and mathematics standardized tests when compared by the schools' economic levels in 2013 for middle grades students.

Table 1 95% Confidence Intervals of Pairwise Differences in Mean Proficiency Scores in Reading and Mathematics Standardized Tests of Middle Grades Students Among Different Levels of Socioeconomic Status										
SES Level	Ν	М	SD	1%-40% ED	41%-60% ED	61%-80% ED				
1%-40% ED	64	66.27	10.43							
41%-60% ED	121	57.97	8.06	[4.36, 12.23]*						
61%-80% ED	133	53.47	9.32	[8.77, 16.84]*	[1.66.7.34]*					
81%-1ØØ% ED	45	44.00	9.43	[17.18, 27.36]*	[9.76, 18.18]*	[5.16, 13.77]*				
*Significant at t	he .Ø5 level									



A one-way analysis of variance (ANOVA) was performed to determine whether significant differences existed between students' proficiency levels on reading and mathematics standardized tests when compared by the schools' economic levels for all middle grades students on the 2013 North Carolina state report card. The factor variable, the socioeconomic descriptor of the student population, included four levels: 1%-40% economically disadvantaged, 41%-60% economically disadvantaged, 61%-80% economically disadvantaged, and 81%-100% economically disadvantaged. The dependent variable was the percentage of economically disadvantaged students passing both the reading and mathematics end of grade test for 2013 in each of these SES levels. The ANOVA was significant,

F(3,359) = 50.78, p < .001. Therefore, the null hypothesis was rejected. The strength of the relationship between economically disadvantaged proficiency levels and the four socioeconomic levels as assessed by h^2 was medium $(.3\emptyset)$.

Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise difference among the means of the three groups. A Dunnett C procedure was selected for the multiple comparisons because equal variances were not assumed. There were significant differences between the means of economically disadvantaged students passing both the reading and math standardized assessments at every socioeconomic level. Schools with more students on free/reduced cost lunch scored significantly lower than schools with fewer students on free or reduced cost lunch. Schools with 1%-40% of students receiving free or reduced cost lunch scored significantly higher than schools with 41%-60% of students receiving free or reduced cost lunch, and the 41%-60% socioeconomic bracket scored significantly higher than schools with 61%-80% of the student population receiving free or reduced cost lunch. Likewise, schools in the 61%-80% socioeconomic bracket scored significantly higher than schools with 81%-100% of the student population receiving free or reduced cost lunch. The circles on the box plots denote outliers that are farther than 1.5 interquartile ranges (and closer than 3 interquartile ranges), and the stars on the box plots denote outliers that are farther than 3 interguartile ranges. The numbers next to the circles and stars indicate the case number of the outlier. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the four socioeconomic levels, are reported in Table 14, and a box plot comparing the means between the groups is reported in Figure 16.

Table 2 95% Confidence Intervals of Pairwise Differences in Mean Proficiency Scores in Reading and Mathematics Standardized Tests of Middle Grades Students Among Different Levels of Socioeconomic Status									
SES Level	N	M	SD	1%-40% ED	41%-60% ED	61%-80% ED			
1%-40% ED	62	25.37	10.60						
41%-60% ED	121	17.83	4.98	[3.79, 11.29]*					
61%-80% ED	61%-80% ED 126 15.04 6.34 [6.48, 14.17]* [0.90, 4.67]*								
81%-1ØØ% ED	54	11.04	4.79	[10.38, 18.29]*	[4.70, 8.88]*	[1.74, 6.28]*			
*Significant at the 05	1								

*Significant at the .05 level



DISCUSSION AND IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

After analyzing these data, it becomes apparent that student socioeconomic status and academic achievement continue to be negatively correlated, supporting earlier research by Sirin (2005) and White (1982); that is, the higher the poverty level within a school, the lower the academic achievement based on standardized test scores. However, the question still remains regarding the relationship between the new Common Core curriculum and standardized test scores. Although test scores with the new curriculum were significantly lower in 2013 than in 2012, correlation does not equal causation. One cannot prove that the Common Core curriculum caused lower

test scores. Furthermore, it is often anticipated that test scores are lower the year a new curriculum is implemented, so the findings of this research are consistent with this expectation. It is this researcher's recommendation that this study be replicated longitudinally over the course of 5 years (a normal curriculum cycle) to determine whether standardized test scores continue to be significantly lower with the Common Core curriculum than they were with the previous North Carolina Standard Course of Study. Five-year trend evidence would provide appropriate evidence for the effects of the Common Core curriculum on high poverty students.

Additionally, those in control of the educational system must not continue to ignore the host of research that warns against using only standardized testing as the only means of measuring the quality and effectiveness of schools and student achievement. Kohn (2000) reminded the public that Piaget warned schools not to rely heavily upon standardized test scores and grades, as they do not serve as predictors for future success in the adult workplace. Popham (2001) argued that educators must also accept blame for placing too much emphasis on standardized testing because teachers and principals did not take a more aggressive stance against testing when the accountability movement gained momentum. Furthermore, Wiggins (2012) pointed out that there are always outliers regarding standardized testing trends. There are some high poverty schools that score much higher than schools of similar demographics, and occasionally, there are low poverty schools that do not score as well as other wealthy schools. It is crucial that researchers study the high poverty outliers--that is, those schools that outperform schools with similar demographics, in order to determine which measures or programs educational leaders ascribe to the school's academic success.

One such outlier, Grassy Fork School in eastern Tennessee, became acclaimed for its academic turnaround because of its focus on differentiated instruction, differentiated (and quality) professional development, and attitude in its school leaders that changed the culture and climate in the school (Thomas, 2009). As a result, this school went from nearly being taken over by the state department of education to an example the rest of high poverty schools strive to follow. Educators and policymakers must stop being tolerant and accepting of the link socioeconomic status and student achievement by referring to it as a truth of our system (Wiggins, 2012).

Lastly, but perhaps most importantly, schools cannot effectively improve student academic achievement without dealing with one of the most critical issues in our schools today: student poverty. Just as a doctor cannot treat a patient's symptoms without attacking the infection, teachers cannot improve academic achievement in students without addressing the underlying economic issues that affect the student and family. Schools in high poverty areas already have difficulty in hiring and retaining high quality teachers due to the inherent difficulty in these positions and cycle of low expectations and poor performance (Potter 2013). When the deck is already stacked against high poverty schools and students, high quality instruction is paramount.

Some researchers suggest introducing socioeconomic inte-While this list is not all-inclusive, it provides a beneficial gration by busing, much like what was implemented durstarting point for schools that have a large population ing the Civil Rights movement, to bring in better teachers of high poverty students. However, improving academic and enhance parent engagement. A 2010 meta-analysis achievement in the high poverty school is often an uphill suggested that students in socioeconomically integrated battle. schools performed better in mathematics achievement testing than nonintegrated schools (2013). It is impor-Sadly, the founder of the Educational Testing Service, tant to note that because poverty is an issue that exists Henry Chauncey, has been quoted as saying "if there is outside the control of our schools, "...no policy improves anything in heredity (such as tall parents having tall chil-'socioeconomic status' directly....good policy is based on dren), one would expect children of high socioeconomic an understanding of causal relationships between family group parents to have more ability than children of low background and children outcomes, as well as cost-effecsocioeconomic group parents" ("No Child Left Behind?," tiveness" (Duncan & Magnuson, 2005, p. 35). However, n.d.). In other words, according to the architect behind there are several ways schools can positively impact our a multi-billion dollar standardized testing company, pubhigh poverty students to address issues that stem from a lic schools are now a Darwinian model of survival of the fittest-or perhaps the richest. If this is the mantra behind low socioeconomic level: standardized testing and accountability in our country, • Provide access to high quality, experienced teachour schools, and therefore our nation's future, are in dire ers: straits.

- Provide access to school resources (both at school and at home);
- Maintain high expectations and high quality curriculum:
- The Common Core movement, along with what we know • Provide parent education and assistance from social as educational researchers about the effects of poverty on student achievement, has a significant impact on how we services; are preparing our future teachers as undergraduate stu-

- Facilitate community services provided to families through the school (i.e., free dental clinics, parent education workshops, food pantry for families, etc.);
- Focus on early education programs (like Pre-Kindergarten/Head Start programs) and interventions for all at-risk students;
- Provide specialized training and high quality professional development for faculty and staff in best practices for high poverty students;
- Focus on the school becoming a community of learners:
- Improve parent involvement;
- Improve relationships between school and community;
- Increase school funding from local, state, and federal agencies;
- Offer summer enrichment and summer school programs; and
- Maintain for small school and class size (Brooks-Gunn & Duncan, 1997; Jensen, 2009; Muijs, Harris, Chapman, Stoll, & Russ, 2009; Reardon, 2013; Sirin, 2005).

DISCUSSION AND IMPLICATIONS FOR TEACHER PREPARATION PROGRAMS

dents at the collegiate level. Schools with high levels of poverty score very low on current measures of effectiveness which are primarily based on standardized tests. Reeves (2000) recognized exceptions to this in his study of 90-90-90 schools; 90% poverty, 90% ethnic minority, and 90% proficient on state assessments. Jenson (2009) identified five key factors in meeting the needs of students from poverty. Jenson used the SHARE acronym:

- Support of the Whole Child
- Hard Data
- Accountability
- Relationship Building
- Enrichment Mindset.

In addition to recommendations from Reeves and Jenson, Marzano (2004) discussed closing gaps of children from poverty with specific approaches to teaching. And finally, Payne (1996) offered schema to understand the experiences and thinking of families in generational poverty. Are these resources being used in teacher preparation?

An informal survey of five teacher preparation programs in the Appalachian area revealed no explicit approach to preparing teacher candidates for teaching students of poverty. All five schools rely on the broad diversity statements in each syllabi, field experiences, and the candidate's final portfolio for evidence of the candidate's preparation in this area. We, the authors, make the assertion that this is not enough.

We recommend a deep look at course syllabi to identify where approaches to teaching students of poverty can be included. We recommend that teacher preparation programs identify assessment measures for student learning in this area. The academic gap for children of poverty is too obvious for this to be ignored by teacher preparation programs.

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Foundations for a Team Oriented Curriculum

Brandi Neal

Northern Kentucky University Highland Heights, Kentucky

Ben Martz

Shepherd University Shepherdstown, West Virginia

ABSTRACT

The business world today values collaboration and team work skills such as those found in the area of project management, business process reengineering, quality circles, etc. In response, the use of group projects permeates many curricula today with varying consequences and levels of success. Technology claims to enhance collaboration in distributed teams but its success has been a challenge for organizations. Our objective, is to demonstrate that the concepts underlying team work can be the pedagogical basis for a hands-on, information systems class to teach the development of systems to support teamwork. In the end, the class exposes students to the underlying assumptions of good group work and provides underlying principles for how best to automate a collaborative environment.

INTRODUCTION

The case can be made that while individuals are still important, groups are becoming the de-facto unit of work for organizations today. Working cooperatively is becoming a necessity; while working collaboratively is becoming critical to success.

Over the years, the popular press (Information Week, 1999; Business Week, 1999; Computerworld, 1999; USA Today (Kay 2011); CIO Magazine (Schiff, 2013); Forbes (Adams 2014); and Monster.com (Lester, 2016), identified and continue to identify the fact that organizations today emphasize more and more group work and that teamwork skills are more and more important in recruiting. Pundits estimate that managers spend as much as 80% of their work time in meetings and working with groups (Johansen, 1998). More detailed studies by Robert Johansen (1998) add additional confirming details. Johansen's list of driving forces contributing to the trend toward the increased use of business teams includes; a decreasing number of middle managers, a trend toward contract work, an increasing geographic spread for companies and more team-oriented companies becoming the model.

This last force is further confirmed in Peters and Waterman's book, In Search of Excellence (1982, p.127), where they record that the small group is becoming the main building block in those businesses with a "bias for action." Kilmann (1985 p.43) presents the team in the most positive light when he writes, "Generally, it is the team approach that will provide the most comprehensive source of expertise and information to solve complex problem, where synergy enables the team to contribute more than the sum of its members." College recruiters and employers explicitly support this notion as they consistently rate teamwork skills and group skills high in their evaluation of future employees. Martz and Landof (2000).

GROUP AND TEAMWORK SKILLS ARE EMPLOYABLE SKILLS

Mattson (2015) proposes 6 key benefits of teamwork in the workplace: Fosters creativity & Learning; Blends Complementary strengths; Builds trust; Teaches conflict resolution skills; promotes wider sense of ownership; Encourages healthy risk-taking. Teamwork skills are sought after and employable skills. University of Kent (2016) surveyed their graduates who worked for employers such as Microsoft, Target Jobs, and the BBC. The survey results list teamwork as the number 2 skill that employers want. In a second broad based survey, National Association of Colleges and Employers (NACE) reports that "[the] ability to work in a team structure" as the number one skill employers seek (Adams, 2014). US News (Holmes, 2014) echoes this finding and places collaboration at the top of their list saying, "It is imperative for college-bound students to function efficiently and appropriately in groups, collaborate on projects and accept constructive criticism when working with others." Finally, the job-search site, Monster.com, identifies teamwork as an essential job skill after review hundreds of thousands of job descriptions (Lester, 2016).

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employees with well-rounded, broad-based technical skills complemented with soft skills is not new (Bailey and Mitchell, 2007; Kung et al, 2006; Martz and Cata, 2008). Barr and Tagg (1995) identified a gap between academia's "espoused theory" and academia's "theory in use." Essentially, when evaluated, the idea of teaching more real-world business concepts, the espoused theory, was not being achieved, the theory in use, by business schools.

These newer, additional program requirements center on activities such as teamwork and integrate knowledge across several functional areas (Trauth et al, 1993). In a study similar to Barr and Tagg (1995), Martz and Landof (2000) found that recruiters ranked team skills in the top three "most desirable" skills for graduates. More significantly, the recruiters surveyed placed team skills among the skills needed for career advancement. Trade publications, ComputerWorld (Ouellette, 1998), and academic research (Bailey and Mitchell, 2007; Martz and Cata, 2008) continuously confirm that these concerns for business school educations linger. The business information systems field is one academic discipline that has attempted to respond by incorporated more emphasis on where this skills are distinctive competencies for career placement and advancement. These areas include project management, requirement definition, quality circles, etc. As these areas are incorporated, more attention must be paid to understanding how groups work.

HOW GROUPS WORK

The fundamental task for most problem-solving groups is to resolve an issue. These can be either a problem or an opportunity. As the team works toward resolving its assigned issue though, characteristics of the group members combine with those of the task in what is almost an infinite number of ways. Combinations which move groups toward "better" decisions are termed process gains. Those combinations which move the group away from a "better" decision are termed process losses. Shaw (1981) identifies

The need to incorporate this desire from employers for the major areas of process losses and process gains along with significant group research in those areas.

> Process losses are found with traditional groups, so we should openly expect to find new process losses identified with electronic groups. As ongoing iterations of research in this area occur that compare manual to electronic environments (Dennis and Kinney, 1998), new environments are created. One such environment is the group support systems environment defined as an "interactive, computer-based environment that support[s] concerted and coordinated team effort toward completion of joint tasks" (Polya, 1957). Martz (1999) proposed that as GSSs are implemented, researched and used, the new environment may create their own set of group process losses. For example, two such losses - information overload, higher levels of non-consensus - have been identified in the research.

Most researchers, practitioners and theorists describe the task of group problem solving as having a divergent phase, called production, and a convergent phase, termed selection (Table 1). Interestingly, these sub-processes so necessary in problem solving, seem to antagonize each other when a group is trying to reach common ground or consensus.

Historically, groups accomplish the divergent process more easily than the convergent process. Research shows that electronic GSSs have been able to outperform traditional methods for producing numbers of comments and numbers of unique comments (Shepherd et al, 1996; Gallupe et al., 1992; Dennis and Valacich, 1993; Benbasat and Lim, 1993; Valacich et al., 1994). However, along with this increased production comes the associated dysfunction of groups inefficiently combining and filtering the large lists of comments, ideas or items. There are so many items that individuals have difficulty assimilating all the information.

This clearly presents a dilemma for problem solving groups. Maximizing the divergent process should provide

TABLE 1 GSS Process Gains and Losses							
Derivative Process Losses	Primary Process Gains						
channel conflict	better analytical support						
information overload	• easier multi-phase voting						
• overhead costs	more reflective						
GSS influence choosing wrong "structure"	• increase in "effective" group size						
• stronger identification of non-consensus	• wider perspective of information domain						
	• removal of time and geographical constraints						

the better opportunity to maximize creativity and idea uncovering of information; 2.) analysis, the decomposing production; however, maximizing the divergent process of information into data and perspective; 3.) synthesis, may make it harder to achieve consensus. So, the tradeoff the recombining of data into information; and 4.) choosfor groups may be production versus consensus; more proing, the act of selecting a solution to the problem. duction lowers consensus.

Therefore the group processes, techniques or methodologies applied in meetings attempt to resolve an issue With the introduction of electronic based GSSs, these by facilitating the identification of possibilities (diverge) and other techniques have been automated with varying and place them in categories (converge). Some methodolodegrees of success. As an example, the Electronic Braingies, like Buzan's mind mapping (1991), tend to make the storming tool from GroupSystems.com (a.k.a. Ventana categories up on the fly while others such as de Bono's 6 Corporation) automates and extends the basic premise hats have predetermined categories. The table below list a of the Brainwriting-type techniques (Nunamaker et al., representative set of problems solving techniques, meth-1997). SharePoint is a collaborative work environment ofodologies, and tools that work both at the individual and fered by Microsoft. the group level.

Та	BLE 2
PROBLEM SOLVING &	CREATIVITY TECHNIQUES
6 Hats Thinking	Flowcharting
Algorithms	Force Field Analysis
Analytical Hierarchy Process	Goal / Wish
Blockbusting	Kepner-Tregoe Situation Analysis
Boundary Examination	Mind Mapping
Brainstorming	Nominal Group Technique
Bug List	PERT/CPM
Crawford Blue Slip	Problem Reversal
Critical Success Factors	Statement Restatement
Decision Matrix	SOLVE
Decision Tree	SWOT
Duncker Diagrams	Random Stimulation
Expected Value Table	Wildest Idea
Fishbone Technique	Wishful Thinking
Five P's	Z-Scores
(Osborn, 1963; Hays, 1963; Fox, 1987; Mason & Mitrof	deBono, 1985; Hiam, 1990; f 1981; Buzan, 1991)

These problem-solving methodologies have the implicit activity of consolidating individual perspectives into a group perspective in order to choose or create an optimal solution. Churchman's alternative assessment (1979), Mason and Mitroff's stakeholder assessment (1981), Saaty's priority scaling models (1980), and Fox's voting methods (1987) are examples of this type of activity. In addition, a review of early problem solving literature (Polya, 1957; Whiting, 1958; Osborn, 1963) identifies four generalized problem solving processes or activities: 1.) discovery, the

AUTOMATING GROUP PROCESSES

SharePoint was created as a way to allow collaboration and increase the productivity of business team processes. Being a Microsoft product, allows for close integration with other Office products which is a coordination bonus. SharePoint allows you the ability to manage documents, organize content, share knowledge, provide collaboration environments, and search for people and information. Newer releases of SharePoint have built-in social functionalities. These features, allow organizations to build communities, share ideas and thoughts, and discover knowledge and resources. Below, we have identified five common group oriented activities and mapped Share-Point functionality to them.

As stated in the introduction, the purpose of this paper is to show how concepts underlying team based problem solving can become the pedagogical foundation for an information systems class. The following five examples attempt to show this approach. We pick five popular activities or methodologies used in groups or teams for project planning and show how to map these to SharePoint with screen shots from prototype SharePoint development for proof of concept.

de Bono's Six Hat Thinking - As discussed, one of most generic ways to facilitate group problem solving is to have group members provide information based on categories. This activity can been seen as a combination of the discovery phase and the analysis phase. The categories provide structure but the process allows free-wheel thinking within the category. One popular group technique is de Bono's (1985) six hats.

In the technique, de Bono has designed six categories of or perspectives from which to view a problem. Each category's perspective is some up with a focus. For example, the red hat thinking focuses on feelings and hunches; the emotional perspective of the problem. One would find a group member talking about how their "gut" feels about how to solve or react to a problem. Conversely, a blue hat

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perspective focuses on the process for taking the next step in a plan to solve the problem. In the end, the group is taken through prompting questions and activities from the six perspectives in order to get a fuller description of the problem.

SharePoint can be useful in facilitating de Bono's six hat thinking (1985). We were able to accomplish this by setting up keywords on a field in a custom list. Once a member enters their unique point of view, a workflow is initiated that searches the record for specific keywords. When those keywords are found, the workflow assigns the appropriate colored hat based on the entry.

Based on our SharePoint workflow, the following colored hats are associated with the adjacent keywords.

TABLE 3DE BONO'S THINKING HATS						
] (Area of	Hat f Concern)	Potential Keywords				
White	5	Facts; Information; Data; Figures				
Blue	G	Agenda; Thinking; Planning; Deci- sion; Global; Overview				
Black	S	Critic; Difficulties; Weaknesses; Dangers; Analyst; Risks				
Green	J	Creative; Growth; Alternatives; Possibilities; Ideas				
Red	J	Emotions; Intuitions; Hunches; Feeling; Instincts				
Yellow	J	Logical; Positive; Benefits				

Random Stimulation - Random stimulation is a brainstorming and creativity technique used to help members of groups develop more ideas. One simple strategy uses a dictionary to develop a set of words. These words should be randomly selected. Now, each word is reviewed and the associations created by your brain should be recorded. These words and associations become the genesis of new ideas and thoughts. Another more structured example is found in Roger von Oech's (1983) creative strategy detailed in his book "A Whack on the Side of the Head."

Using a deck of 64 cards with different prompting questions, the activity works to help jar the thinking that may have been stalled. For example, a group working to solve a production line problem may have stalled in its thinking about possible solutions. One of the whack packs cards would be drawn and read out loud to the group - "Think like a kid"-and used to jumpstart addition discussions.

SharePoint can provide prompting words or questions to help individuals and groups generate ideas. One way to accomplish this would be to have a team member create an entry based on the problem they're trying to solve. The entry form, displays random cards from the Roger von Oech's Creative Whack Pack. The card is presented in a defined location on the entry form, where additional fields are available to enter new ideas or questions generated by the random stimulation. The workflow would keep track of the 64 cards that have been displayed and display a new card each time the button is clicked, until the randomized rotation starts over. SharePoint also allows the ability to track questions and ideas associated with each card, so those thoughts are never disregarded.

The entry form is available to all members of the team and has the ability to be edited at any time. This allows for collaboration, idea sharing, and thought tracking throughout the team without the need to be in the same physical location or time zone.

Force Field Analysis – Force Field Analysis is a process originally designed by the social psychologist Kurt Lewin (1947) in the 1940's. His idea was to identify those items or influences that both support you plan and that work against your plan. Once identified, the influences were scored as to their level of impact. The total scores from each perspective would help resolve the issue at hand. Figure 1 provides one visual of this thinking.

Stakeholder Analysis - Stakeholder Analysis is a very popular component of management; used broadly for strategic decisions and more narrowly for project management. Regardless of its scope, it is designed to solicit and ensure support of key groups of people or organizations - stakeholders - for projects. Stakeholder analysis is the technique to identify these stakeholders and solicit their input and opinions concerning the successful completion of the project. The techniques can be deployed at varying levels. (Babou, 2008; Savage et al, 1991; Mitroff and Linstrone, 1993).

Generically, the technique starts with brainstorming the list of stakeholders. From there, there exists many derivatives of the technique, but most look to have the team members rate the stakeholders on two characteristics; say "power concerning the project" and "interest in the success of the project." The final ratings are them compiled and displayed in a matrix using the characteristics and to be key items for a successful analysis of a policy or planthe axes. The results have the stakeholders fall into four ning problem. natural quadrants (Figure 2). Assuming low to high and left to right as increasing values of the ratings, the upper DISCUSSION right quadrant identifies the key stakeholders for the project. These are the critical stakeholders and concerns that Automating team processes will require a combination of must be addressed closely. Stakeholders in other areas are information systems development knowledge and of the important and the techniques suggests are handled differunderlying concepts of team work. The incorporation of ent: upper left stakeholders should be satisfied; lower left courses that discuss and understand team work can be stakeholder should be monitored with some minimum found in various areas. The ability to build a simple comeffort: and, the lower right should be kept abreast of the puter system also resides in various areas. The most likely pedagogical home will be one that recognizes informaproject. tion technology and it interaction with human beings. SharePoint, can help you through the whole stakeholder One finds this combination in the study of informatics in analysis. First, we built a SharePoint form that asks the general and more specifically with information systems.

individual or group to identify the stakeholders. We provided a list of people that might be associated with the project, as a way to keep members thinking about all the people that are affected by their work. Next, with a simple rating process, the stakeholders are identified by their power and interest in the project. The form asks questions about each stakeholder to help the group identify and understand their key stakeholders. Finally, the graph is automatically developed and used in the analysis phase.

Stakeholder Assumption Surfacing Technique (SAST) – SAST is a multi-layered business planning process designed and promoted by R.O. Mason and Ian Mitroff (1981) in their book Challenging Strategic Planning Assumptions: Theory, Cases and Techniques. The process is derived from the recommendations of dialectic thinking whereby emotion is removed from a debate and the facts are presented and studied to obtain truth, as Socrates envisioned it. The SAST process includes the concept of a structured debate which operates to present hypotheses, provide supporting or contradicting data as warrants, evaluate such data with group votes and ratings, and reach a logical conclusion around the problem's solution.

In a way this technique can be viewed as combination of the Force Field and the Stakeholder Technique combining portions of each. However, Mason and others (Mason, 1969; Mason and Linstrone, 1993; Mason and Mitroff, 1981; Churchman, 1981) have developed a more specific technique concentrating on the assumptive actions of the stakeholders. In their Strategic Assumption Surfacing Technique (SAST) they concentrate on the characteristics of certainty (low to high) - How certain are you of this assumption? - And importance (low to high) - how important is this assumption for the success of the project? The resulting matrix produces a set of important assumptions (upper right) that need validation and interestingly, a set of assumptions (lower right) that are identified as Important and Uncertain. Mason and others felt these

The class envisioned around this area would combine students with soft skill backgrounds and students with application development backgrounds. One could imagine a student previous classes in psychology or small group theory finding a class that automates those theories appealing. A second student looking for a process to automate would also find well defined and documented activities appealing. The class envisioned would work to merge these interests and build students with practical backgrounds in building team oriented problem solving techniques.

SUMMARY

Employers value teamwork skills. Therefore it seems reasonable that teamwork skills are a key skill for students to learn and have at their disposal for their careers. Further, it would seem that knowing how to help automate and use key teamwork activities would be important content for business school programs. Building on this premise, this paper has presented a proof of concept using prototype automations of five basic team oriented tools. The students who understand the underlying premises of the activities and can encode them in company workflows for businesses will be greatly sought after.

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SCREEN CAPTURES
Figure A1 DeBono's Thinking Hats
de Bono's Six Hat Thinking - New Item X
LOT Liter Cost Convert Clabered
de Bono's Six Hat Thinking Use this form to identify your problem and provide information leased on the problem.
Problem
 de Bono's Six Hat Thinking - New Item ×
ECT Case Ser Case Pate X C4 Commit Cathorn
C de Bono's Six Hat Thinking Use this form to identify your problem and provide information based on the problem.
Problem Received negative design reviews Description Would could introduce color, to make the site more creative.
5
· ·
FIGURE A2 RANDOM STIMULATION
FIGURE A2 RANDOM STIMULATION
FIGURE A2 RANDOM STIMULATION
 FIGURE A2 RANDOM STIMULATION
<section-header></section-header>
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		FIGURE A3 Force Field Analys	IS	
	Force Field Analysis - New Item			
	Force Field Analysis Fill in the following fields, taking these ques • What's the business benefit that ('m • Will other business processes be affi • Are costs involved? • What are the risks associated with th • Are there supporters of this change? • Will the change be easy to implement	tions into consideration: trying to accomplish with this change? ected by this change? his change? Are there opposes of this change? Why are th nt? Will additional time and resources be require	ey opposed to it? red?	
	Forces <i>for</i> change	Proposal for change	Forces against change	
	CEO's support	Adoption of Enterprise Risk Management	General inertia	
	8	2	V	
	Finance support owing to credit rating stability/enhancement		Good operational track record reduces perceived need/urgency	
	S	•	~	
	Greater board engagement		skepticism re. management initiatives	
	8	•	~	
	Understanding of basic risk principles across most of organization		existing workload pressures	
Force Field Analysis - New Item	Forces for CEON support	change Proposal for change Forces opainst cha ort Adegmon of Energy in General Inelia State Management	Forces for change Proposal for change CEO's second Risk Management	P Forces oppinat change General literitie
Course A 44 right involves A 44 right involves A 44 right involves of the course of	phoget day en time aquest to 17 d'interior la mainteir for change Forces against change			× 1
CO's report Risk Ma	denerative denerative Penace super-	sport owing to credit Good operational trad Itry and anciences.	A necosid Planare support envires to confit indicipancy noting stability/enhancement	Good operational track record reduces perceived need/urgency
Finance support owing to credit rating stability/schancement	Good operational track record reduces per calved need/largenry	and angagement disatilities in another		s stapticism re, management
> v	2 Creater Ext	ingeties a manage	2 9	initiatives
	s Tel Linderstand	Egy b	Understanding of basic min	earing workload pressures
Understanding of basic risk, principles across most of organization	soluting workland pressures organization	orise wont of n	errorpes as resisted of organization	
. (9)	s (9)	(M) 1	d)	

UIAN	EHOL
Stakeholder Analysis	
Project	
ERP System Upgrade	
Name	
Ben Martz	
Power (How much power do they have	?)
High	•
Interest (How much interest do they ha	ive?)
Interest (How much interest do they ha High	ive?)
Interest (How much interest do they ha High	ive?)
Interest (How much interest do they ha High Name Brandi Neal	ive?)
Interest (How much interest do they have High Name Brandi Neal Power (How much power do they have	rve?)
Interest (How much interest do they have High Name Brandi Neal Power (How much power do they have Low	rve?)
Interest (How much interest do they have High Name Brandi Neal Power (How much power do they have Low Interest (How much interest do they have	nve?)



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Emotional Responses to Service Learning: An Exploratory Study

H. Richard Priesmeyer

Emil C.E. Jurica Distinguished Professor of Management Greehey School of Business St. Mary's University San Antonio, Texas

Suzanne D. Mudge

Professor in the Department of Counseling, Health & Kinesiology Texas A&M University– San Antonio San Antonio, Texas

Stephanie G. Ward

Chair of the Department of Management & Marketing Greehey School of Business St. Mary's University San Antonio, Texas

ABSTRACT

This study measured the emotional responses of students to common service learning activities. Two hypotheses focused on (1) expected changes in the mean emotion scores and (2) expected differences in individual responses. Results showed significant increases in Surprise, Anxiety and Distress and individual differences in Contempt, Disgust and Fear. The findings suggest that educational institutions have a responsibility to adequately prepare students for service learning experiences. There is also a need to accommodate the different sensitivities students have when service learning is required.

There is considerable emphasis on service learning in college curricula. The national average participation rate across all types of educational institutions is 34 percent (Campus Compact, 2012). Business schools and professional schools report 35 percent and 38 percent respectively of students actively engaged in service learning. Integrating service learning projects into academic coursework holds the promise of transforming students through positive connections, uniting classroom theory with "real world" applications. The opportunity to step into a service learning experience can motivate, inspire, and engage students while exposing them to some of the challenges in society.

Often these engagement activities are presented to students as a component of a class or as a requirement for graduation, more often they are volunteer activities. At select institutions service learning is heavily emphasized. One recent survey reported 93% of faith-based or minority-serving institutions include service learning in their mission statements or strategic plans. Institutions provide a wide range of support for these activities. Universities often provide awards and scholarships to students, awards to faculty and, sometimes, require courses dedicated to service learning (*Campus Compact*, 2012).

Despite all the encouragement for engaging in service learning there remains 65 percent of students who choose to not participate. This relatively high non-participation rate suggests there are specific and likely unrecognized deterrents to initial or repeated participation. Because emotions play a dominant role in decision-making, it is entirely possible that emotions may be influencing students' decisions to participate in these types of emotionally-laden activities. To increase service learning participation, it may be necessary for educational institutions to recognize, understand, and manage the impact that emotions have on those students who engage in service learning activities.

AFFECT AND SERVICE LEARNING

Kiely (2005) offers a Transformational Service Learning Model that provides a framework for research in this field. He proposes five essential steps as shown in Figure 1.

Kiely's (2005) concept of contextual border crossing refers to the individual differences that influence the way students process service learning experiences. These diverse frames of reference are grounded in the unique personal backgrounds of individuals. They result in differing levels of intensity and dissonance when exposed to service learning; some of which are conducive to learning while others are not. Kiely's concept of personalization is of primary interest here. It addresses the individual emotional responses of Anger, Happiness, Sadness, Fear, and Anxiety that result from that dissonance. The service learning experiences are then processed by reflecting, problemsolving, and searching for solutions. Connecting refers to affectively understanding and empathizing "through new relationships with community members, peers, and faculty" (Kiely, 2005, p. 8).

Kiely's recognition of emotions as essential to the transformation process is important. It suggests that, like other steps in the experience, how one responds emotionally can contribute to or impede the learning experience. He states that "They [students] experience a variety of emotions including shame, guilt, anger, confusion, compassion, denial, and sadness" and he provides observations of student experiences to support this (Kiely, 2005, p. 8).

PROCESSING AFFECT

The emotions and feelings recognized by Kiely have been explored by others who confirm that service learning activities stimulate a wide range of emotional responses in college students. These emotional responses vacillate between "satisfying" and "hazardous" (Carson

& Domangue, 2013; Coles, 1993). They become part of one's "emotional biography" thus establishing an attitude toward future service learning participation; that attitude is either one of approach or avoidance (Carson & Domangue; 2010 Coles, 1993). The emotional responses arise from three possible sources: 1) prior service learning experiences (emotional biography); 2) service learning site expectations or experiences; or 3) a combination of both previous experience and expectations (Carson & Domangue, 2013; Coles, 1993).

According to Coles (1993), the "satisfactions" and "hazards" that result from service experiences are conceptualized as follows. Satisfactions, which provide motivation for future service engagements, include moral purpose, personal affirmation (discovery of one's own personal abilities), stoic affirmation, and a sense of success and advancement. Coles' hazards inhibit service learning and are identified as weariness, cynicism, anger and bitterness toward the problem, despair (deepening sadness toward service recipients), and burnout. Left unprocessed, unpleasant emotional responses drive movement toward disengagement and burnout. With this in mind, attention to service learning emotional responses, as well as awareness of optimal points of intervention, are essential to ensuring the healthy management and processing of students' emotional experiences within service learning activities.

APPRAISAL

Understanding the dynamic, interdependent systems of affect requires attention to the link between appraisal and emotions. The unique way in which an individual processes and appraises an event establishes the emotional experience (Frijda, 1993). Richard Lazarus continues Frijda's emphasis on appraisal by describing emotions as "... the product of reason in that they flow from how we appraise what is happening in our lives" (Lazarus, 1999, p.



87). Within his Cognitive-Motivational-Relational The- dressed in the literature" (Langstraat & Bowdon, 2011, p. ory (CMRT), Lazarus defines two types of appraising: 5). primary and secondary.

Primary appraisals assess whether or not the target activity is "relevant to one's values, goal commitments, beliefs about self and the world, and situational intentions" (Lazarus, 1999, p. 76). In other words, primary appraisal takes into consideration: 1) whether the target activity is relevant to personal well-being; 2) whether the target activity facilitates or thwarts a personal goal; and 3) the role of an individual's diverse goals in shaping an emotion. Within this category, unpleasant emotions (Anger, Fear, Anxiety, Shame, Sadness, Contempt, and Disgust) are experienced in response to appraisals of threat, delay, and thwarting or conflict of goals and goal attainment. The pleasant emotion (Happiness) and non-emotions (Surprise and Interest) are experienced in response to goal attainment or potential movement or openness toward it.

Secondary appraisal refers to a cognitive-evaluative process focused on what can be done about a stressful situation, relationship, or activity. Secondary appraising evaluates three basic issues: 1) blame or credit; 2) coping potential; and 3) future expectations (Lazarus, 1999). For example, if self-blame is the emotional appraisal associated with a targeted activity, the resulting emotion could be Shame or inwardly-directed Anger. If, on the other hand, other-blame is the emotional appraisal, the resulting emotion could be Contempt, Disgust, or outwardly-directed Anger. If credit is the emotional appraisal, the resulting emotion would most likely be Happiness experienced as an increased sense of well-being. One's coping potential serves to either diminish or enhance the emotional experience; it also influences the significance of the experience.

Appraisal of prior experiences plays a role in decisionview of the literature on human emotions (Darwin, 1897; making (Morris, Woo, Geason, & Kim, 2002), and par-Izard, Ackerman, Schoff, & Fine, 2008; Lowenstein 2001; ticipation in service activities depends on an individual's Plutchik, 1994; Shalif, 1991). The meaning of each emodecision to engage in the activity or avoid it altogether. tion in Table 1 is based on an increase in that emotion. Further, because service learning experiences often involve activities in emotionally-laden contexts, one would Subjects were qualified by confirming that they had enexpect the emotional response to influence subsequent gaged in service learning activities within the past two years. They then completed IRB consent requirements participation. To be more specific, activities related to homeless shelters, battered women shelters, and food lines and were administered the Emogram pre-test. Each subject was asked to recall a particular service learning activlikely have significant emotional impact on students. Deity and was given time to recall the details of that experispite the evidence that affect influences engagement in service learning, little work has been done to characterize ence. The Emogram post-test was then administered, and the emotional responses involved. Hunt contends that "esresults were shared with the subject. sentially nothing has been published about the cognitive, Two hypotheses were constructed for each of the eleven affective or social processes experienced during service emotions. It was anticipated that service learning experilearning" (Hunt, 2007, p. 280). According to Langstraat, ences would have a significant emotional impact although "most attention to the emotionality of service-learning no attempt was made to specify whether that impact pedagogies remains under theorized or only implicitly adwould result in a decrease or increase of each emotion. The first set of hypotheses, therefore, were tests of the means

METHODOLOGY

In an effort to identify the specific emotional responses of individuals to service learning experiences, a sample of fifteen students was drawn from an undergraduate program at a private catholic university. Permission for the use of human subjects was received from the university's Institutional Review Board (IRB) subsequent to a formal request by the authors. All authors hold a certificate of completion of human subjects training from the NIH Office of Extramural Research.

Emogram, an interactive computer program, was used to measure emotional responses to service learning experiences (Priesmeyer, 2011). The program assesses eleven basic emotions through the presentation of 33 facial photograph depicting low, medium and extreme expression of each emotion. The subject responds by indicating the extent of concurrence with each photograph. The assessment solicits affective responses and has been used as the primary data collection instrument in a variety of doctoral dissertations (Mudge, 2003; Capps, 2005; McGinnis, 2008; & Edralin, 2010). Measures of emotions are computed as the change in response to a stimulus. This is done by first establishing baseline measures for each individual, providing the stimulus (i.e., the recall of a service learning activity), and then measuring the emotions again in a post-test. Emogram reveals the emotional responses that result from exposure to the stimulus.

Table 1 provides a list of the basic emotions measured by Emogram and an interpretation of each one. The interpretations are not arbitrary; instead they are based on a rebetween the pre-test and post-test emotion scores with the foundly than others, resulting in an increase in the varinull hypothesis declaring there would be no significant ance of the post-test measures compared to the variances change and the alternate hypotheses defining a significant in the pre-test. Thus, the null hypotheses declare no difchange in either direction. A two-tailed *t*-test provides the test statistic.

Ha1: Service learning experiences have an emotional impact. The mean value of post-test emotion scores will differ significantly from the mean values of the pre-test emotion scores.

It was also suspected that individual subjects would respond differently to service learning activities. Therefore tests were conducted to identify significant changes in the variance between the pre-test and post-test scores for each emotion. Specifically, it was expected that some individuals may have had substantial emotional service learning experiences that would cause them to respond more pro-

TABLE 1 EMOTIONAL RESPONSE INTERPRETATIONS				
Emotion	Meaning			
Happiness	The activity is congruent with personal goals and competency			
Interest	Subject is open to additional information and engagement with the activity			
Surprise	The activity presented unanticipated events or circumstances			
Disgust	The subject seeks to avoid the action or persons, places, or activities associated with the action			
Contempt	The subject assigns blame to persons, places, or activities associated with the action			
Anger	The subject seeks to change or eliminate the action or persons, places, or activities associated with the action			
Fear	The action presents a specific, identifiable threat to the subject			
Anxiety	The action relates to multiple, non- specific threats that suggest ominous conditions or events			
Shame	The subject associates failures or shortcomings to the action and assigns blame to self for perceived failures			
Distress	The subject associates vulnerability and a need for help with the action			
Sadness	The subject associates an irretrievable loss and a sense of helplessness with the action			

ference in the variance between the pre-test and post-test scores and the alternate hypotheses define a significant difference as measured by an F-test on each emotion. The significance level for all of these tests was set at 95% (pvalue=.05).

Ha2: Individuals will respond differently to service learning experiences. The variance of post-test emotion scores will be greater than the variance of pre-test emotion scores.

RESULTS

Figure 2 provides the mean emotional responses for the subjects in the study. The notable increase in Surprise is apparent along with increases in each of the unpleasant emotions of Contempt, Disgust, Shame, Fear, Anger, Anxiety, Distress and Sadness. Happiness, the only pleasant emotion, declined while Interest showed only a minor increase. Taken collectively, this response profile lacks anything positive and includes increases in every unpleasant emotion. While individual student responses differed, the profile in Figure 2, which is based on the means of all subjects, suggests considerable dissonance exists. Substantial processing of these emotional responses would be necessary to transform these service learning events into positive learning experiences.

Table 2 provides the specific pre-test and post-test mean scores for each emotion along with the test statistics. Significant results are highlighted in bold type. Note that significant differences in the mean scores were found for Surprise ($p=.\emptyset\emptyset$), Anxiety ($p=.\emptyset2$) and Distress ($p=.\emptyset4$). A comparison of the pre-test and post-test mean scores shows that there was a significant increase in each of these three emotions. We can, therefore, accept our first alternate hypothesis and conclude that service learning does have a significant emotional impact. For this sample, that impact consisted of increases in Surprise, Anxiety and Distress. While not significant at the .05 threshold level, Shame and Fear have p-values of .06 and .07 suggesting these two emotions may also be important responses.

The second set of hypotheses addresses the differences in variance between the pre-test and post-test data to test the expectation that individuals will respond differently to service learning experiences. Here, three emotions, Contempt, Disgust, and Fear were significant with differences at $p=.\emptyset1$. An examination of the test results reveals that the variances for these three emotions increased. The second alternate hypothesis is therefore accepted providing



	TABLE 2 Emotion Scores and Test Statistics										
Emotion	Happiness	Interest	Surprise	Contempt	Disgust	Shame	Fear	Anger	Anxiety	Distress	Sadness
Mean (pre)	4.65	3.35	1.82	1.44	1.35	2.70	1.41	1.64	2.11	1.82	2.23
Mean (post)	4.32	3.54	3.02	2.00	1.80	3.26	1.88	1.85	2.90	2.43	2.75
t-test p-value	0.34	0.53	0.00	0.12	0.14	0.06	0.07	0.26	0.02	0.04	0.16
Variance (pre)	0.88	1.87	0.84	0.28	0.21	1.41	0.18	0.45	0.53	0.70	1.15
Variance (post)	0.83	1.02	2.35	1.30	1.01	1.26	0.90	0.65	1.41	1.04	1.28
f-test p -value	0.91	0.27	0.06	0.01	0.01	0.83	0.00	0.50	0.08	0.46	0.84

some of the eleven emotions. In other words, individuals evidence that individuals respond differently to service learning experiences. While this result is as anticipated, respond emotionally to that which is considered relevant, this may be a particularly important finding because it meaningful, and/or worthy of attention. Scores for Sursuggests that service learning experiences relate to indiprise, Anxiety and Distress show significant changes thus viduals in profoundly unique and personal ways. For exindicating that the targeted activities are deemed relevant ample, interacting with the homeless or abused would unand that engagement exists. The fact that there are also doubtedly trigger emotional responses in individuals who significant inter-individual differences suggests varying have been personally affected by these conditions while levels of relevance among the individuals in the sample. other participants may remain largely unaffected. The significant emotional responses in this study can be

discussed within the CMRT framework. Surprise, a pre-DISCUSSION emotion, isn't considered positive nor is it considered negative. Surprise does, however, reflect an unprepared open-Using Lazarus' Cognitive-Motivational-Relational Theness or vulnerability to a targeted activity. An increase in ory (CMRT), emotional changes can first be examined Surprise indicates that the participants were "caught offto determine whether the subject is engaged. This reveals guard" or ill-prepared for the targeted activities. Increases whether the student perceives the experience as relevant. in Surprise across participating subjects suggest that bet-If activities are considered relevant, pre-test and post-test ter pre-engagement orientations are needed to ensure that Emogram assessments would show changes across at least students are fully prepared for their service learning experiences. Additionally, more extensive debriefing is appar- ment. In some cases, a required service learning experiently needed to help students process the service learning experiences.

Anxiety is an emotional response based on the appraisal of an uncertain, existential threat. Anxiety occurs when an individual appraises a situation as 1) relevant; 2) incongruent or threatening to goal attainment; and 3) there is no obvious person or group to hold accountable or blamed for a wrongdoing. Increases in Anxiety across participating subjects indicate lack of known structure and direction, diminished self-efficacy, disorientation, panic, and a desperate need for outside guidance and support. Within a service learning setting, the participant needs to process the free-floating fear in an effort to define the problem and identify coping strategies or possible courses of action. Left unaddressed, Anxiety escalates and may cause the individual to disengage and withdraw as a means of self-protection and avoidance.

Distress, an uneasiness or discomfort due to perceived inadequacies or imperfections of the self, often coexists with Shame. Distress prompts individuals to step away from situations or step into the shadows in hopes that others will not see their flaws. Self-perceived inadequacies and flaws must be acknowledged and addressed in order for the individual to move to an improved state of selfworth. Within the service learning setting, Distress is one of the most common and difficult emotional states to address. Wanting to appear competent and gain the respect of others, students are often unwilling to share deficits and perceived inadequacies. Group processing of service experiences must be done in a way that is accepting of mistakes, perceived inadequacies or flaws and supportive and encouraging of the personal and professional growth of participants.

The literature on burnout can provide guidance in this matter. It can help identify optimal points for early intervention with the goal of curbing emotional exhaustion and depersonalization while supporting personal accomplishment and engagement. Burnout is described as consisting of three dimensions: emotional exhaustion, depersonalization, and lack of personal accomplishment (Maslach & Jackson, 1986; Maslach & Schaufeli, 1993). Burnout theory likely offers the appropriate field of inquiry to better understand when and how to intervene and how to effectively process the emotional responses associated with service learning experiences.

Encouraging service learning, or requiring it, carries with it an ethical obligation to protect those who engage in it. However, it inevitably exposes some individuals to emotionally significant circumstances because much of the activity is outside the control of the educational institution. Unpleasant experiences work against continued engage-

ence may compound previous emotional and psychological traumatization for a student. Wendler proposes that "the human subjects research protection tradition may inform the field of service learning about principles for ethical community engagement" and offers guidelines for doing so (Wendler, 2012, p. 30).

The significant results identified here suggest that service learning activities may need an enhanced structure modeled after Wendler's human subjects protection principles. Additionally, a lack of infrastructure, inadequate preparation, and incomplete debrief sessions may explain why there is such a low participation rate among college students. One should recognize that these results are based on the recall of a service learning experience; one would expect that the experience itself offers a far richer context and stronger emotional reaction. Regardless, the emotional responses shown here reveal the nature of the memories retained by the individuals tested. The following comment from Carnegie Mellon's Eberly Center for Teaching Excellence & Educational Innovation captures the central issue here.

Service learning is a potentially rich educational experience, but without careful planning, students can wind up learning far less than we hope or internalizing exactly the opposite lessons we intend. ("Service Learning," n.d., para. 2)

These findings have implications for all those who advocate, require, or manage service learning. Those responsible for university service learning experiences should examine existing programs and ask "What preparation is provided to students for the situations they will likely experience?" "What support is available during and after these activities and how is that support structured?" "What attention is given to the individual backgrounds and differences that may cause some students to understandably avoid certain activities?" Most importantly, "How do service learning experiences connect with the educational objectives of the institution and the career goals of the students?" These questions deserve attention given evidence that the emotional responses to service learning are significant and that future engagement by those who participate likely depends on how service learning activities are managed.

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Community College Student Success in Online Versus Equivalent Face-to-Face Courses

Cheri B. Gregory, Ed.D.

Associate Professor – Biology Motlow State Community College Tullahoma, Tennessee

James H. Lampley, Ed.D. Professor – Educational Leadership East Tennessee State University Johnson City, Tennessee

ABSTRACT

As part of a nationwide effort to increase the postsecondary educational attainment levels of citizens, community colleges have expanded offerings of courses and programs to more effectively meet the needs of students. Online courses offer convenience and flexibility that traditional face-to-face classes do not. These features appeal to students with family and work responsibilities that typically make attending classes on campus difficult. However, many of the students who tend to take courses in this instructional format have characteristics that place them at high-risk for academic failure. Because of the traditional mission of community colleges, they generally serve more students who fit this highrisk profile. Despite the promise and potential of online delivery systems, studies have associated distance education with higher student withdrawal rates. In addition, research has indicated that online students tend to earn lower grades than students in comparable face-to-face classes. The existence of contrasting findings in the literature exposes the need for additional empirical research relative to the overall success of students in online courses, as well as on factors associated with success in distance education. This is especially true for community college students.

The purpose of this study was to determine if significant differences existed in student success at the community college level in online courses as compared to face-to-face courses. In addition, the researchers investigated the relationship between selected demographic, academic, enrollment, and external environmental factors and student success in online courses. The study involved secondary data analysis of quantitative data relevant to students enrolled in course sections taught by instructors who taught both online and face-to-face sections of the same course within the same semester from fall 2012 through spring 2015. The target population included 4,604 students enrolled at a public 2-year community college located in Tennessee. Results indicated there was a significant difference in success between students taking a course online and students taking a course face-to-face. Also, there was a significant difference in success based on instructional method when the following factors were considered: age group, gender, student academic classification, and Pell Grant eligibility status. There was no significant difference in success based on instructional method when first-generation college student status was considered.

INTRODUCTION

The convenience and flexibility offered by distance education has made online education attractive to students in rural locations and those with work and family responsibilities that make attending college difficult (Allen & Seaman, 2015; Hachey, Conway, & Wladis, 2013; Radford, 2011; Wojciechowski & Palmer, 2005). Postsecondary student enrollment in online education has increased at a rate far exceeding the overall higher education enrollment (Allen & Seaman). The NCES's Integrated Postsecondary Education Data System (IPEDS) reported that 70.7% of public, degree-granting institutions participate in some level of distance education offerings. NCES data also indicated that distance education participation has been highest at public 2-year colleges (NCES, 2015).

The role of a community college is different from that of 4-year colleges or universities (American Association of Community Colleges. Most community colleges award associate's degrees, certificates, and credit for courses designed to transfer to a 4-year postsecondary institution. They provide workforce development and specialized training to assist area employers. In addition, most offer noncredit courses, cultural activities, and enrichment majority of these institutions have open admissions policies whereby they allow any individual with a high school diploma or General Education Diploma (GED) to enroll as a student and register for classes. Also, the tuition at these colleges is much less than that at a university. All of these factors combine to make community colleges attractive to a wide range of individuals, particularly minority, low-income, nontraditional-aged, and academically underprepared students (AACC, n.d.; Provasnik & Planty, 2008).

As student enrollment increased at many community colleges over the past decade, institutions expanded course offerings to meet the demand for more class sections. Some institutions had outgrown their existing classroom space and had to determine effective ways to manage the problem without new building construction. One of the core missions of community colleges has always been to provide access to education for students with a wide range of needs. The fact that the 2-year schools have been leaders in distance education participation seems logical, given that the offering of online courses and programs is a relatively inexpensive way to expand access and serve students with diverse needs (Hachey et al., 2013).

Additional NCES data showed the majority of students taking distance education courses were 24-years-old or older, employed full-time, and either married or with dependent children (Radford, 2011). Traditional-aged college students are 18 to 24-years-old, and nontraditional students, or adult learners, are generally considered those 25-years-old and older (Compton, Cox, & Laanan, 2006; Wyatt, 2011). Although they tend to be more serious, focused, and mature than traditional students, adult learners face challenges as they attempt college. Because they have often been out of school awhile, they are often underprepared for collegiate-level work. Also, their personal lives may require so much time and energy that they have insufficient time to attend traditional classes. Consequently, the dropout rate at many community colleges is higher for nontraditional students than for traditional students.

Although the flexibility offered by online classes potentially allows adult learners the chance to pursue an education while fulfilling outside commitments, its structure may also be a barrier to student success. The nature of online courses is such that students are often forced to think critically, take active roles in their learning experiences, and be more self-motivated, independent, selfdisciplined, and goal-oriented (Kerr, Rynearson, & Kerr, 2006; Wojciechowski & Palmer, 2005). Also, not only must students learn new content, they must become familiar with the technology required to navigate and par-

programs as a service to members of the community. The ticipate in the course. Many students have issues with the technology, time management, and feelings of isolation as a result of not assessing their fit for this course format prior to enrolling (Aragon & Johnson, 2008; Capra, 2011; Wojciechowski & Palmer). Administrators tend to agree that institutions have a more difficult time retaining distance education students, but they are unsure whether the cause is the nature of the course, the characteristics of the students enrolled, or a combination of both factors (Allen & Seaman, 2015).

Statement of the Problem

As the United States strives to increase the educational attainment levels of its citizens, institutions of higher education are under pressure to increase student access, meet diverse student needs, and ensure student success. Colleges and universities have increased the number of students they can serve with distance education programs and courses. Although online courses are popular, primarily because of the convenience and flexibility they offer, the students who tend to enroll in them have characteristics or circumstances that put them at high-risk for academic failure (i.e., dropping classes, failing classes, and/or withdrawing from school).

The purpose of this quantitative study was to determine if differences existed in overall student success at the community college level in online courses as compared to faceto-face courses taught by the same instructor and across disciplines. In addition, the researchers investigated the relationship between student success and age group, gender, academic classification, financial aid status, and first generation college student status.

Significance of the Study

Institutions of higher education are increasing student access by expanding distance education offerings. Their common goal is increased educational attainment by citizens, which means completion of a degree or certificate. Therefore, colleges and universities must ensure that students are successful in the courses and programs in which they enroll. The NCES (2015) reported that the 2013 national 3-year graduation rate at community colleges for first-time, full-time freshmen students at community colleges averaged 29% for students earning an associate's degree or certificate. Information from the Tennessee Higher Education Commission (THEC) indicated that the 2014 state 3-year graduation rate at Tennessee's community colleges for first-time, full-time freshmen students averaged 28.1% (THEC, 2015). These statistics show there is room for improvement in efforts to have a more educated public. The identification of factors associated with student success in distance education could help im- a discussion board. A synchronous online course is timeprove online course development, evaluation, instruction, dependent. It includes prescheduled class meeting times student advisement, and support services.

REVIEW OF LITERATURE

Distance Education and Community Colleges

In 2014, 97% of public 2-year institutions offered distance traditional, face-to-face classroom. Those limitations may education courses, a higher percentage than for any other cause frustration for some students. institutional category (Allen & Seaman, 2015). Approximately 30% of U.S. higher education students are enrolled **Organization and Delivery** in at least one online course, and enrollment estimates for 2013 ranged from 5.3 to 7.1 million online students. Almost all online courses are organized and delivered and The majority of these students attend community colusing course management software (CMS), also called leges (Shea & Bidjerano, 2014). The original intent of learning management system (LMS) software, that encommunity colleges was to provide students from diverse ables students to access course materials, post on discusbackgrounds with a variety of postsecondary education sion boards, submit assignments, send e-mails, take asoptions. As a result of their many roles, these institutions sessments, and view grades (Bergfeld, 2014). Two of the have attempted to effectively serve students with a broad most commonly used CMS systems are Blackboard and spectrum of needs, knowledge, skills, and life experiences Desire2Learn. Many researchers concur that students (Johnson & Berge, 2012). In an effort to meet student detend to be more successful in distance education if they mand for convenience and flexible scheduling options and frequently use computers, the internet, and other forms to increase student access, community colleges have been of technology and are comfortable with it (Dupin-Bryant, leaders in distance education (Hachey et al., 2013; Parsad 2004; Hachey et al., 2013; Harrell & Bower, 2011; Kerr & Lewis, 2008). et al., 2006).

A significant number of students who attend community colleges are nontraditional students with work and family **Student Success in Distance Education** responsibilities that make attending traditional classes on campus difficult (Pontes & Pontes, 2012). Some studies Many researchers agree that the most successful students in online learning are self-disciplined, self-motivated, goal-oriented, responsible, and organized (Johnson & Berge, 2012; Kenner & Weinerman, 2011; Kerr et al., 2006; Kiely, Sandmann, & Truluck, 2004; Neuhauser, 2002; Rovai, 2004; Wojciechowski & Palmer, 2005). These students also possess skills in time management, multitasking, and critical thinking. In addition, they are able to take responsibility for their own learning and work independently. Most of these characteristics align with those of an adult learner, or a nontraditional student (Wojciechowski & Palmer). As older students, nontraditional students are usually more mature and have prior knowledge and life experiences they want to relate to their education in some manner (Johnson & Berge; Kenner & Weinerman; Kiely et al.). Adult learners have much to offer as students, but there are potential obstacles to their success in higher education. These include the lack of financial resources, a lack of self-confidence, under-preparedness for collegiate level coursework, the lack of sufficient time, and a lack of academic focus (Compton et al., 2006; Kenner & Weinerman; Kiely et al.; Wyatt, 2011).

have shown that the types of students who choose to enroll in distance education courses have many of the characteristics of students at risk for non-completion (Aragon & Johnson, 2008; Hachey et al., 2013). On the contrary, other researchers have found that students who take online courses tend to have a stronger academic preparation than the average community college student (Xu & Jaggars, 2011b). **Differences between Online Learning and Traditional Learning** Online courses are categorized as asynchronous or synchronous, depending on whether or not the instructor and students interact or meet online at the same time. An asynchronous online course is one that is time-independent. The course materials are generally posted online for students to access at any time. There are typically specific due dates for assignments and exams, but there are no class meeting times. Students are free to complete work at their own convenience, and they submit assignments by designated deadlines. Communication within an asynchronous course is usually by e-mail or posting on

at which students and the instructor interact by way of two-way video conferencing, Internet chat, or some other technological means (Allen et al., 2004; Bergfeld, 2014; Bower & Hardy, 2004). Communication in an online class environment does not normally allow for level of social interaction and the use of the vocal expressions and nonverbal gestures that are a part of communication in a

Xu and Jaggars (2011a) analyzed student data over a 5-year period from institutions of the Washington State Board of Community and Technical Colleges to compare academic outcomes of students enrolled in online courses to those of students in hybrid and face-to-face courses. Students in online courses were more likely to withdraw or fail than those in face-to-face courses. Also, students who took a greater proportion of online courses were less likely to complete a program of study or transfer to a university (Xu & Jaggars, 2011a). Similarly, Xu and Jaggars (2011b) examined data over a 4-year period from the Virginia Community College System (VCCS) to compare the success of students in online and face-to-face classes of introductory college-level English and mathematics courses. The students who took the courses online were significantly more likely to withdraw. This was true for both the English and math courses. In addition, the percentage of students who made a final grade of a "C" or better was higher for students in the face-to-face sections for both the English and math courses (Xu & Jaggars, 2011b).

Shea and Bidjerano (2014) analyzed NCES Beginning Postsecondary Student Survey (BPS Ø4/Ø9) data to compare degree completion rates of community college students enrolled in distance education courses during their first year to those of students enrolled in all face-to-face courses during the first year. They concluded that the students who participated in online education during their first year of college had higher rates of degree attainment than those who did not take online courses during the first year.

Factors Associated with Success in **Distance Education**

Wojciechowski and Palmer (2005) investigated the relationship of various student characteristics to success in an online business course at a community college over a period of 3 years. For purposes of the study success was defined as receiving a final grade of a "C" or better in the class. The same instructor taught each section of the course and used the same textbook in each class. The researchers concluded that a significant relationship existed between each of the following student characteristics (in order from highest to lowest significance) and success in an online business course at the community college: overall GPA, attendance at an optional class orientation session, number of course withdrawals in the past, ASSET placement test reading score, number of online courses in the past, student age, and ACT English score. There was no significant relationship between student success in the online business course and these variables: full or parttime status, gender, ACT composite score, ACT reading

score, semester format (8-week or 16-week), and ASSET writing score (Wojciechowski & Palmer).

Nontraditional students tend to have lower overall completion rates in higher education than traditional-aged students; however, research is contradictory relevant to the relationship between student age and online success (Compton et al., 2006). The results from several studies indicated that completers tended to be older students as opposed to traditional-aged students (Muse, 2003; Neuhauser, 2002). Wojciechowski and Palmer (2005) discovered that younger online students did not perform as well as older students. However, other researchers reported that student age had no relationship to online course completion (Aragon & Johnson, 2008; Park & Choi, 2009).

Aragon and Johnson (2008) also found that the completion rate was higher for females than for males. However, Park and Choi (2009) observed no effect on course completion based on students' gender.

With regard to student course load, Aragon and Johnson (2008) reported that students who did not complete online courses tended to be enrolled in fewer hours than those who did complete online courses. Conversely, Wojciechowski and Palmer (2005) found that student enrollment status had no statistically significant relationship with online success. Educational level is determined by the number of credit hours a student has completed and refers to the classification of a student as a freshman, sophomore, junior, or senior. Dupin-Bryant (2004) observed that lower-division online students tended to be non-completers more often than upper-division students. Muse (2003) found that the more credit-hours community college students had completed, the more successful they were in online classes.

The number of online classes students have taken may be an indicator of technological proficiency. Researchers consistently found that students who had previously taken online courses or had relevant computer experience were more successful in distance learning than those who had less online experience (Dupin-Bryant, 2004; Hachey et al., 2013; Harrell & Bower, 2011; Kerr et al., 2006).

METHOD

This study involved secondary data analysis of quantitative data extracted from the student information database system of the participating institution, a public 2-year community college located in Tennessee. The target population included students enrolled in course sections taught by instructors who taught both online and face-toface sections of the same course within the same semester during the following semesters: fall 2012, spring 2013, fall 2013, spring 2014, fall 2014, and spring 2015. Disciplines represented included accounting, anthropology, biology, instructor based on class performance relative to expected business, chemistry, economics, English, history, informalearning outcomes. tion systems, mathematics, political science, psychology, This study involved secondary data analysis of quantitasociology, speech, and theater. The total number of stutive data extracted from the student information database dents involved in the study was 4,604. A chi-square (c2) system of the participating institution, a public 2-year test of independence (two-way contingency table analysis) community college located in Tennessee. Disciplines was used to analyze the data relevant to research question represented included accounting, anthropology, biology, 1. The other five research questions were addressed using business, chemistry, economics, English, history, informadescriptive analyses. A significance level of .05 was used to tion systems, mathematics, political science, psychology, determine statistical significance. sociology, speech, and theater. The total number of students involved in the study was 4,604. A chi-square (c2) **Data Collection** test of independence (two-way contingency table analysis) was used to analyze the data relevant to Research Ques-Prior to the study the researchers obtained approval to tion 1. The other five research questions were addressed conduct research from the administration at the particiusing descriptive statistics.

pating institution to conduct the study and collect existing data from the student information database system for RESULTS secondary analysis. Data relevant to the research questions were collected on all students enrolled in course sections taught by instructors who taught both online and face-to-**Research Question 1** face sections of the same course within the same semester during the following semesters: fall 2012, spring 2013, fall Is there a significant difference in student success as mea-2013, spring 2014, fall 2014, and spring 2015. To protect sured by the proportion of students making a letter grade the identities of the students and instructors and to mainof "A," "B," "C," "D," "F," or "W" on the final course grade tain anonymity, unique identifier numbers were used in between students taking a course online and students takplace of the identification numbers typically used in the ing the same course with the same instructor face-to-face? institutional database. Members of the administrative A two-way contingency table analysis was conducted to computer programming staff at the participating instituevaluate whether student success, as measured by the protion assigned the numbers and provided the researcher portion of students making each letter grade on the final with data that contained no personally identifying inforcourse grade, varied depending on instructional method. mation on participants. The two variables were final course grade and instructional method (online or face-to-face). Student success and instructional method were found to be significantly related, Pearson c2 (5, N = 4,272) = 49.15, p < .001, Cramer's V

Data Analysis

For the purposes of this study the researchers considered = .11. Table 1 indicates the percentage of students earning student success to be demonstrated by the final course leteach final course letter grade by instructional method. ter grades earned in the classes included in the study. Final course grades had six possible levels ("A," "B," "C," "D," Follow-up pairwise comparisons were conducted to eval-"F," or "W") and were assigned to students by the course uate specific differences among proportions of students

Table 1 Percentage of Students Earning Each Final Course Letter Grade by Instructional Method									
Instructional	Final Course Grade								
Method	А	В	С	D	F	W	Total		
Face-to-Face	38.0	25.6	16.9	6.1	10.2	3.2	100.0		
Online	42.6	24.2	11.7	4.4	11.3	5.8	100.0		

quential Bonferroni method was used to control for Type making a passing grade in online classes (79.9%) than in I error at the .05 level across the pairwise comparisons conducted. In general, students taking a class online were significantly more likely to make an "A," an "F," or a "W than students taking a class face-to-face. Students taking a class face-to-face were more likely to make a "B," "C," or "D" than students taking a class online.

Research Question 2

What is the distribution of grades in online and face-toface courses for traditional-age and nontraditional-age students?

Table 2 displays the percentage of traditional age and nontraditional age students earning each of the letter grades for online and face-to-face courses. Nontraditional age students were more likely than traditional age students to make an "A" in both online and face-to-face courses. Traditional age students taking face-to-face course were least likely to drop a course. The other three groups displayed similar drop rates. Traditional age students were more likely than nontraditional age students to make an "F" in both online and face-to-face courses.

Research Question 3

What is the distribution of grades in online and face-toface courses by gender?

Table 3 displays the percentage of male and female students earning each of the letter grades for online and face-to-face courses. Both males and female online students were significantly more likely to make an "A" than their peers in face-to-face courses. Surprisingly both online groups, males and females, were significantly more likely to withdraw from an online course than in a face-toface course. Both groups were also slightly more likely to make an "F" in online courses. Males had approximately the same chance of making a passing grade (A, B, or C) in online and in face-to-face courses (75.0% and 76.5%

earning each final course letter grade. The Holm's se- respectively). Females had a significantly better chance of face-to-face courses (73.3%).

Research Question 4

What is the distribution of grades in online and face-toface courses by academic classification?

Table 4 displays the percentage of freshman and sophomore students earning each of the letter grades for online and face-to-face courses. Sophomores were significantly more likely to make an "A" than freshmen. Freshmen were more likely to make an "F". This was especially true for freshmen taking online courses. Both freshmen and sophomores were twice as likely to drop an online course as they were a face-to-face course.

Research Question 5

What is the distribution of grades in online and face-toface courses by Pell Grant Eligibility Status?

Table 5 displays the percentage of students by Pell Grant Eligibility earning each of the letter grades for online and face-to-face courses. Students that were not Pell Grant eligible were more likely to make an "A" and to make an "A", "B", or "C" than Pell Grant eligible students. Students in both groups (Pell grant eligible and not Pell Grant eligible) were more like to withdraw from online courses.

Research Question 6

What is the distribution of grades in online and face-toface courses by first generation college student status?

Table 6 displays the percentage of students by first generation college status earning each of the letter grades for online and face-to-face courses. Students that were first generation and those that were not first generation had similar levels of success in both online and face-to-face courses. Both groups were also less likely to withdraw from face-toface courses than from online courses.

I	Percentage of Studi De	ENTS EAR	TABLE 2 NING EACH ETHODS A	2 H FINAL CO ND AGE GI	DURSE LET ROUP	ter Grai	DE BY	
Delivery	Age Group			Final Cou	irse Grade			
Method		А	B	С	D	F	W	1
Online	Traditional-age	35.3	24.9	12.9	5.7	14.7	6.5	100.0%
Face-to-Face	Traditional-age	33.8	25.8	18.7	7.Ø	11.6	3.1	100.0%
Online	Nontraditional-age	45.3	24.4	11.0	3.3	9.7	6.3	100.0%
Face-to-Face	Nontraditional-age	47.2	24.8	11.9	2.6	7.9	5.6	100.0%

Pi	ERCENTAGE OI	F STUDENTS Deli	Ta s Earning very Meth	ble 3 Each Fina iods and G	l Course Gender	Letter Gr	ADE BY	
Delivery	Conton			Final Cou	ırse Grade			
Method	Gender	Α	В	С	D	F	W	
Online	Male	38.5	25.Ø	11.5	4.6	13.9	6.5	100.0%
Face-to-Face	Male	33.1	24.9	18.5	7.2	13.0	3.3	100.0%
Online	Female	44.1	24.0	11.8	4.3	10.4	5.5	100.0%
Face-to-Face	Female	41.5	26.1	15.7	5.3	8.2	3.2	100.0%

Pi	ercentage of Stu Deliver	dents Eaf y Method	TABLE RNING EAC S AND ACA	4 Th Final C Ademic Cl	OURSE LE ASSIFICAT	tter Gra ion	DE BY	
Delivery	Classification			Final Cou	ırse Grade			
Method		Α	В	С	D	F	W	
Online	Freshman	33.4	24.9	14.0	4.3	16.8	6.8	100.0%
Face-to-Face	Freshman	29.9	24.8	19.1	8.3	14.5	3.4	100.0%
Online	Sophomore	41.8	25.1	11.4	5.2	10.1	6.4	100.0%
Face-to-Face	Sophomore	41.9	28.5	16.3	3.6	5.9	3.9	100.0%

TABLE 5 PERCENTAGE OF STUDENTS EARNING EACH FINAL COURSE LETTER GRADE BY **DELIVERY METHODS AND PELL GRANT ELIGIBILITY STATUS**

Delivery	Pell Grant			Final Cou	ırse Grade			
Method	Eligible	А	В	С	D	F	W	
Online	Yes	37.5	24.9	13.4	5.1	13.1	5.9	100.0%
Face-to-Face	Yes	35.4	26.2	17.7	6.0	11.1	3.6	100.0%
Online	No	5Ø.1	23.3	9.1	3.3	8.7	5.5	100.0%
Face-to-Face	No	41.3	24.9	15.9	6.3	9.Ø	2.6	100.0%

I	PERCENTAGE	OF STUDEN Delivery	T NTS EARNIN METHODS A	ABLE 6 G EACH FIN AND GENER	al Course ational St	Letter Gf atus	RADE BY	
Delivery	First			Final Cou	irse Grade			
Method	Generation	А	В	С	D	F	W	
Online	Yes	40.9	23.9	13.6	5.Ø	10.9	5.8	100.0%
Face-to-Face	Yes	35.5	27.6	16.9	7.4	10.6	2.1	100.0%
Online	No	37.6	27.1	10.2	4.8	13.6	6.6	100.0%
Face-to-Face	No	37.9	25.7	17.9	5.2	10.1	3.2	100.0%

DISCUSSION

From fall 2012 through spring 2015, the period from which data were collected, the overall student population averaged: 76% traditional-aged and 24% nontraditionalaged, 61% females and 39% males, 44% enrolled full-time and 56% enrolled part-time, and a composite ACT score of 18.9. In addition, 75% of traditional-aged students were eligible to receive federal Pell grants (TBR, 2014; THEC, 2015).

Overall Student Success in Online Versus Face-to-Face Courses

The results relevant to Research Question 1 indicated that students in online courses were significantly more likely to withdraw from a class than students in face-toface courses. This finding was consistent with those of earlier studies (Allen & Seaman, 2015; Aragon & Johnson, 2008; Hachey et al., 2013; Harrell & Bower, 2011; Wojciechowski & Palmer, 2005; Xu & Jaggars, 2011a, 2011b). Another result from the present study was that students in an online course were significantly more likely to make an "A" or "F" final course grade, whereas those in a face-to-face course were more likely to make mid-range grades of a "B," "C," or "D."

Over 21% of students in online classes made an "A," as compared to 18.8% of students in face-to-face classes. In face-to-face classes 24.1% of students made grades in the "B," "C," or "D" range, as opposed to 20.3% of students in online classes. There was no consensus among previous research, but indications were that online students tended to earn lower grades than face-to-face students (Capra, 2011; Helms, 2014; Scherrer, 2011; Sue, 2005; Xu & Jaggars, 2011b). The results from the present study suggest the need for additional research, as they are neither clearly consistent with nor contradictory to earlier findings regarding grades based on demographics.

CONCLUSIONS

Results indicated there was a significant difference in student success between students taking a course online and students taking the same course with the same instructor face-to-face. Also, there was a significant difference in student success based on instructional method when the following factors were considered: age group, gender, student classification, and Pell Grant eligibility status. There was no significant difference in student success based on instructional method when first-generation college student status was considered.

Students who were nontraditional-aged, sophomores, and non-Pell Grant-eligible tended to have success in online courses at higher rates than other students in this study. Ironically, these are the student groups who often have personal responsibilities, work obligations, and financial management issues that make attending and completing school a complicated and challenging process (Compton et al., 2006; Ŵvatt, 2011).

One factor that must always be considered with respect to the success of students concerns financial aid rules and regulations. Although 58.4% of students in this study were eligible to receive Pell Grants, many additional students most likely received other types of financial aid (i.e., loans, scholarships). Generally, a student must maintain full-time enrollment status to continue receiving aid. Also, they must maintain a specified minimum GPA, which varies from one type of financial aid to another. Sometimes students who are doing poorly in courses will remain in the classes and receive "F" grades, instead of dropping and having their load status change to parttime. The effect of the "F" on the GPA may be less damaging overall in terms of keeping financial aid.

Limitations

Factors not explored in this study may have had an effect on student success. In addition to an analysis of the proportion of students making a letter grade of "A," "B," "C," "D," "F," or "W" on final course grades, other options exist to define and measure student success. The study was delimited to a specific public community college in Tennessee. Therefore, the findings may not be generalized to other postsecondary institutions. Also, the study was delimited to course sections taught in both online and face-to-face format by the same instructor within the same semester from fall 2012 through spring 2015. The researchers made the assumption that the course content and primary requirements were the same for both the online and face-to-face formats of each specific course.

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ANOVA Analysis of Student Daily Test Scores in Multi-Day Test Periods

Matthew L. Mouritsen, PH.D.

Department of Accounting and Taxation Weber State University Ogden, Utah

Jefferson T. Davis, PH.D., CPA, CISA

Department of Accounting and Taxation Weber State University Ogden, Utah

> **Steven C. Jones** Institutional Research Weber State University

> > Ogden, Utah

ABSTRACT

Instructors are often concerned when giving multiple-day tests because students taking the test later in the exam period may have an advantage over students taking the test early in the exam period due to information leakage. However, exam scores seemed to decline as students took the same test later in a multi-day exam period (Mouritsen and Davis, 2012). This study reports mean test score analysis of a four-day exam period. Students with higher cumulative GPAs tend to take the exam earlier in the testing period. The majority of students take the exam the last day of the testing period. Test score variance for each test day also increases with each test day. One-way ANOVA analysis finds that mean test scores of students who take the test later in the test period significantly decline. Pairwise comparisons that assume unequal numbers of observations in each group as well as unequal variances of exam scores for each day, show that day 4 mean scores are significantly less than days 1, 2, and 3. The only other pairwise difference is day 1 and day 3. Further, a 4 X 2 (4 test days by two different professors) ANCOVA analysis is also reported where cumulative GPA and Test # (4 or more tests each semester) are used as control variables to see if student test scores still decrease for students taking the test later in the testing period. The results show significant decreases in mean test scores as students take the test later in the testing period even when controlling for students' cumulative GPA and Test # within the semester. An estimated marginal means analysis further shows that the upper bound of day 4 is below the lower bound of days 1, 2, and 3, consistent with pairwise comparisons of test score means. The results suggest that information leakage, if any, is not evident in multi-day test scores. The results suggest that an instructor may have an opportunity to further help students taking the exam later in the exam period. Further research on demographics, test preparation, procrastination, self-efficacy, and emotional intelligence of students taking multi-day tests is in order (Hen and Goroshit, 2014).

INTRODUCTION

Many universities are using testing centers to allow students to take tests when it is more convenient for the student. One of the issues related to testing centers in general, and specifically for tests that can be taken by students over multiple days, is the risk of information leakage to students who take that test later in the test period. However, two studies have found that instead of test scores being higher for students taking the test late in the multi-day testing period, test scores are actually lower for students who take the test later in the multi-day testing period (see Mouritsen and Davis, 2012, and Reed and Holley 1989). Although, this information does not mean information leakage does not take place, it does suggest that other factors are much more prominent in determining test scores in a multi-day test period than any information leakage that may take place. For example, there are several articles in the education literature that study procrastination in academic settings.

The objective of this research is to discover why average test scores of students who take the test at the end of a multi-day testing period are lower than average scores of students who take the test earlier in the testing period. This study analyses test scores of students taking exams over multi-day testing periods for introductory financial accounting (Accounting 2010) and introductory managerial accounting (Accounting 2020) courses taught by two different instructors over several semesters. The tests were all administered in the testing center over a 4-day period. Students were allowed to select when to take the test during the 4-day testing period. The exams were all multiple choice and no time limit was given. The analyses in this study include test scores from different tests taken during different semesters. Exhibit 1: shows the Distribution of Students included in the study taking the tests during each of the successive four test days. The data includes only tests where four test days were used so that the test percentages for each course could be consistent based on the number of days. Exhibit 1: Distribution of Students Taking Exam Each Day for Both Courses shows that more students took the test each successive day of the test period and the total number of tests included in the study for each course. The total number of tests did include up to four test scores from each individual student for different exams taken during a semester. Exhibit 2: Distribution of Mean Exam Scores by Test Day for Both Courses shows that test percentage scores drop with each

successive day of the test period. One might expect that better students tend to take the test earlier in the exam period. Exhibit 3: Mean GPA of Students by Test Day for Both Courses shows that, in fact, the average cumulative GPA of students who take the test earlier is higher than the average GPA of students who take the test later. This research is thus aimed at discovering and analyzing what other course and student characteristics might play a role in students' test taking and scores over a multi-day testing period.

Student characteristics were also paired with the test scores of each student as well as information about what day the test was taken by each student during a 4-day testing period. In addition to student test percentage scores, the student test percentages were matched with other test information and student characteristics, including exam number during the semester the course was taken, class level (freshman, sophomore, etc.), whether the student was full-time or part-time, and age of student.

RESEARCH DESIGN AND HYPOTHESES

The descriptive statistics support the finding that students' average test scores get worse by day as the multi-day

Distrib	ution of Studen	Exhii its Taking	віт 1 Ехам Еасн	Day for Bc	oth Course	8
Course	Item	Day 1	Day 2	Day 3	Day 4	Total
A	# of Students	106	147	154	31Ø	717
Accounting 2010	% of Students	15%	21%	21%	43%	100%
A	# of Students	68	60	184	428	740
Accounting 2020	% of Students	9%	8%	25%	58%	100%

Distr	ibution of M	Ex Iean Exam So	khibit 2 Cores by Test	r Day for Bo	th Courses	
Course	Item	Day 1	Day 2	Day 3	Day 4	Overall Average
Accounting 2010		88%	85%	82%	72%	79%
Accounting 2020	Mean score by day	80%	76%	79%	71%	74%
Combined		85%	82%	80%	71%	77%



testing period progresses. With the ultimate objective of the day they took the test and the mean test score for each this research being to discover why average test scores of day. students who take the test at the end of a multi-day testing period are lower than average scores of students who take **ANOVA Hypothesis and Test Results** the test earlier in the testing period, this research takes the following basic approach: First an ANOVA model is used To determine whether the mean test score (test percentto determine whether there are differences overall in the age) differs overall for the 4-day test period an ANOVA mean test scores for each of the four days in the testing model is appropriate. The ANOVA model provides an indication if the mean test scores for the four days are staperiod. Then, if an overall difference is found, a pairwise tistically different based on days. Formally, the null hytest is used to determine which test days exhibit different mean test scores from each of the other test days. Statistipothesis is as follows: cal correlations are also run to find relationships between ANOVA H1(null): No overall mean test score differmean student test scores and various course and student ences between test days exist. characteristics. Using the information from these correlations an ANCOVA model is developed to test whether If H1(null) is not rejected, then the results of the research these course and student characteristics are statically sigend with the finding that, on average, it does not matter nificant variables for determining mean test score by test which day a student takes the exam in relation to their day. Finally, a marginal means analysis is used to further mean test score. If the null hypothesis is rejected, then the study the relationship of these student characteristics to

results indicate that the mean test scores do differ by day of the test period. Based on the descriptive statistics found in Exhibit 3, the expectation is that the null hypothesis will be rejected, in other words, statistical differences exist in mean test scores for students taking the tests over a 4-day test period. One student characteristic that may seem somewhat obvious is that better students will take the test earlier in the test period. Exhibit 3 shows student GPA in relation to mean test score by test day. There may be other explanations for the results as well. Further analysis is in order if statistical differences are found using the ANOVA test.

The ANOVA to determine if statistical differences between mean test scores for the 4-day test period rejects the null hypothesis that there are no differences based on which day the test was taken by students. Exhibit 4 shows the descriptive statistics, the ANOVA and Brown-Forsythe results the test scores for the 4-day test period.

The mean (average) test scores in the descriptive panel match the means listed in Exhibit 3. The descriptive panel also provides the number of students taking the test in each of the four days, the standard deviation for each of the 4-days test scores, and the 95% confidence intervals for each of the 4-days test scores. The main result of the ANOVA procedure shows strong differences between the mean test scores for the four test days (significance of $.\emptyset\emptyset\emptyset$). An important aspect of the descriptive statistics reveals that many more students take the exam on the second day than on the first day. Day three and four have more students who take the exam than the previous days as well. Also notice that, with the exception of day three, the standard deviation (a measure of variation from the mean test score for the day) increases during the 4-day test period. It is not surprising that the standard deviation of test scores increases with the number of students taking the exam on a given day-more students, more variety. This finding suggests that students taking the exam each

ANOV	'A Resul'	N ts and Bro	Exhibit Iean Test Perci wn Forsyth fo	4 ent Sco r Non-h	RE HOMOG	ENEITY O	of Vari <i>a</i>	NCE	
			Descriptiv	ves					
D						95% Co	nfidence	Interval f	for Mea
Day	N	Mean	Std. Deviation	Std. I	Error	Lower	Bound	Upper	Bound
1	174	.851935	.1332764	.010	1ø37	.831	.993	.871	1877
2	207	.822888	.1571310	.010	9214	.801	356	.844	442Ø
3	338	.799901	.1418721	.007	7168	.784	722	.815	5080
4	738	.7138Ø8	.1708646	.0062	2896	.701	460	.720	6155
Total	1457	.765773	.1674227	.004	3862	.757	7169	.774	4 377
			ANOVA	L					
	S	Sum of Square	es d	f	Mean	Square]	F	Sig.
Between Groups		4.354	3		1.	451	57.	835	.000
Within Groups		36.459	14	53	.()25			
Total		40.812	14	56					
		Ro	bust Test of Equal	ity of M	eans ¹				
		Statistic ²	df	1	c	lf2		Sig.	
Brown-Forsythe		65.282	3	•	97(0.419		.000	

² Asymptotically F distributed.

day may have differences that lead to different exam scores **Pairwise Hypothesis and Test Results** for each day. The fact that the number of students tak-In the case of differences, a pairwise comparison can proing the exam each day increases by day and that standard vide information as to any statistical differences between deviations for each day test scores also generally increase mean test scores for each day in relation to each of the suggests that the ANOVA may not be valid. ANOVA other days. Formally, the null hypothesis states: procedures generally assume homogeneous (similar) variances in the data. To test for non-homogenous (non-simi-Pairwise H2 (null): No day-to-day pairwise differlar) variances, the Brown-Forsyth test was also performed. ences in mean test scores for each The Brown-Forsyth test results show statistical differof the four test days exist. ences in mean test scores for the multi-day testing period even when accounting for unequal variances and unequal If H2 (null) is rejected, we will then have information number of students taking the test each day. With statisticoncerning which test days' mean test scores are statistical differences in mean test scores for the 4-day testing pecally different from each of the other test days' mean test riod confirmed by the ANOVA and Brown-Forsyth tests, score. the next step is to test for pairwise differences of mean test scores for each day.

			P	airwise Compar	Exhibit isons of Test 1	5 Days' Mean	Exam Scores	
Mul Tan	ltiple C nhane's	ompa T2 P	arisons airwise	Test1				
Exa	m Day	Exa	m Day	Mean	Col Emman	C:-	95% Confi	dence Interval
	(a) .		(b)	Difference (a-b)	Std. Error	51g.	Lower Bound	Upper Bound
		n3	2	.0290471	.Ø148782	.272	010304	.ø68398
	1	nensic	3	.0520339*	.0127135	.000	.Ø184Ø4	.ø85664
		din	4	.1381275*	.0119014	.000	.106621	.169634
		n3	1	0290471	.Ø148782	.272	Ø68398	.010304
	2	nensic	3	.0229868	.0133726	.418	Ø12371	.058345
sion2		din	4	.1090804*	.0126030	.000	.075735	.142426
limen		on3	1	0520339*	.0127135	.000	Ø85664	018404
.0	3	nensic	2	0229868	.0133726	.418	058345	.Ø12371
		din	4	.0860936*	.0099553	.000	.059834	.112353
		on3	1	1381275*	.0119014	.000	169634	106621
	4	nensic	2	1090804*	.0126030	.000	142426	075735
		din	3	0860936*	.0099553	.ØØØ	112353	059834

^t. The mean difference is significant at the Ø.Ø5 level. The Tamhane's T2 is a pair-wise procedure based on the Student t-distribution. Tamhane's is a more conservative post hoc comparison for data with unequal variances and is appropriate when variances are unequal and/or when the sample sizes are different." (source: chapter 11, page 256 of Basic Statistics and Pharmaceutical Statistical Applications By James E. De Muth

The results of the pairwise test comparing the mean test score of each day to each of the other three days is found in Exhibit 5: Pairwise Comparisons of Test Days' Mean Exam Scores.

Pairwise procedures result in mixed results as to whether the null hypothesis of no means test score differences of a particular day in relation to each of the other days is rejected or accepted. The results show that day 1 mean score is not statistically higher than day 2 (272), but it is higher than the mean test scores of day 3 (.000) and day 4 (.000). The day 2 mean test score is not different than day 1 (.272) or 3 (.418), but it is higher than day 4 (.000). Finally, day 3 mean test score is higher than day 4 test score (.000). It should be noted that day 4 mean test score is significantly lower than each of the other three days' mean test scores (.000).

The Tamhane's T2 pairwise procedure was chosen because this particular pairwise test is appropriate when unequal samples sizes exist and when variances (i.e standard deviations) are also unequal. Since pairwise differences between mean test scores for most of the days are found, further analysis is needed to determine why the test scores for different test days tend to get lower as test days progress from day 1 through 4. Particularly, further analysis seeks to find answers to the question, "Why are test scores for the last day, day 4, lower than each of the other three days of the exam period?"

Correlations of Test Scores with Student and Course Characteristics

Since some pairwise differences between each days' mean test scores were found, the next step is to study potential reasons why different days in the testing period yield different mean test scores. Statistical correlation procedures are used to find strong or weak relationships between student and course characteristics (i.e. course/prof, test number, student GPA, class level, full/part time) and test scores. Exhibit 6 shows the Correlation results between student test scores and student's cumulative GPA, exam day, exam number, class level (freshman, sophomore, etc.), semester, and age of student.

The Pearson correlations were significant for GPA (.437; .000), exam day (-.312; .000), and exam number (-.292; .000). Exam number refers to the first to last exams in the semester. The correlation shows that exam scores tend to be lower for exams given later in the semester. This result makes sense as exams taken later in the semester typically deal with more difficult topics or topics that build on information from the earlier part of the course. And of course it makes sense that exam day has a negative correlation with text scores.

Corr Mean Exam S Other	Exhibit 6 elations betw core as a Perc Variables (N =	een entage and : 1457)
Variable	Pearson Correlation	Significance (2-Tailed)
Cumulative GPA	.437 **	.000
Exam Day	312 **	.000
Exam #	292 **	.000
Class Level	.Ø46	.079
Semester	.ØØ8	.756
Age	.006	.830
** Significant at .Ø1	level (2-tail)	

Class level exhibited some correlation with test scores (.045) but the significance level (.079) did not approach reach .01. Semester and student age had extremely weak correlations and were very far from statistical significance. Whether a student was full or part time also did not show a relationship with test scores. These correlations were then used to determine what variables would be used in the ANCOVA.

ANCOVA Hypotheses and ANCOVA and Marginal Means Tests Results

Based on the correlation results, an ANCOVA model was developed to see if mean test scores by test day still differ if these course and student characteristics are used as control variables in the ANCOVA model. In general, ANCOVA is a combination of ANOVA and linear regression. The ANOVA includes a dependent variable (mean test scores) with one or more categorical independent variables (4 test days and 2 different courses), combined with other control variables to "correct" for or take into account other variables or characteristics that may confound or make a difference in the predictive model. The ANCOVA model tests for statistical differences in mean test day scores while controlling for these characteristics. The ANCOVA results will also find which of these variables statistically contribute or help to explain differences in mean test scores for each of the four test days. The null hypotheses related to the ANCOVA are as follows:

ANCOVA H3A (null) No mean test score differences from main effects in 4X2 (4 days X 2 courses/professors) design.

ANCOVA H3B (null) Covariates (Student GPA, Test adjusted R² of .366. This means that, overall, the model #) are not significant variables explains student test scores fairly well. and do not contribute to any The estimated marginal means further shows that day mean test score differences in refour test scores have an upper 95% confidence interval lation to 4-day exam period nor (upper bound is .743) that is lower than all the other days 2 different courses/professors. (lowest lower bound day 3 is .775) 95% confidence lower bound even when controlling for student GPA and Test Finally, a marginal means test was conducted to explore number.

further differences in any ANCOVA results to show the percentage of students within each day's mean scores.

A 95% confidence interval means that with 95% probability, the true mean test score is within that interval. The ANCOVA was a 4X2 design (4 test days by 2 courses/ Since the upper bound of day four exam scores is lower professors) for the main effects. The covariates included in than the lower bound of any other day's mean test score, the model to control for characteristics that might conit is clear that there is very small probability (5%) that day found main effects on the ANOVA were student GPA four mean test score overlaps any other days' true mean and exam number. test score. The marginal means statistics resulting from The results show the H3A (null) and H3B (null) are both the ANCOVA model show that the day four group charrejected. In other words, the main effects, test day and acteristics in relation to exam scores are strongly different course/professor were significant contributing variables than students taking the test on the other three days. The to predicting the test score. Also, the two covariates (studay four group is the largest group, has the lowest average dent GPA, and exam #) were significant to the ANCO-GPA, and the largest test score variation. Although the VA model. Therefore, even when controlling for student marginal means standard error is smallest for day four, the GPA and exam #, the main effect variables of test day and standard deviation for day four test scores is the largest course/professor were still strong predictors of student (see Exhibit 4). The reason the marginal means standard test scores. The results also show that student GPA and error is smallest is largely due to the fact that the numexam # have an impact on student test scores. The interber of students who take the test on day 4 is much larger action between test day and course did not, however, sigthan the other three days. A higher number N typically nificantly impact the strength of the model in explaining strengthens the statistical ability to narrow the confidence student test scores. The ANCOVA results achieved an interval.

(4 levels:{	4x2 day 1, day 2, day 3, d Covariates:	Exhibit 7 ANCOVA D ay 4} x 2 lev Cumulativ	esign 'els: {profess('e GPA, Exam =	OR 1, PROFESSOF #	a 2})
Tests of Between-Subject Dependent Variable: Ex	cts Effects am Score Percent				
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Cumulative GPA	6.786	1	6.786	381.698	.000
Exam#	3.419	1	3.419	192.302	.000
ExamDay	1.414	3	.471	26.515	.000
Professor	1.124	1	1.124	63.221	.000
ExamDay * Professor	.054	3	.Ø18	1.009	.388
Error	25.725	1447	.Ø18		
Total	895.209	1457			
R Squared = $.370$ (Adjust	ted R Squared = .366				

All main effect and covariates are statistically Significant. *No Statistically significant interaction effect between ExamDay and Professor

	-		EXHIBIT 8	_	
evenden	ESTIMATE t Variable: P	D MARGINAL MEAN ercent of Exam Score	ns of Exam Score P	'ERCENTAGE AND E	xam Day
- <u>-</u>				95% Confid	ence Interval
Exan	n Day	Mean	Std. Error	Lower Bound	Upper Boun
	1	.814a	.Ø1Ø	.794	.835
sion1	2	.797a	.Ø1Ø	.777	.817
imen	3	.789a	.007	.775	.803
p	4	.733a	.005	.723	.743
	Estima	ited Marginal	Means of Exar	n Score Perce	ntage
86.0	Estima	ited Marginal 95% C	Means of Exar and Exam Day Confidence Inte	n Score Perce	ntage
86.0	Estima	95% C	Means of Exar and Exam Day Confidence Inte	n Score Perce	ntage
86.0 84.0	Estima	95% C	Means of Exar and Exam Day Confidence Inte	n Score Perce	птаge
86.0 84.0 82.0	Estima 10% 10%	Upper, 83.5 Avg., 81.4%	Means of Exar and Exam Day Confidence Inte	n Score Perce	птаge
86.0 84.0 82.0 80.0	Estima 10% 10% 10%	Upper, 83.5 Avg., 81.4%	Means of Exar and Exam Day Confidence Inte	rvals	ntage
86.0 84.0 82.0 80.0 6 Test	Estima 10% 10% 10% 10%	Upper, 83.5 Avg., 81.4%	Means of Exar and Exam Day Confidence Inte	r Upper, 80.3% Avg., 78.9%	
86.0 84.0 82.0 80.0 % Test 8.0 Score	Estima 10% 10% 10% 10%	Upper, 83.9 Avg., 81.4% Lower, 79.4	Means of Exar and Exam Day Confidence Inte	v Upper, 80.3% Avg., 78.9%	
86.0 84.0 82.0 80.0 % Test 80.0 Score 76.0	Estima 10% 10% 10% 10% 10%	Upper, 83.9 Avg., 81.4% Lower, 79.4	Means of Exar and Exam Day Confidence Inte	T Score Perce rvals Upper, 80.3% Avg., 78.9% Lower, 77.5%	
86.0 84.0 82.0 80.0 % Test 8.0 Score 76.0 74.0	Estima 10% 10% 10% 10% 10% 10% 10% 10% 10% 10%	Upper, 83.9 Avg., 81.4% Lower, 79.4	Means of Exar and Exam Day Confidence Inte	N Score Perce rvals Upper, 80.3% Avg., 78.9% Lower, 77.5%	nτage
86.0 84.0 82.0 80.0 % Test 8.0 Score 76.0 74.0 72.0	Estima	Upper, 83. Vupper, 83.	Means of Exar and Exam Day Confidence Inte	Upper, 80.3% Avg., 78.9% Lower, 77.5%	ntage
86.0 84.0 82.0 80.0 % Test 8.0 76.0 74.0 72.0 70.0	Estima	Upper, 83.9 Avg., 81.49 Lower, 79.4	Means of Exar and Exam Day Confidence Inte	Avg., 78.9% Lower, 77.5%	ntage

LIMITATIONS, SUMMARY,

days, so weekend test days were not a factor of taking the **CONCLUSIONS AND FURTHER STUDY** test later in the day. This data is another indication that procrastination plays a role especially for day 4 test takers. The breadth of the study is fairly limited since only two Future research could use standardized tests available to different accounting courses and only two different promeasure students for emotional intelligence, self-efficacy, fessors are included in the data. Readers should also recand motivation, look for direct and indirect relationships ognize that, although the variables used as measures of to procrastination and academic success. Then instructors student and course characteristics exhibit correlations might be able to begin to address these related issues to or strong relationships between student test scores, cause help students be more successful in academic settings. and effect cannot be concluded. For example, we cannot conclude that a student's GPA causes their test score on REFERENCES any particular exam. However, the relationship between a student's GPA may help an instructor predict who may Bandura, A. (1977). Selfefficacy: Toward a Unifyneed more help in learning information to perform well ing Theory of Behavioral Change. Psychological Reon a test.

The results show significant decreases in mean test scores as students take the test later in the testing period even when controlling for students' cumulative GPA and Test # within the semester. An estimated marginal means analysis further shows that the upper bound of day 4 is below the lower bound of days 1, 2, and 3, consistent with pairwise comparisons of test score means. The results suggest that information leakage, if any, is not evident in multiday test scores. The results clearly show that students taking the exam on day 4 are different from students taking the exam on days one through three. The results suggest that an instructor may have an opportunity to further help students taking the exam later in the exam period. Further research on demographics, test preparation, and test taking skills of students taking the exam on day 4 is in order. Perhaps interviews with students can provide a further understanding about student motivation, student test preparation, and student test-taking challenges. Particularly, further research can help instructors learn potential ways to help day four test takers improve their test scores.

Hen and Goroshit (2014) provide some direction for future research on how teachers might find ways to help students. They found that procrastination is related to lower levels of self-regulated learning and academic selfefficacy (Bandura, 1977) and associated with higher levels of anxiety, stress, and illness. They also review and discuss emotional intelligence (EI) and how it may influence a student's ability to assess, regulate, and utilize emotions associated with academic self-efficacy and academic performance including student GPA (see also Haycock, et al., 1998; Wolters, 2003; Zajacova, et al., 2005; Seo, 2008; Klassen et al., 2008; Deniz, et al., 2009). Using the data in the current study, the test starting times showed that day 4 students started the exam on average at 2:51 pm while day one average was 12:39 pm, day 2 average was 1:12 pm, and day 3 average was 1:24 pm. The days of the week showed that most all the tests were taken during week-

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JOINT CONFERENCE May 24-27, 2017 Nashville, TN

International Conference on Learning and Administration in Higher Education (ICLAHE.org)

All too often learning takes a back seat to discipline related research. The International Conference on Learning and Administration in Higher Education seeks to focus exclusively on all aspects of learning and administration in higher education. We wish to bring together, a wide variety of individuals from all countries and all disciplines, for the purpose of exchanging experiences, ideas, and research findings in the processes involved in learning and administration in the academic environment of higher education.

We encourage the submission of manuscripts, presentation outlines, and abstracts in either of the following areas:

Learning

We encourage the submission of manuscripts pertaining to pedagogical topics. We believe that much of the learning process is not discipline specific and that we can all benefit from looking at research and practices outside our own discipline. The ideal submission would take a general focus on learning rather than a discipline-specific perspective. For example, instead of focusing on "Motivating Students in Group Projects in Marketing Management", you might broaden the perspective to "Motivating Students in Group Projects in Upper Division Courses" or simply "Motivating Students in Group Projects" The objective here is to share your work with the larger audience.

Academic Administration

We encourage the submission of manuscripts pertaining to the administration of academic units in colleges and universities. We believe that many of the challenges facing academic departments are not discipline specific and that learning how different departments address these challenges will be beneficial. The ideal paper would provide information that many administrators would find useful, regardless of their own disciplines

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The aim of Academic Business World is to promote inclusiveness in research by offering a forum for the discussion of research in early stages as well as research that may differ from 'traditional' paradigms. We wish our conferences to have a reputation for providing a peer-reviewed venue that is open to the full range of researchers in business as well as reference disciplines within the social sciences.

Business Disciplines

We encourage the submission of manuscripts, presentation outlines, and abstracts pertaining to any business or related discipline topic. We believe that all disciplines are interrelated and that looking at our disciplines and how they relate to each other is preferable to focusing only on our individual 'silos of knowledge'. The ideal presentation would cross discipline. borders so as to be more relevant than a topic only of interest to a small subset of a single discipline. Of course, single domain topics are needed as well.

Conferences

Academic Business World (ABW) sponsors an annual international conference for the exchange of research ideas and practices within the traditional business disciplines. The aim of each Academic Business World conference is to provide a forum for the discussion of research within business and reference disciplines in the social sciences. A secondary but important objective of the conference is to encourage the cross pollination of disciplines by bringing together professors, from multiple countries and disciplines, for social and intellectual interaction.