A NAME RECOGNITION STUDY OF MARKETING ACADEMICS: CONTRASTING JOURNAL PUBLICATION AND TEXTBOOK AUTHORSHIP

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ABSTRACT

While research productivity is a vital component in the career of a marketing scholar, it may not be the key to familiarity and recognition among peers. Generally, rewards, such as promotions and tenure, are based upon a scholar's publication record. Nevertheless, beyond tangible rewards, it is often the goal of many academic scholars to be "well-known," or recognized by other academicians. The purpose of this study is to determine whether familiarity among peers is achieved through publication productivity in comparison to an alternate form of scholarly output, the writing of marketing textbooks. Utilizing previously published research results, as well as information provided by textbook industry sources, the recognizability of individuals in these two categories was examined.

INTRODUCTION

Many marketing scholars are quick to venture the top names in the discipline. Though these opinions are based on various elements, the end result is the same: recognition. Often, recognition is based on prominence in some professional, scholarly, organizational or social setting. In their article, Bakir, Vitell, and Rose (2000) provide an objective detailed list of top marketing researchers on the basis of productivity. While research productivity is a vital component in the career of a marketing scholar (Page and Mohr 1995), it may not be the primary key to familiarity and recognition among peers.

Articles offering rankings for journals, individuals, and institutions are always of interest to those involved in marketing scholarship (Barry 1990; Clark 1986; Koojaroenprasit, Weinstein, and Johnson 1998; Marquardt and Murdock 1983; Page and Mohr 1995; Spake and Harmon 1998; Zinkhan 1999). In particular, individual professors place a great amount of weight in the productivity rankings they receive. Methods for analyzing productivity range from citation analyses to faculty/administrative surveys or article tallying, and the use of each can influence results (see Spake and Harmon 1998). For example, Bakir, Vitell, and Rose (2000) looked at several issues related to research production of marketing scholars. Based on Hult, Neese, and Bashaw's (1997) study assessing perception of marketing faculty with regard to the importance of marketing related journals, Bakir, Vitell, and Rose (2000) found that "the top 28 scholars are responsible

for about 10 percent of the total research production in major journals within the discipline" (p. 107). Their study also revealed that the top 25 large departments in combination with the top 5 small departments were responsible for 44 percent of all the research in major marketing journals.

Productivity ratings, however, may differ from peer perceptions and name recognition. Still, the relative importance of these studies in deciphering perceived marketing scholar recognizability, not publication productivity, is unclear. Generally, rewards within the marketing discipline, such as promotions and tenure, are based upon a scholar's publication record. In most cases this involves the number of articles published and the quality of journals these articles appear in. Nevertheless, beyond tangible rewards, it is often the goal of academic scholars to be "well-known," or recognized within their discipline. It is quite possible that being "recognizable" within the marketing discipline is independent of the number of scholarly publications one may have, and instead is a result of other factors. The purpose of this study is to determine whether familiarity among peers is achieved through publication productivity in comparison to an alternate form of scholarly output, the writing of marketing textbooks. Utilizing previously published research results (Bakir, Vitell, and Rose 2000), the present research will compare the recognizability of a determined list of productive marketing scholars with the leading textbook writers in several core marketing areas.

METHODOLOGY

In their article, Bakir, Vitell, and Rose (2000) evaluated the research productivity of marketing scholars in six leading marketing journals between 1991–1998. These journals included the *Journal of Marketing*, the *Journal of Marketing Research*, the *Journal of Consumer Research*, the *Journal of Retailing*, the *Journal of the Academy of Marketing Science*, and *Marketing Science*. Research productivity was evaluated in two ways: fractionally, depending on the number of coauthors per article, and by the total number of articles where the name appears. Therefore, two lists of authors were created, one list adjusted for coauthors and one list by total number of articles.

The current research utilized a combined list of all authors on both lists from the Bakir, Vitell, and Rose (2000) article. No additional journals were examined for the current research in order to maintain consistency with Bakir, Vitell, and Rose (2000) and Hult, Neese, and Bashaw (1997). Combining the names of the fractionalized list and the normal count list created a consolidated list of leading journal authors. Duplicates were removed. Additionally, those individuals not at American universities or those who were retired were not included in the list. This procedure resulted in a combined list of 46 names.

Leading textbook authors in several core-marketing areas were compiled (Principles of Marketing, Consumer Behavior, Marketing Research, Retailing, Channels, Sales Management, and Advertising/Promotion). The status of leading textbooks was based on industry statistics and the core areas display no direct relation to any of the specific journals utilized by Bakir, Vitell, and Rose (2000). Interestingly, there were no duplicate names to those listed by Bakir, Vitell, and Rose (2000). This procedure resulted in an additional 34 names. The two lists were then combined to form one larger list comprised of 80 names. Table 1 provides a composite list of the names.

Using the names on the composite list, an interactive online survey to assess name recognition was created. A five-point semantic differential item (where 5 = recognizable and 1 = unrecognizable) was placed after each name on the composite list. Via e-mail, respondents were asked to visit a website containing the online survey, click on the button below each name representing their familiarity with the name, and click submit to finish the survey. A formalized e-mail message was sent to the department chairs of AACSB accredited and non-accredited aca-

TABLE 1
MEAN RECOGNITION SCORES FOR JOURNAL PUBLISHERS AND TEXTBOOK AUTHORS

Journal Publishers		Textbook Authors	
Devavrat Purohit	1.28	Pat Dunn	1.74
Robert A. Ping Jr.	1.39	Kathleen Krentler	1.86
Mark E. Parry	1.48	Dale Lewison	1.94
Aradhna Krishna	1.51	Bert Rosenbloom	2.54
Predeep K. Chintagunta	1.59	Charles Futrell	2.74
Laura A Peracchio	1.68	Leon Schiffman	2.76
Birger Wernerfelt	1.75	Paul W. Miniard	2.77
Kannan Srinivasan	1.81	Mike d'Amico	2.86
Scott W. Kelly	1.84	Bruce Walker	2.95
Lakshman Krishnamurthi	1.86	Barry Berman	2.99
David C. Schmittlein	2.07	Del I. Hawkins	2.99
Itamar Simonson	2.07	Naresh Malhotra	3.08
Jeffrey J. Inman	2.08	Carl McDaniel	3.08
Wagner A. Kamakura	2.16	Thomas N. Ingram	3.16
Jan B. Heide	2.16	David Kurtz	3.22
Scot Burton	2.23	Gary Armstrong	3.23
Randolph E. Bucklin	2.31	Michael Soloman	3.40
Barbara E. Kahn	2.33	James F. Engel	3.40
Donald R. Lichtenstein	2.33	J. Paul Peter	3.41
Stephen J. Hoch	2.36	William Zikmund	3.45
David Glen Mick	2.40	Roger Kerin	3.45
Dhruv Grewal	2.43	Roger Blackwell	3.47
John G. Lynch Jr.	2.45	J. Barry Mason	3.54
Christine Moorman	2.47	Thomas Kinnear	3.55
Richard G. Netemeyer	2.48	Robert Lusch	3.55
Marsha L. Richins	2.51	William Bearden	3.56
Wayne S. DeSarbo	2.52	Joe Hair	3.60
Joan Meyers-Levy	2.52	Charles Lamb	3.61
Ajay K. Kohli	2.53	Terry Shimp	3.63
V. Kumar	2.68	William Pride	3.64
Jagdip Singh	2.70	Bart Weitz	3.67
Bernard J. Jaworski	2.85	O.C. Ferrell	3.86
Barbara B. Stern	2.85	William Perreault	3.94
Sunil Gupta	2.92	Jagdish Sheth	4.03
Rajan P. Varadarajan	2.92		
Vijay Mahajan	3.06		
Richard Staelin	3.08		
Robert Peterson	3.16		
Ronald R. Lehmann	3.28		
Steven P. Brown	3.31		
A. Parasuraman	3.61		
Leonard Berry	3.64		
Paul E. Green	3.78		
George S. Day	3.87		
Shelby Hunt	4.09		

Note: 5 = recognizable and 1 = unrecognizable.

demic institutions. Department chairs were asked to forward or relay the message to other faculty within their units, resulting in a sample consisting of both department chairs and departmental faculty members from AACSB accredited and non-accredited institutions. Surveys were collected and separated electronically. Seventy-five subjects responded to the survey. The data collected allowed for analyses of the recognizability of each name and a comparison between the names of top researchers and the names of textbook authors.

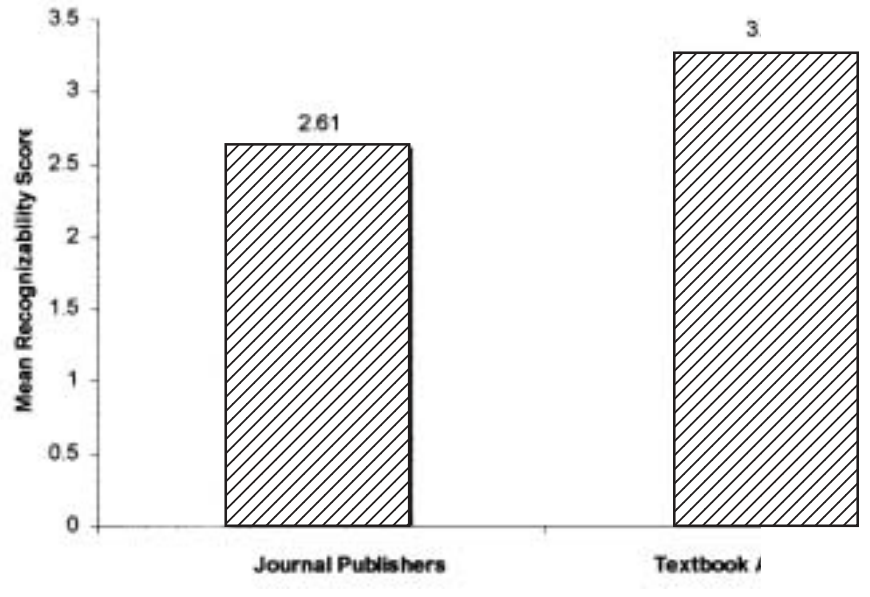
Analysis and Results

For all analyses, a lower number indicates higher recognizability. Descriptive statistics for individual names revealed that Shelby Hunt was the overall most recognizable person (mean = 4.09), followed by Jagdish Sheth (mean = 4.03). Within textbook authors only, the most recognizable names were Jagdish Sheth, William Perreault, and O.C. Ferrell, respectively (means = 4.03, 3.94, and 3.86). The most recognizable journal publishers were Shelby Hunt, George Day, and Paul Green, respectively (means = 4.09, 3.87, 3.78). A complete list of both textbook authors and journal publishers along with their mean recognizability score can be found in Table 1.

Next, an average score for textbook authors and journal publishers was calculated. The mean score for all textbook authors combined was 3.25, and the mean score for all journal publishers was 2.61 (see Figure 1). Results of a one-sample t-test comparing these mean scores indicated that textbook authors were significantly more recognizable than journal publishers ($p < .001$). Authors of introductory and principles of marketing textbooks had a mean score of 3.56, indicating high recognizability.

Of the 46 journal authors only 10 had mean recognizability scores above 3.00, indicating that only 22 percent of the top journal publishers had better than average recognizability. On the other hand, 23 of the 34 textbook authors had scores above 3.00, indicating above average recognizability for 68 percent of the authors.

FIGURE 1
MEAN RECOGNIZABILITY SCORES FOR COMBINED PUBLISHERS AND AUTHORS



IMPLICATIONS

The results of this study show that textbook authors were more recognizable to this study's respondents than were journal publishers. Although much of the existing literature focuses on journal publication productivity, this type of scholarly activity may not be the key to familiarity and recognition among professorial cohorts. The results of this study may offer an additional approach to measuring and evaluating scholarly activity, beyond citation analyses, surveys, or article tallying. An interesting implication, given the importance placed on top journal publications within the marketing discipline, is the difference in recognition received by textbook authors.

Research Limitations

A number of possible limitations exist for this research. Due to the length of the survey (consisting of 80 names), a one-item measure of recognizability was used as opposed to a summated scale of items. The nature of the list of individuals also poses possible limitations. Because the list was composed of top publishers from 1991–1998, scholars who may have established recognizability through publications prior to these years were not included as journal publishers. This was done, however, to be consistent with the list compiled from Bakir, Vitell, and Rose (2000). Likewise, there may be recognizable scholars who have retired and were not included in the list.

Future Research Opportunities

A number of future research opportunities arise from these findings. An interesting investigation would involve a comparison of various methods for evaluating outstanding scholarship. For example, does quality equal quantity, or do citation indices reflect a scholar's quantity of publications in major journals. The possibility exists that a scholar may be recognizable due to a single significant publication rather than a large number of less significant articles. Additionally, there are of course numerous other ways for a scholar to become "familiar" to other academics (besides journal publication or textbook writing). Future research could utilize an open-ended survey where subjects are asked to list the ways in which they are familiar with a particular scholar. For example, an individual may have few journal publications, but may be very familiar within the discipline due to activities such as conferences attended or organizational membership. Additionally, future research should look at more descriptive characteristics of the survey respondents (such as their major areas of concentration, the number of years they have been in the field, etc.) as potential covariates in the analysis. Examining these issues may provide a better understanding of scholarly evaluations.

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CASE STUDY: TEACHING AN ELECTRONIC COURSE

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ABSTRACT

This paper shares the experience of teaching an electronic media based course. The lessons learned while teaching this course are multifold. The E-course required a very different set of skills and efforts for both the instructor and the students compared to a traditional course taught in a classroom. For the students, a strong need for pre-enrollment counseling was realized. For the instructor, 72 percent of workload came from non-traditional areas of teaching. Thirdly, the lack of a classroom environment required additional control efforts to help prevent student dishonesty than are needed in a traditional classroom setting. Finally, trying to keep the E-course material on the Web independent of any particular textbook posed various challenges.

LITERATURE REVIEW

The subject of instruction via electronic media has been discussed much in the recent time. The traditional "chalk and talk" classes (Becker and Watts 1996) are being replaced by the inverted classes (Lage et al. 2000), where events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa. The implications of introducing computer-based instructional technology into marketing education may vary widely. These differences include everything from small clerical changes to "a new terrain of struggle over the purpose and nature of higher education and usher in a new era of labor market restructuring" (Pietrykowski 2001). This paper focuses on lessons learned while teaching an electronic media based course that was one of the pre-requisite courses for an undergraduate degree program in Marketing.

It should be noted that the scope of implementing electronic media for a course varies from one institution to the next and from one course to another. Some education institutions have experimented with using e-media to communicate with their remote students. As an additional study aid, other institutions have tried putting material on Web pages for their students to access. A common need for all such levels of implementation was revealed by Randall et al. (1996), who illustrated that although a broad range of knowledge, training, access, and use of distance education technology existed among educators, the subjects (administrators, faculty, and staff) indicated a strong need for training in all areas of distance education technology, as well as leadership and direction. Not only does this author concur with these findings, but he also has experienced a greater need for the E-course students to obtain in-depth understanding about how E-courses are different before they take such courses. A certain amount of training would also be helpful. By sharing the experience of teaching an E-course, the author hopes to contribute to the empirical pool of knowledge that helps marketing educators further understand

the needs and requirements necessary to teach an E-course.

The ability to offer electronic media-based courses sets a college or university apart from other institutions, but it also creates challenges not only for the instructor, but also for his/her students, as well as for the school's administrators and support staff. Research by Wexler (2000) revealed that the integration of computer technology into educational activities shifted the conventional roles of teachers and students as experts, which contained forms of resistance. The educational institutions are particularly challenged by faculty resistance to implementation of educational technology (Riley and Gallo 2000). As one possible solution, Ives and Jarvenpaa (1996) finds "faculty reskilling to be a significant issue," since "it is clear that nothing will protect the business school from being swept into the current of technologically driven change." To elevate students to the challenge, Stopsky (2000) stresses using dramatically different questions and changing what is required from students, both inside and outside the classroom. The use of computer-based collaboration is found to aid the students in clarifying course concepts (King 1994) and in more effectively learning (Scifres et al. 1998; Hein and Stalcup 2001; Slavin 1991).

Consider the specifics of the E-course implementation. A study by Kunz (2000) found that while "most professors have incorporated some sort of Web-based assignments into their courses, and employ other forms of technology-based applications," the class material management approach can be classified into: "instructor generated and supported materials, institutional-supported servers and systems, and outside, online systems and servers" (Kunz 2000). Further, Web pages can provide different degrees of interaction. These interactions can take place with the content of the Web pages or with other participating entities such as other students, or the instructor. These interactions can take the form of live chat, feedback, group discussion, simulation programs, conferencing, or quizzes (Harasim et al. 1995). The following section describes the extent of use of E-media for the class examined in this paper, the technology used, and the education environment in which the course was offered.

INTRODUCTION

Marshall University, which enrolls approximately 16,000 students, is a state supported university, located in Huntington, West Virginia. The faculty's primary commitment is teaching. The Elizabeth McDowell Lewis College of Business at Marshall University is accredited by the American Assembly of Collegiate Schools of Business (AACSB) and offers a Bachelor of Business Administration degree with majors in Marketing, Economics, Finance, Management, Management Information Systems, and Accounting, as well as a Master of Business Administration degree.

The E-course discussed in this paper used Web Course Tools (WebCT) to create and maintain its World Wide Web-based educational environment at Marshall University, which has more than 660 courses that are either using or have used WebCT for curriculum delivery. Twenty-seven of these courses are fully online.[1] Marshall has had over 12,000 students enroll in classes that are either presently using or have used WebCT for the delivery of instructional material. Of this number, more than 3,000 are currently enrolled in WebCT courses for the Fall 2000 semester. It is important to note that the state's rural nature is part of the reason for the high number of students enrolling in such classes and it makes WebCT an ideal way to deliver education.

WebCT provides an interface allowing changes to the design of the course (color schemes, page layout, etc.), a set of educational tools to facilitate learning, communication and collaboration, a set of administrative tools to assist the instructor in course delivery, and requires no prior technical expertise on the part of the developer of the course or on the part of the student. A course developed using WebCT is

EXHIBIT 1
THE MGT 218E COURSE HOME PAGE

organized around one main homepage, which is the entry point for the course. It can contain, among other things, a banner image, a textual message, links to course content elements (notes and assignments, for example), and links to course tools such as a conferencing system, timed quiz, grade storage and distribution, e-mail between course participants, student self-evaluation, student presentation areas, student annotation facility, student progress tracking, course glossary and an index.

The E-course discussed here was developed in 1998 by a Marshall University faculty member who provided the course content. The structure, interactivity, and course tools were provided by WebCT. While teaching the E-course, the progress tracking, student management, and access control tools were used. No quiz or exam was given online. Exhibit 1 shows the home page. The icons listed as hidden were available only to the administrator/instructor and were not visible to the students. To access this E-course, all that was required was a networked computer with a Web browser.

Incoming freshman are admitted to Marshall University under the pre-business curriculum, a two-year curriculum designed to adequately prepare them for their last two years of advanced business study. MGT 218/E is one of the 10 core courses that the College of Business has identified as prerequisite courses for pre-business students. All study material for MGT 218E was kept

on a secured Web site that was created under the Marshall University Web home page. For this course, the registered students were given user privileges and the instructor had administrative privileges. This enabled the student to take the entire course from a remote location without having to come to the university for a single day. If they chose, they could use their own computers and set their own schedules. Teaching material placed on the Web for this course included narratives, illustrative graphs, programs for the student to perform the on-line hands-on experiments with numbers, and a list of assignments which the student could complete and mail via regular mail at their own schedule during the semester. Although a textbook was listed in the on-line syllabus, the actual course material on the Web was designed to be "textbook independent." This provided flexibility to the course. Startup pages on the Web included a short introduction on how to navigate through the course material and the syllabus.

LESSONS LEARNED

During Marshall University's Fall 1999 semester, the author taught a Web based course on Business Statistics (MGT 218E). The author also taught essentially the same class in three regular classroom sessions (MGT 218) during the Fall 1999 semester and Spring 2000 semester.

The MGT 218E course was divided into seven modules. An exam was scheduled at the end of the third, fifth, and seventh modules. An independent, off-campus proctor, selected by the students and approved by the instructor could administer the exams. In addition to the three exams, the course required the students to complete 16 assignments. Appendix A shows the actual Web page detailing the course structure.

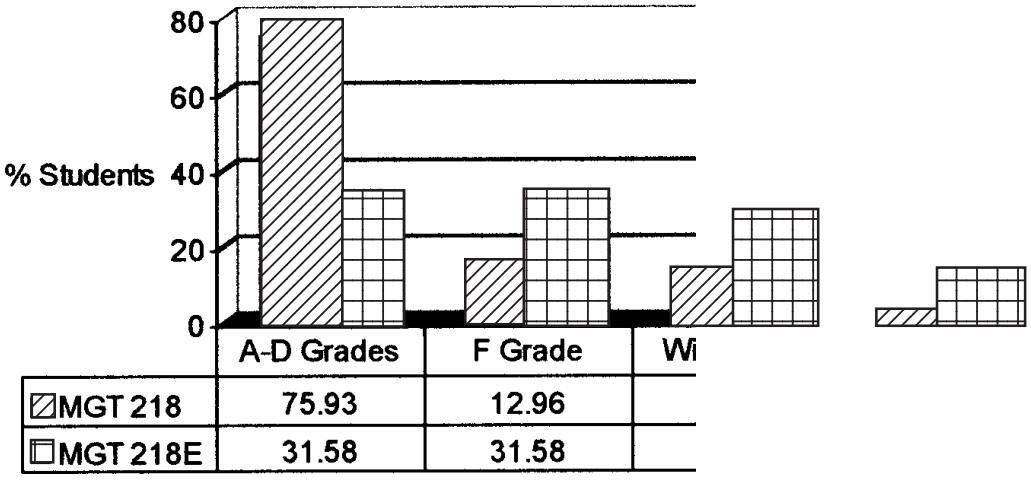
Student Performance

The students' performance in terms of the final grades and the progress through the semester in completing the exams and assignments was disappointing for the E-course. The comparison of the E-course to three class-based, regular courses shows this clearly. For comparison purposes, the students who enrolled but dropped before classes started, those who completely withdrew from the university for the semester, and those who were withdrawn for nonpayment were not counted. Eliminating three students who completely withdrew from the university for the Fall semester from the original 22 students for the MGT 218E left 19 students for that E-course and 108 students for the regular MGT 218 course. The mean grade point average (GPA) of the 108 students in these traditional classes was 2.72, as opposed to a mean of 2.70 for students in the E-course class. Thus, as measured by their GPAs, the E-course and non E-course students appear academically equivalent.

The graph in Exhibit 2 compares MGT 218 to MGT 218E. For both these courses, this graph shows the percentage of students who received grades of "A" through "D," the "F" grades, withdrew ("W") from the course, or got an Incomplete ("I"). The Incomplete grade is given under special circumstances and at the instructor's discretion It allows the student additional time to complete the course requirements. For the MGT 218E course, two students received "I" grades. One of them was later changed to an "F" grade and another to an "A" grade.

As shown in Exhibit 2, the students in the E-course performed poorer in all categories. In order to determine if any particular reason caused more than one third of the class to withdraw, we will look at the withdrawal pattern. The E-course was designed to allow a maximum of 25 students. Its semester starting and ending dates were the same as any regular course. The semester classes began on August 23, 1999 and ended on December 7, 1999. By the end of the normal registration period, 22 students had registered for the course. Eight students (36%) withdrew from this course on different dates during the semester. Originally, seven students withdrew from this course by October 29, which was the last day to drop a full semester individual course that would get

EXHIBIT 2
GRADE COMPARISION: MGT 218 VERSUS MGT 218E



reported as a "W" on the student grade-sheet. Then, one more student withdrew before the December 7 deadline for completely withdrawing for the Fall semester. The graph in the Exhibit 3 shows the timeline for cumulative withdrawals. As the pattern shows, withdrawals occurred at a steady rate, indicating no particular time/event responsible for the high withdrawals.

To consider the performance from a different angle, let us examine the student progress in terms of exams taken and the assignments completed. Using their liberty to set their own timetable for the exams and assignments, most E-course students waited more than the half way through the semester before actually taking the first of three exams. Only eight students ever took the exam. The dates were as follows: October 11, 13, 14, November 1, 11, 16, 20, and December 2. With a total of 107 days in the semester, the graph in the Exhibit 4 plots the semester time-line, and shows when students took the first of their three exams.[2]

In general, the story was similar for sending their first assignment to the instructor. The students needed to complete a total of 16 assignments. Concerned about the inadequate student self-motivation, the instructor sent three pieces of personalized e-mail to each student encouraging him/her to send their assignments on a regular basis, although s/he had the entire semester to finish the course. The first eight assignments were received on the following dates: September 21, 26, 27, 28, 30, October 15, 25, and November 30, an average wait of 48 days after the semester began. This was less than a week before the mid-semester point.

The Progress Tracking tool provided by WebCT, which allows the instructor to monitor student activity on the Web, was used to check the student activity and progress. After the instructor sent each student the welcoming e-mail with his or her I.D. and password, about three weeks passed before more than one students logged onto the Web site. During the first two months of the semester, only ten percent of the class was spending enough time on the Web to make steady progress. In contrast, nearly 90 percent of the assignments were received on-time for the classroom based MGT 218 course. A total of four assignments were given during the semester with specific deadlines to submit them

for the classroom based MGT 218 class. Another eight percent of the assignments were received the week following their deadline. Two percent of assignments were never submitted. One mid-term exam and a final exam were scheduled. Only one student out of 108 could not take the exam on the scheduled date, giving the percent of students who took the exam on-time to 99 percent.

One significant advantage an E-course can provide is customized learning formats for its students (Morrison 1996). But looking back, it seems that this liberty of working at their own pace can also work to the students' disadvantage. Reflecting further, it left the instructor with the feeling that requiring student counseling before enrollment in an E-course (to warn the student of such pitfalls) could have resulted in better student time management. Such counseling could also be used to encourage the students in advance to participate in student-to-student communication, possibly yielding better progress through the semester. As suggested by Enomoto et al. (1999), adequate mechanisms are needed to foster effective linkage among the teachers, students, and researchers who hope to successfully extend the use of telecommunications and information technologies in schools.

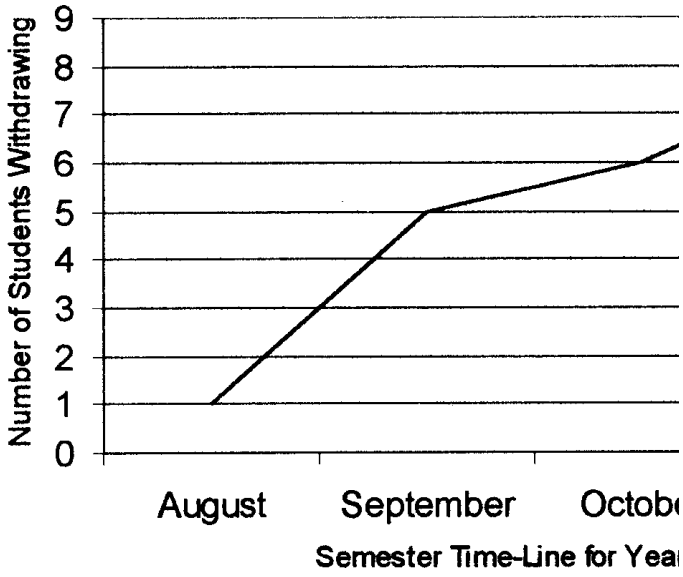
Instructor's Workload

Although person-to-person teaching efforts were almost none (except for the rare occasions of helping the student by phone), the E-course required much effort in unexpected areas. Microsoft Outlook® e-mail folders and its Calendar, Journal, Task, and Notes utilities were used to keep track of activities throughout the semester. The following breakdown shows the instructor's time spent per week for teaching related activities (not counting other activities such as scholarly and creative work, professional service, etc.):

- Communicating via e-mail with the students or exam proctors: 15 percent.
- Handling exams (including interacting with the proctor selected by the student, approving them, sending and receiving the exam): 7 percent.
- Updating and administering the Web site: 5 percent.
- Learning the E-material (material from the E-course Web pages): 20 percent. Since the course was designed to be "textbook independent," it was time consuming to become familiar with all the material that was on the Web before helping the students or grading their mailed-in assignments.
- Finding good test questions from the E-material: 10 percent. Preparing the exams was a challenge for the instructor, since the study material on the Web was not covered fully in the textbook and vice-versa. It required much effort to find the topics that were covered without leaving questions on important topics out.
- Learning and exploring the rich set of WebCT tools: 15 percent. The most frequently used tools were: Progress Tracking, Student Management, and Access Control.
- Traditional activities similar to those found in a regular course (including calculating and posting grades, grading the assignments, and grading the exams): 28 percent.

It was not anticipated that the first six activities listed above would demand so much time. Another interesting fact is that 72 percent of time was spent on activities not found in a regular class-based MGT 218. This could be a problem or issue related to implementing an E-course. Grasha and Hicks (2000) raise concerns about bringing a wide range of faculty to "buy in" to using technology. From teaching this E-course, one lesson that was learned was that institutions that really want to successfully implement E-courses must realize that many of their instruc-

EXHIBIT 3
CUMULATIVE E-COURSE STUDENT WITHDRAWALS



tors will not only need to be reskilled (Ives and Jarvenpaa 1996), they will also need to become accustomed to the different tasks in their daily agenda.

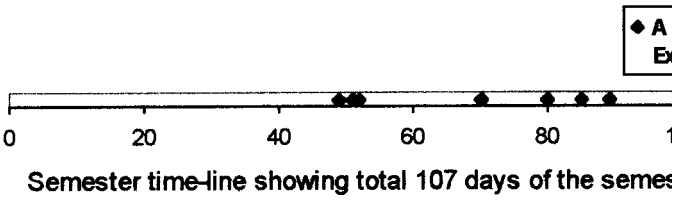
Student Dishonesty

There were three alarming incidences of possible student dishonesty during or after an exam. The exams were supposed to be taken under the supervision of an independent proctor selected by the student, such as his or her employer, and approved by the instructor. Both the student and the proctor were required to complete attestation forms. Once the student completed an exam within the specified time, the proctor had to mail the exam via regular mail to the instructor with an additional attestation stating that no cheating was observed and the exam was completed in the specified time. In the first possible case of dishonesty, a student had already taken the first exam and it had been graded. Just before grading the second exam, it was found that after the exams were taken, the proctor was simply handing them back to the student to mail them to the instructor. The lesson learned was about the necessity to remind each proctor of many "small" details.

In the second case, an exam included a partial table containing Standard Normal Curve Area Table values for the students to use during their exams. When the instructor received an exam back from a student, it was noticed that a number that the student had used was not listed in the partial table provided with the exam. The only possible resources for this number were either from the textbook or from the course Web page, both of which were not allowed during the exam. Although the proctor reconfirmed by phone that the exam was taken in accordance with class policy, somehow the student had cheated on the exam. Since the student denied any wrongdoing, it was not possible to find out how the second table was obtained.

The third case was about the questionable validity of the proctor the student had selected. The instructor did not receive the attestation from the proctor on a standard company letter-

EXHIBIT 4
WHEN STUDENTS TOOK THE FIRST EXAM



head. Instead, the letter was in typed format, without the proper company address. Trying to authenticate the proctor over the phone and via e-mail still left the instructor with the questionable impression of the proctor. The letter attesting that the student took the exam without any observed cheating was written by hand on a regular piece of paper. Still, with the lack of the solid proof to deny the proctor and lack of procedural violation, the instructor accepted the student's exam points.[3]

While the existing electronic learning technology is still "immature" (Jennings 1997) is arguable, incidents such as these showed a clear need for better control methods.

Steep Learning Curve for Both the Student and the Instructor

Since neither the instructor nor the students are familiar with the newly emerging electronic courses, the new ways of doing things were challenging at best and confusing at worst. To aid students' efforts to communicate with one another or indirectly with the instructor, WebCT Course Conferencing System (also known as Bulletin Board) tool was provided on the home page. However, no articles were posted by any student during the semester.

There were four students who repeatedly requested assistance on how to use the electronic media. On average, three pieces of e-mail were written (as tracked by Microsoft Outlook®) by the instructor to each student to help them get started using the Web pages. In addition to their narratives, these Web pages included on-line real-time calculators, graphs, and charts. At the beginning of the semester, the instructor sent a piece of mail to each student with their user ID, password, and a reference to a WebCT "frequently asked" question file.

From the beginning, one student was completely confused as to what his role was ("Just read the material on the Web pages, and then what?"), as well as the instructor's role. Even after writing three pieces of e-mail to this student, he still remained largely unsure about what role that Web pages played in the E-course. He eventually withdrew from the course.

One of the students who received an "Incomplete" grade was under the impression that she had an entire year to finish the course, as opposed to a semester for a regular course. The correct time period was listed on the online syllabus. Although the instructor had sent e-mail messages to all the students through the semester encouraging completion of the work by the semester's end, this misunderstanding was not bought to his attention until the semester was over. Later, this "Incomplete" was changed to an "F," since the student did not complete the course work in the agreed upon time.

The course required instructor proficiency in e-mail features such as personalized group e-mail, updating and navigating through Web pages,

administrating user access to the Web site, etc. Although WebCT provided a rich set of administration tools, considerable time was needed to master and effectively use all of them. As a result, only some of the available tools were ever used. Interestingly, research reveals that e-learning developers often focus on graphics design and production, but ignore training analysis and underlying learning structures (Searbrook and Rushby 2000). More help from the instructor, such as computerized practice tests (Gretes and Green 2000), could have been provided if instructor training was required for teaching an E-course.

Neal (1998) argues that the current technology, with its lack of face-to-face contact among students and teachers, deprives the students of "learning experience." However, the students could have benefitted from the use of Computer-based communication (O'Donnell and O'Kelly 1994). Had a short training period been provided to the students as one of the E-course's prerequisites, and had a mandatory counseling session been used to both discuss the student's readiness in-person and to emphasize the importance of using the communication tools before they could enroll, it is more likely that the course's students would have used such tools.

Textbook-E-Material Discrepancy

To make the course flexible, study material on the Web site was designed to be textbook independent, while keeping the course content identical to that found in the class-based MGT 218 course. However, a textbook had to be listed for the student to do in-depth study. This created a challenge to keep both these study resources in synchronization. This means that either the E-material (the topics discussed on the Web site) will have to be constantly updated (depending on the textbook selected), or additional books will have to be suggested as the text or for reference. Currently, this is a challenge the instructor of the MGT 218E and the similarly designed E-courses have to face.

SUMMARY

Amongst the many services a computer can provide (Roach 2000), the academic community has recognized the pedagogic usefulness of teaching via electronic media (Mitra and Steffensmeier 2000). Recognizing the potential for using electronic media as an instructional tool in marketing education, this paper reflects on the experiences gained while teaching an E-course in a business undergraduate distance-learning program at Lewis College of Business, Marshall University, West Virginia. The experience showed the need for (1) mandatory pre-enrollment student counseling, to help pupils understand what they should expect and what it expected of them, (2) student training to teach them basic navigation, how to use E-material, and how to use advanced features such as Bulletin Board, (3) instructor/ faculty orientation, training, and encouragement in learning and using basic and advanced electronic technology, (4) development of a detailed standard methodology with proper controls in place for student assessment, and (5) a degree of skepticism before "buying in" (Grasha and Hicks 2000) to using technology.

ENDNOTES

[1] As of Fall 2000 semester.

[2] As one would notice, the delays in taking the exam included one student who waited until the last week of the semester to take the first exam. In fact, the student managed to take all three exams in the last week of the semester, and received a "C" grade for the course. This was a rare success tale of the student who could complete the course, even after a long wait.

[3] Probably fearing more questioning during the rest of the exams, the student decided to take

the rest of the two exams at Marshall University in the instructor's presence. The student received 40 out of 50 points on the first exam, 35 on the second, and the 20 in the final exam, yielding him a "D" grade.

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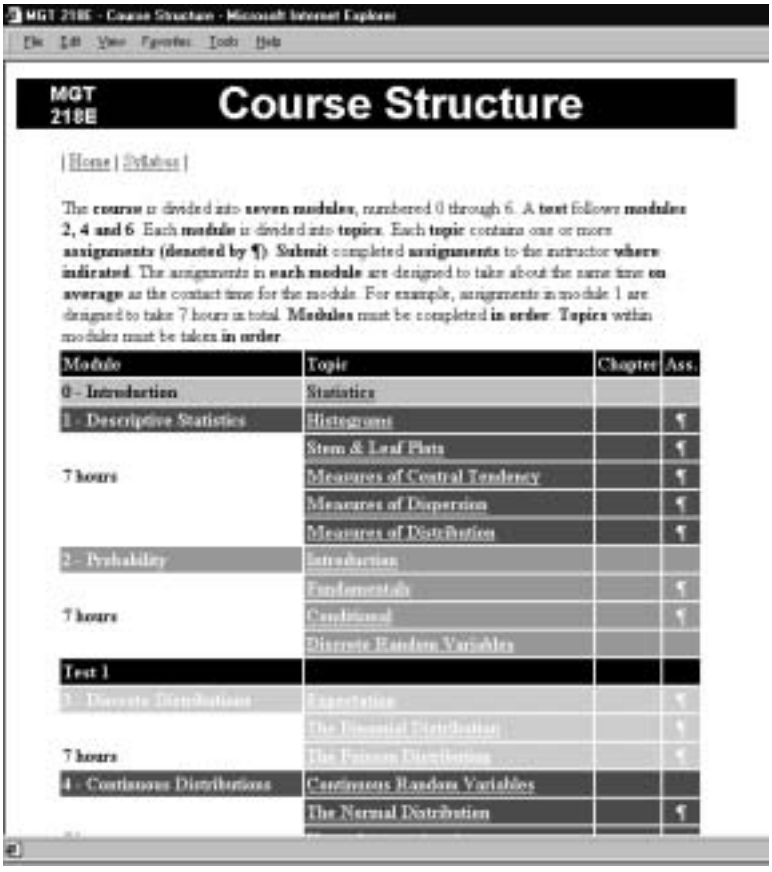
Marshall University Resources:

Marshall University 1999–2001 Undergraduate Catalog.
Marshall University Banner (2000) software. Marshall University Administrative Information Systems.
Marshall University Department of Institutional Research and Planning.
Marshall Information Liaison Online (MILO) Web page: http://www.marshall.edu/milo.
Lewis College of Business Faculty Handbook 1999–2000.
Marshall University World Wide Web Page: *http://www.marshall.edu.*

APPENDIX A
COURSE STRUCTURE (WEB PAGE IMPRESSION)



MGT 218E

Course Structure

[Home | Syllabus]

The **course** is divided into **seven modules**, numbered 0 through 6. A **test** follows **modules 2, 4 and 6**. Each **module** is divided into **topics**. Each **topic** contains one or more **assignments (denoted by ¶)**. **Submit** completed **assignments** to the instructor **where indicated**. The assignments in **each module** are designed to take about the same time **on average** as the contact time for the module. For example, assignments in module 1 are designed to take 7 hours in total. **Modules** must be completed **in order**. **Topics** within modules must be taken **in order**.

Module	Topic	Chapter	Ass.
0 - Introduction	Statistics		
1 - Descriptive Statistics	Histograms		¶
	Stem & Leaf Plots		¶
7 hours	Measures of Central Tendency		¶
	Measures of Dispersion		¶
	Measures of Distribution		¶
2 - Probability	Introduction		
	Fundamentals		¶
7 hours	Conditional		¶
	Discrete Random Variables		
Test 1			
3 - Discrete Distributions	Expectation		¶
	The Binomial Distribution		¶
7 hours	The Poisson Distribution		¶
4 - Continuous Distributions	Continuous Random Variables		
	The Normal Distribution		¶

EXTENDING QUALITY ASSESSMENT BEYOND THE CLASSROOM: THE CAMPUS COMPUTER LAB SCALE

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Brian Engelland, Mississippi State University

ABSTRACT

Computers have assumed an increasingly important role in the educational process, and consequently, institutions of higher learning have sought to enhance the quality of computer access they provide on their campuses. Based on a study of student computer users at a large state university, this paper reports the purification of a psychometric scale designed to assess the service quality of campus computer labs. The scale consists of eight indicators, and is intended to be used to monitor lab quality over time and assist in the planning of specific actions for quality improvement.

INTRODUCTION

Public higher education is facing mounting pressures to deliver improved value in all its activities (Heck and Johnsrud 2000; Wellman 2001). Actions by parents, students and legislatures are demanding that additional attention be placed upon the performance of the faculty, the curriculum, and any university-provided services that contribute to the college experience (Brennan and Shah 2000; Evanbeck and Kahn 2001; Underwood 2000). And, where there is increased scrutiny, there is the need for objective assessment, benchmarking, and planning for ongoing improvement (Watson and Pitt 1998).

All of these activities require the development of appropriate metrics that can serve to assess services, and recent literature has provided measurment instruments for such on-campus services as library resources (White and Abels 1995), career services (Engelland et al. 2000), dining services (Stevens 1995), and academic advising (Abernathy and Engelland 2001). The methodology and instruments proposed can be utilized as part of an ongoing program for improvement in the university experience.

One area where little assessment work has been reported is concerned with the campus computer labs that are provided for student use. These labs serve a large number each day, as students drop by to type papers, perform statistical analysis, access library and internet sources, or check e-mail communications. However, anecdotal evidence indicates that many students are not pleased with the service quality of the computer labs provided on their campuses. Appropriate assessment instruments are needed so that institutions can evaluate the quality of the services they provide and make plans to overcome any deficiencies (Watson and Pitt 1998). Accordingly, this study reports the purification of an instrument intended for measuring student satisfaction with lab service quality.

SERVICE QUALITY ASSESSMENT

Multi-item scales are generally superior to single-item measures for attitudinal measure-

ment. The three principal deficiencies of single item scales that can be overcome through the use of multi-item scales include inconsistency over time, imprecision, and narrow domain representation (Spector 1992). Accordingly, its not surprising that the literature has regarded service quality to be a construct that represents a broad domain requiring measurement with multi-item scales.

Very little information is available on the subject of student evaluation of computer lab service. Our literature search failed to locate any refereed journal articles relating to computer lab service quality or the development of a measurement instrument for this purpose. There is, however, a large stream of literature dealing with the assessment of service quality, beginning with SERVQUAL (Parasuraman et al. 1988). The SERVQUAL scale contains five factors, but empirical studies have shown that these dimensions may not be generic for all situations (Carman 1990) or even for the same type of service when different cultures are represented in the sample (Kettinger et al. 1995). SERVQUAL is designed to deduct reported perceptions from reported expectations as a computational approach, but this has not been universally adopted (Cronin and Taylor 1994). For purposes of this study, we do not wish to join the debate regarding the superiority of perception-only or gap-scored measures (Van Dyke et al. 1999; Kettinger and Lee 1999). We note, however, that despite the fact that SERVQUAL gap-measures continue to be used (Jiang et al. 2000), expectations are hard to measure separately from perceptions (Carman 1990), and retrospective accounts of expectations may not be reliable (Golden 1992). Accordingly, the measurement approach adopted here is based upon measuring performance perceptions only.

METHODOLOGY

Development of the Item Pool

As suggested by DeVellis (1991), a large item pool was generated. Candidate items for the pool incorporated suggestions from students, the initial SERVQUAL scale (Parasuraman et al. 1988), a revised SERVQUAL scale (Engelland et al. 2000), and items selected from Swanson and Phillips' (1998) computer lab customer satisfaction survey. In developing the items, five guidelines were followed based upon Spector (1992), in which (1) each item expresses one and only one idea, (2) both positively and negatively worded items are developed, (3) colloquialisms, expressions and jargon are avoided, (4) the reading level of the respondents is considered, and (5) the use of negatives to reverse the wording of an item are avoided.

A total of 50 items were developed to tap into various facets of computer lab service quality, including physical rooms, hardware, software, hours of operation, availability of computers, lab assistants, printing, computing safety, and privacy (see Table 1). Faculty members who had made lab reservations for class use within the past two months were recruited to serve as expert judges for a face validity test (DeVellis 1991; Bearden and Netemeyer 1999; Hardesty and Bearden 2001). Consistent with Hardesty and Bearden (2001), we employed the preferred "sumscore" method of using expert judges' opinions and then selected items based on the combined score for all judges per item. This reduced the item pool to 42 items.

Sample Characteristics

The setting for the study was a college of business associated with a large U.S. public university. The college provides two large computer labs for student use, and these were selected as the focus of the study. Data were collected via a web-based survey made available to all students with a business major. Demographic-related questions and a single item general satisfaction scale (1 to 10) were included with the survey instrument. Students were contacted by e-mail twice and provided with a link to the on-line survey instrument. Students were promised anonymity, and no attempt was made to identify any of the respondents through cook-

TABLE 1
RESULTS OF ITEM PURIFICATION

Item	Result
The computer lab has appealing physical facilities	deleted for face validity
Lighting in the labs is good	deleted for skewed distribution
The chairs in the labs are comfortable	deleted to reduce redundancy
The computer lab has up-to-date equipment	**retained**
The computers in the labs are fast enough	deleted to reduce redundancy
The computers are well maintained	deleted to reduce redundancy
Internet access is readily available	deleted to reduce redundancy
Internet connections are fast enough	**retained**
The floppy drives work well	deleted to reduce redundancy
The CD-ROMs work well	deleted for face validity
The computer mice work well	**retained**
The computers have the software that I need	deleted to reduce redundancy
The software is up to date	deleted to reduce redundancy
The variety of software is good	deleted to reduce redundancy
The computers sometimes lock up while I work on them	deleted to reduce redundancy
The software is easy to use	deleted for skewed distribution
It does not take long to log in to the system	deleted for face validity
The software is dependable	**retained**
The lab has convenient opening hours for students	**retained**
I have not found the lab closed when I needed it	deleted for reversed wording
I frequently have to wait for a computer to be available	deleted for reversed wording
I don't have to wait long for a computer to be available	deleted to reduce redundancy
The labs have enough computers	**retained**
Lab assistants are well dressed and neat appearing	deleted for face validity
When lab assistants promise to do something by a certain time, they do it	deleted to reduce redundancy
Lab assistants show a sincere interest in solving my problems	deleted to reduce redundancy
Lab assistants are dependable	deleted to reduce redundancy
Lab assistants are not always present in the lab	deleted for reversed wording
Lab assistants help when they promise to do so	deleted to reduce redundancy
Lab assistants serve students promptly	deleted to reduce redundancy
Lab assistants are always eager to provide assistance	deleted to reduce redundancy
I can find help when I need it	**retained**
I trust the lab assistants	deleted for face validity
Lab assistants explain the problems	deleted for face validity
Lab assistants are polite	deleted to reduce redundancy
Lab assistants have the knowledge to answer my questions	deleted to reduce redundancy
Lab assistants give students personal attention	deleted for face validity
Lab assistants know the needs of the students	deleted for face validity

TABLE 1 (CONTINUED)
RESULTS OF ITEM PURIFICATION

Item	Result
Lab assistants have the students' best interest at heart	deleted to reduce redundancy
Lab assistants provide the right information the first	deleted to reduce redundancy
Lab assistants are knowledgeable about hardware problems	deleted to reduce redundancy
Lab assistants are knowledgeable about software problems	deleted to reduce redundancy
Lab assistants show respect for students	deleted to reduce redundancy
The quality of printouts is good	deleted to skewed distribution
I don't have to wait long for my documents to be printed	deleted to reduce redundancy
I have enough free prints to meet my printing needs for the semester	**retained**
My documents are printed promptly	deleted to reduce redundancy
The computers in the lab have good protection against viruses	deleted to reduce redundancy
My private information is safe in the lab	deleted to reduce redundancy
It is safe to use the lab computers for private transactions	deleted to reduce redundancy

ies or other tracking devices. E-mail requests were completed to 2446 students and 278 participated, representing 11.0 percent of the population.

Returns were inspected individually for completeness, and 21 cases were eliminated because of excessive missing values, leaving 258 responses. Statistics for the mean, standard deviation, skewness, and standard error were reviewed before and after purging of these 21 cases. The differences in these statistics were minor only, and therefore the purging did not lead to any significant changes in the results. Respondent characteristics are summarized in Table 2.

Data Analysis

Box and whisker plots were obtained for all items, resulting in the decision to eliminate three items based on high skewness and unbalanced distributions, as recommended by Clark and Watson (1995). In addition, three reverse-coded items were discarded because of problems with polarity (Herche and Engelland 1996). Consistent with Gerbing and Anderson (1988), an ex-

TABLE 2
RESPONDENT CHARACTERISTICS

Mean Age	22.2 years (Std. Dev. 2. 8)	Classification – Fr.	8.4%
Gender – Male	54.4%	So.	8.8%
– Female	45.6%	Jr.	20.8%
Own PC at home – Yes	82.6%	Sr.	44.2%
– No	17.4%	Grad. Student	17.5%

ploratory factor analysis was performed on the remaining items to gain insights into the factor structure. The scree plot showed a definite elbow after the first factor extracted, and the "mineigen one" rule concurred, indicating a one factor solution (Hair et al. 1992). In addition, the factor analysis revealed significant loadings on the first factor for a majority of the items. Accordingly, the decision was made to pursue a unidimensional scale.

In order to reduce redundancy, a purging was made using a combination of inspection of the item list to preserve the breadth of the domain, and inspection of corrected item to total correlations. The result was the elimination of most items with inter-item correlations higher than .70. The final scale was composed of eight parsimonious items (Table 1), with inter-item correlations ranging from .15 to .41. The mean inter-item correlation of the final scale was .31, which concurs with the guidelines of Clark and Watson (1995). Internal consistency reliability as measured by coefficient ? was .744. An ? level of .70 is considered respectable (DeVellis 1991) and recommended for preliminary research (Nunnally 1978).

Since a sufficiently high coefficient ? is a necessary, but not sufficient condition for unidimensionality, a confirmatory factor analysis was performed (Kumar and Dillon 1987). Indices of fit were examined, including (1) an RMSEA of .031, which falls within the .05 guideline (Jöreskog 1993); (2) a Goodness of Fit Index of .976, which exceeds the .90 guideline (Jöreskog and Sörbom 1984); (3) an Adjusted Goodness of Fit Index of .957, which exceeds the .90 guideline (Jöreskog and Sörbom 1984); (4) a Normed Fit Index of .925, which exceeds the .90 guideline (Bentler 1992); and (5) a Bentler Comparative Fit Index of .985, which exceeds the .90 guideline of Bentler (1992). The results provide strong evidence for unidimensionality.

Since no established scales for this construct were found in the literature, convergent validity could not be established by comparing the new scale with an established measure. However, convergent validity can be shown by two scales loading on the same factor (DeVellis 1991). The overall satisfaction item, which can be considered a single item scale, loaded on the same factor as all items in the new scale. No attempt was made to establish discriminant validity for this exploratory research, and due to the limited theoretical foundation, no predictions from the theory could be formed to test nomological validity.

Development of norms is the final step in Churchill's paradigm of measure development (Churchill 1979). Accordingly, the results of the instrument are reported for future comparisons to other populations of interest. When placed on a 5-point scale, the sum of the scores on the eight items divided by 8 returned a mean value of 2.99, a standard deviation of .697, a range between a minimum of 1 and a maximum of 4.75, and a median value of 3. Sixty-eight percent of the scores fall between 2.3 and 3.7, 95 percent of the scores between 1.6 and 4.4, and 99 percent of the scores between 1.00 and 4.75.

DISCUSSION

On the whole, the proposed eight-item scale appears to be a good representation of students' understanding of computer lab service quality at one college of business. Of course, different circumstances may exist in different labs at different universities, such as hours of operation, available equipment and printing policies. These differences could necessitate some modifications to the scale items. A follow-up survey is planned for all students at the focal university in order to explore the commonalities and differences among all computer labs on campus. Validity of the proposed measure should be further explored. One approach to do this is to begin the survey instrument with a single item service satisfaction measure, followed by an open-ended item "Please list the issues you considered when deciding on your overall service satisfaction level." The answers can be reviewed based on their relation to items on the list.

The web-based method of data collection employed here can generate a substantial number of responses within a short period of time and is encouraged in future computer lab research. Furthermore, students who use computer labs are certain to be familiar with the use of web browsers, and should have no difficulty using the questionnaire in this form. Computer lab administrative staff could consider using a pop-up message requesting participation in the survey, appearing at regular intervals or connected to the log-on process. Use of the eight-item scale is recommended to increase participation, but inclusion of other scale items could be considered, especially if problem areas are suspected.

It is hoped that this instrument has the potential to serve as a cost-effective gauge of student service quality satisfaction. Results of the survey may be used to trigger action when the scores fall below the norm or below a target score selected by the institution. Low scores on individual scale items can be used to identify areas to be targeted, avoiding allocating resources to areas where students are satisfied while their real concerns are not addressed.

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FACULTY EDUCATION: THE KEY TO GAINING ACCEPTANCE OF CROSS-FUNCTIONAL BUSINESS PROGRAMS

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ABSTRACT

Heightening corporate demand for employees equipped to effectively compete in cross-functional business environments has fostered growth in functionally integrated curricula throughout higher education. Business schools in particular are reengineering their programs to better reflect the environment in which graduates will work. But the implementation and garnering of faculty buy-in of the dramatic change initiatives involved in a cross-functional curriculum can be daunting to even the most progressive universities. This study examines faculty perceptions of a cross-functional program that has been in place seven years. Results show greater support for the cross-functional curriculum than for the pedagogy of this particular program. To assist in the development and implementation of such a program it is recommended that institutions of higher education consider an educational program that also educates the faculty, and solicits their input on how to design, implement, and modify the program.

INTRODUCTION

Corporate demand for functionally integrated college curricula continues to grow as firms increase their reliance upon cross-functional teams. Previous research investigating a wide variety of cross-functional programs has uncovered numerous issues that academicians must consider when debating a cross-functional endeavors, including: (1) general leadership issues, (2) college administration issues, (3) faculty concerns, (4) student concerns, and (5) issues with general university strategies (Aurand, DeMoranville, and Gordon 2001a). Of these areas, faculty concerns may be the most critical for it is the faculty who are directly responsible for the development of the course and its implementation, and who must often undergo a total change in pedagogical mindset. Therefore, preparing faculty for a cross-functional program, keeping them abreast of any changes to the curriculum, and providing the faculty with an opportunity to offer their opinions of the program is a critical element of any cross-functional initiative. In other words, *educating* the faculty on how cross-functional *education* is taking place may prove to be the vital element to a program's success.

The following study analyzes faculty opinions of a cross-functional business course that has been operational since 1994. The findings indicate that while the vast majority of faculty members agree upon key elements of the program, there is not a consensus regarding several pedagogical issues. Many of the differences of

opinion can be attributed to a lack of understanding of the program and the enhancements made to it. By implementing a faculty education program that informs faculty and solicits their opinions and recommendations about the curriculum a university may significantly enhance a program's overall effectiveness.

BACKGROUND

It can be a daunting task to dramatically change a functional-based business school's curriculum that has been in place for decades. In many situations, change can even be perceived as a threat to a well-established pedagogy. For some faculty members, a significant change dictated by college administrators is perceived as a threat to their academic freedom. Due in part to this tendency to resist change, such initiatives in higher education environments face a 70 percent chance of failure (Beer and Nohria 2000). It is only after the education community successfully addresses the unwillingness of many of its members to embrace change, especially dramatic change, that it can hope to successfully implement change.

Ironically, in order to successfully change the manner in which an educational community functions, it may be necessary to use education itself as a change initiative. Education has been used successfully by many businesses to both support, and spearhead their change initiatives. For example, when executives at the Ford Motor Company realized it was time for fundamental changes within the company, CEO Jacques Nasser turned to education for implementation. Ford now relies upon educational principles to drive change initiatives and in so doing, focuses on the company as a whole and not simply a group of top level executives (Wetlaufer 1999).

As Ford has found, education can be an invaluable tool when convincing stakeholders to accept radical change initiatives. In order to ease the process of acceptance, it is important to communicate with the stakeholders using every possible channel, continue to work on the change initiative even after small victories have been achieved, and to let the stakeholders see how the change has improved the situation (Kotter 1995). If the stakeholders do not accept the proposed change initiatives, the programs are almost certainly doomed to failure.

The business sector provides numerous examples of change initiatives that have failed due to lack of stakeholder support. For example, Phillips Electronics was unable to initiate changes during the late 1980's because the firm's employees did not buy into the new change vision (Strebel 1996). In 1993, Chevron's problems with implementing their reengineering program were traced back to a lack of communication with the employees and inadequate training (Mullin 1994). Simply put, the education of stakeholders is essential if an organization, business or educational institutions, hopes to be successful with nearly any initiative that involves radical change (Hammer and Champy 1993).

It is also essential that those leading the charge continue educating stakeholders even after short-term goals have been achieved. Radical change involves an on-going evolution of business processes where structures that are introduced today can be reused as the company grows. As one problem is solved through a change initiative, another one is often introduced (Greiner 1998). Feedback from those involved in the changes will help the company to monitor their change initiatives as they evolve and address any issues that arise.

Recently, numerous educational institutions have addressed corporate needs by radically changing from traditional business school curriculums to cross-functionally integrated programs. Due to the strong similarities between cross-functional education and reengineering, it has been suggested that a reengineering model might improve the chances of successfully implementing a cross-functional course (Aurand, DeMoranville, and Gordon 2001b). A key characteristic of reengineering is radical change (Hammer and Champy 1993). For most schools, devel-

oping a cross-functional business curriculum is a very radical change from current pedagogy, and one that cannot be avoided.

Despite the apparent difficulties associated with changing to a cross-functional curriculum, it has become an essential element for many of America's business schools. The demand for graduates who can think cross-functionally is constantly growing in today's business community. Inside business organizations, cross-functional teams are favored over traditional teams because of their adaptability, speed, and ability to provide better customer service (Proehl 1996). Cross-functional teams do everything from reengineering order entry processes to developing new products. Even in the recent past employees may have been able to successfully contribute by working within a single discipline. Today, however, one must be able to draw from a variety of disciplines in order to solve complex, global problems that the business community faces on a daily basis (O'Reilly 1994).

Cross-functional education is therefore being called upon to better prepare students for careers in business (Heckman 1999). Many marketing majors, for instance, often go on to work as part of cross-functional teams created around key products or customers. Unfortunately, graduates are frequently uncomfortable when asked to solve complex problems involving various functional areas and they often neglect the "big picture" in favor of focusing on their area of study (Van Over and Stover 1994).

The demand for graduates with the ability to think cross-functionally is nothing new. More than a decade ago, Porter and McKibbin highlighted six areas for the country's business schools to focus on, one of which was cross-functional integration (Wheeler 1998). Also, the AACSB Standards for Business Accreditation encourages business schools to include cross-functional elements in their curricula (Bishop et al. 1998). Unfortunately, business curricula at far too many universities continue to be very functional in nature as was learned in a polling of undergraduate business programs accredited by the AACSB in which it was found that less than five percent of the schools had formally addressed the need for cross-functional education in their curricula (Aurand, DeMoranville, and Gordon 2001b).

However, a number of well-respected business schools have developed cross-functional programs, particularly at the graduate level including the University of Tennessee, the University of Pennsylvania, Indiana University's Kelly School of Business, the University of Denver, the University of Dayton, Babson College, the University of Okalahoma, and Boston University (Aurand, DeMoranville, and Gordon 2001a). At the undergraduate level universities such as Northern Illinois University, Indiana University, and Illinois Wesleyan University have also seen the value of cross-functional programs and have radically changed the manner in which they teach their capstone, and principles classes. An exploration of these programs identifies a great deal of diversity not only in the levels at which integration of functional material is attempted, but the basic goals, functional areas integrated, and pedagogical models implemented as well.

Varying Goals

The goals for a cross-functional program can vary as dramatically as the manner in which such a program can be presented. At Northern Illinois University an undergraduate cross-functional program addresses the focus of companies on cross-functional teams, the need for majors to have a basic understanding of all business functional areas to effectively apply their major concepts, the use of cross-functional teams to better serve customers, and the advantage graduates of cross-functional programs have over graduates of traditional business programs (DeMoranville, Aurand, and Gordon 2000). At the University of Dayton business faculty attempt to: (1) Give students the opportunity to study financial concepts and techniques and apply theses tools to the assessment of marketing opportunities. (2) Give students the opportunity to study the thought and theory of marketing strategy development and to

assess the viability of marketing strategies in light of financial considerations, and (3) Give students the opportunity to build confidence in their ability to assess marketing strategies and use financial analysis through the process of developing a complete financial assessment of a business opportunity (DeConinck and Steiner 1999). The University of Tulsa strives to: (1) Encourage communication and understanding among the students (2) Understand the important contribution of each discipline to the innovation process, and (3) Reinforce the concept that, in product development, all disciplines are working toward the same objective (Lunsford and Henshaw 1992). In any case, it is essential that colleges and universities have a firm understanding of their specific goals and objectives prior to the development, and subsequent implementation of any cross-functional program.

Variety in Courses Integrated

In order to address a variety of goals and objectives, different universities have chosen to integrate an interesting array of courses. The following list of universities and courses that they integrate is by no means all inclusive, but illustrates the variety found in colleges of business today:

- The University of Dayton and the University of Tennessee Knoxville – Marketing and Finance.
- The University of Tulsa – Marketing Research and Engineering Design.
- The University of Oklahoma – Production and Finance.
- Illinois Wesleyan University – Marketing, Management, and Finance.
- Northern Illinois University – Marketing, Management, Operations, and Finance.
- The University of Idaho – Finance, Human Resources Management, Information Systems, Marketing, and Operations Management.
- Boston University – Organization Behavior, Management Strategy, and Management Information Systems (Aurand, DeMoranville, and Gordon 2001b).

Different Models Implemented

Due to differing goals, objectives, and courses being integrated, one can also understand the implementation of different pedagogical models in cross-functional courses. For example, Pharr et al. (1997) identify five integration models incorporated by ten different institutions: Comprehensive curriculum blocks, limited curriculum blocks, a coordinated curriculum, a coordinated case curriculum, and an integrated project curriculum can all be considered as well as other customized approaches. Mullins and Fukami (1996) discuss transdisciplinary team teaching at the University of Denver and recommend a low interdependent team model with tools courses while more advanced coursework inherently lends itself to a greater degree of integration.

Similar Issues Addressed

But in spite of the variety in goals sought and pedagogy implemented similar issues can be found when universities attempt to dramatically change the manner in which they teach business. Research by Aurand, DeMoranville, and Gordon (2001b) identifies five areas of cross-functional program considerations common among schools that have integrated their business programs. These considerations include: (1) Strategic concerns (program goals, degree of integration, functional areas to integrate, program assessment), (2) Leadership issues (academic administrator, cross-functional team leader), (3) Administrative issues (faculty workload recruitment, rotation, workload, evaluation, and compensation, budgeting and support), (4) Faculty issues (academic freedom, workload, teaching materials, exams, and grading), and (5) Student issues (integration expectations, workload fairness).

While not every issue arises at every university that has attempted to integrate its curricula, aspects of each issue can generally be found when reviewing published works from those universities in which cross-functional programs have been implemented.

Due to the radical change inherent in the development and implementation of a cross-functional business program, the following study was conducted to identify faculty opinions regarding one program, its objectives, and general pedagogy to better understand the need for an educational program to assist in the change initiative. The particular program that was examined consisted of a lecture based cross-functional principles class (CFPC) and a cross-functional applications class (CFAC). All business students take these courses in the beginning of their junior year, prior to taking upper level courses in their major.

STUDY

The purpose of the study was to identify business faculty perceptions of the CFPC class and to learn how the faculty have accepted the major change initiatives associated with the CFPC class over a period of seven years. The CFPC course is a nine-credit hour class and is taken by all first semester juniors in the College of Business. The CFAC class, the three-hour applications class that can be taken during either semester of the junior year, was not the focus of this study. Findings are limited to the nine-hour CFPC lecture class.

Interviews with a faculty member from each of the five business departments were conducted to discover relevant issues and develop items for a questionnaire which was then administered to the business faculty. The interviewed faculty included two who were involved in the development of, and had taught in, the CFPC class. The other three were not actively involved with the class at the time of the study. The interviewees included faculty with both positive and negative opinions of the class.

The interview data were used to develop a one-page questionnaire which included both closed and open-ended items. Eight of the questions were Likert scale items (1= Strongly Agree, 5 = Strongly Disagree) focusing on faculty perceptions of cross-functional education in general, familiarity with the objectives of the CFPC class, the success of the class in integrating business disciplines and preparing students for upper level courses, and the class format. Participants were also asked to list the objectives of the course and for suggestions for the course and its format. The questionnaire included two items asking for the participant's department and length of time teaching at the college. No other identifying questions were asked because the questionnaire was designed to be anonymous.

Questionnaires were distributed to all faculty in the five departments except those currently teaching the course and those who had been interviewed. A total of 78 questionnaires were distributed; 40 were returned, for a response rate of 51 percent. A chi-square test indicated that the distribution of departments in the sample was representative of that of the college. Table 1 shows the distribution of responses to the Likert scaled items on the questionnaire. Those responses are discussed below.

FINDINGS

Faculty were somewhat mixed about the value of cross-functional education. Just less than half (49%) strongly or moderately agreed that cross-functional education was the best way to teach business principles. However, two-thirds (67%) strongly or moderately agreed that the business community viewed a cross-functional course such as the CFPC as superior to the traditional format. Overall, the respondents felt that a cross-functional focus was an important aspect of what the business community was looking for in an employee's education, although they themselves may not be convinced of the importance of cross-functional education.

TABLE 1
RESPONSES TO LIKERT-SCALED ITEMS

ITEM	Strongly Agree	Moderately Agree	Neither Agree nor Disagree	Moderately Disagree	Strongly Disagree*
Cross-functional is best method for teaching business principles.	19%	30%	16%	22%	13%
Business community values cross-functional education.	37%	30%	19%	7%	7%
Familiarity with course objectives.	18%	65%	13%	3%	3%
Effectively integrates business principles.	8%	27%	16%	24%	24%
Adequately prepares students for upper-level business classes.	18%	36%	15%	2%	8%
Other faculty think class adequately prepares students for upper-level business classes.	4%	30%	26%	22%	19%
Cross-functional classes can be taught in mass lecture format.	3%	26%	17%	26%	29%
Current format does not need changing.	6%	12%	21%	30%	30%

*Numbers may not add to 100% due to rounding.

Several items were asked to assess respondents' familiarity with the CFPC course objectives. Most (83%) strongly or moderately agreed that they were familiar with the objectives of the course. This high level of familiarity was confirmed by subsequent open-ended questions which asked the respondent to list the course objectives. Providing students with an overall business foundation was listed by 81 percent and integration of the four business disciplines was listed by 78 percent. Other objectives listed by the respondents included providing students with the ability

to solve cross-functional problems and providing a foundation for future business classes. These results indicate that respondents' are quite accurate in their self-assessment of familiarity with the two primary course objectives.

Three questions asked about the success of the CFPC course in integrating business topics and preparing students for upper level classes. Only 35 percent strongly or moderately agreed that the class effectively integrated the four business disciplines (finance, management, marketing, operations). Lack of integration was a common criticism of the course in its early years. In spite of substantial efforts to functionally integrate the class in recent years, it appears that many faculty are either unaware of those efforts or consider them inadequate.

While preparing students for upper level business classes is not the only objective of the CFPC class, it was identified as a major concern in the faculty interviews. The CFPC class has been in place long enough for faculty members to observe changes in students' level of preparation. For faculty members with experience teaching students who take the cross-functional course and those who didn't, a viable basis for comparison is present. A majority (54%) strongly or moderately agreed that the class effectively prepares students for upper-level business classes. Interestingly, when asked if other professors thought the class effectively prepared students for upper level classes, far fewer (33%) strongly or moderately agreed. It appears that by a small margin, most are personally satisfied with students' preparation, but are more aware of negative perceptions of other faculty than they are of others' positive perceptions. It is possible that strong negative opinions of the course expressed by a few may be familiar to most faculty, but are not the generally held opinion.

In spite of general agreement about the value of cross-functional education and effective preparation of students, most faculty were critical of the method by which this particular course is taught. Only 29 percent strongly or moderately agreed that the course can be effectively taught in a mass lecture format (its current format) and even fewer (18%) strongly or moderately agreed that the current format does not need changing. It is interesting to note that while the majority of faculty thinks the current format is ineffective (61%), the majority also agrees that the course effectively prepares students for upper level courses (54%). The respondents were also asked to indicate what the best format for the class would be. They were given three pre-selected options or could write in something if they chose. Nearly half (46%) selected a single course, which is the current format. It appears from these responses, as well as additional comments on the questionnaires, that what faculty object to is the mass lecture, not the cross-functional approach. The second most frequent response to this question was four individual courses taken at the same time (30%).

Two analyses were run to determine whether department affiliation and length of time at the college affected perceptions of the CFPC. Departmental differences were examined using ANOVA with the mean level of agreement on the Likert scale as the dependent variable. Teaching experience differences were examined using correlation. There were significant differences between some departments for six of the eight Likert scale items; the value of cross-functional education, business community perceptions of cross-functional education, effective integration of business principles, preparation for upper-level business courses, perceptions of other professors' views on preparation for upper-level courses, and the effectiveness of the current format. While there were a number of differences, they tended to concentrate within two departments; one (Department A) which generally had lower opinions of the course, and another (Department B) which generally had higher opinions of the course. Those differences are noted in Table 2. There were no differences between departments for their familiarity with course objectives or for whether a mass lecture format was effective for teaching cross-functional courses.

TABLE 2
SIGNIFICANT DIFFERENCES IN DEPARTMENT PERCEPTIONS

ITEM	ANOVA F-value (p-value)	DEPT. A	DEPT. B	DEPT. C	DEPT. D	DEPT. E
Cross-functional is best method for teaching business principles.	4.75 (.004)		*	*	*&	#&
Business community values cross-functional education.	6.39 (.001)		*	*	*	*
Effectively integrates business principles.	5.62 (.002)	#		#	*	#
Adequately prepares students for upper-level business classes.	7.64 (<.0005)		*	*	*	*
Other faculty think class adequately prepares students for upper-level business classes.	4.77 (.006)		*	*	*	#
Current format does not need changing.	5.30 (.003)	#		#	*	#

* Significantly different from Dept. A.
\# Significantly different from Dept. B.
& Other significant difference.

Correlations of length of time a faculty member had been at the college and the eight Likert-scales rating items are shown in Table 3. The Likert scale for these items was a five-point agreement scale where five was "Strongly Disagree." Therefore, a positive correlation indicates that faculty who have been at the college longer are less favorable toward the course. Five of the eight items had significant bivariate correlations with the length of time faculty had been teaching at the college. Those items were: familiarity with course objectives (r = -.46), value of cross-functional education (r = .33), perceptions of what other faculty think about the course (r = .46), perceptions of effective integration (r = .28), and the effectiveness the current format (r = .48). As expected, faculty who had been at the college longer agreed more strongly that they were familiar with the course objectives (r = -.46). The other four significant correlations were positive, indicating that the faculty who had been at the college longer tended to rate cross-

TABLE 3
CORRELATIONS OF LIKERT-SCALED ITEMS WITH LENGTH OF TIME TEACHING AT COLLEGE

ITEM	BIVARIATE CORRELATION WITH LENGTH OF TIME TEACHING	SIGNIFICANCE LEVEL
Cross-functional is best method for teaching business principles.	.33	.001
Business community values cross-functional education.	.14	.239
Familiarity with course objectives.	-.46	.001
Effectively integrates business principles.	.28	.047
Adequately prepares students for upper-level business classes.	.24	.075
Other faculty think class adequately prepares students for upper-level business classes.	.46	.008
Cross-functional classes can be taught in mass lecture format.	.14	.220
Current format does not need changing.	.48	.002

function education, course integration, and format effectiveness lower. It is interesting to note that while length of time at the college did not influence one's own perception of upper level course preparation, it did influence one's perception of what others thought about such preparation. The longer one is with the college, the more likely they feel that others think upper-level preparation is inadequate ($r = .46$).

An ANOVA indicated that there were some significant differences in the mean length of time at the college for the five departments. Therefore, it was unclear whether the departmental differences in perceptions for the four items that had significant correlations with length of time at the college were a function of experience or true departmental differences. A General Linear Model (GLM) was run for each of the four items using length of time at the college as a covariate and departmental affiliation as the independent factor. Departmental affiliation was still significant for each of these items: value of cross-functional education ($F = 3.3$, $p = .02$), perceptions of other professors' opinions of the CFPC ($F = 2.8$, $p = .05$), effective integration ($F = 4.4$, $p = .01$), and effectiveness of current format ($F = 3.1$, $p = .03$). Thus, even after accounting for differences in perceptions as a result of length of time at the college, Department A was still generally less favorable toward the CFPC course, and Department B was still generally more favorable toward it.

In summary, this study finds that the faculty appear to agree with the basic premise of cross-functional education and support its cause. Most (83%) are at least somewhat familiar with this program's objectives, two thirds (67%) believe the business community supports such educational efforts, and nearly half (49%) are in favor of teaching business principles cross-functionally. However, there is less agreement among the faculty regarding pedagogical issues and course outcomes. For example, a majority (54%) believes the program effectively prepares students for upper level business courses, but the same percentage questions the format in which the class is taught. There are also varying opinions of what the best format for the class is.

Some of these differences in perceptions are a function of departmental affiliation and/or length of time at the college. However, it is unclear whether departmental perceptions differ because the CFPC is not meeting the needs for a specific department or because of the influence of some well-voiced negative opinions of a few departmental members. Well-voiced negative opinions may contribute to the difference between the respondents' own perceptions about the adequacy of student preparation for upper level business courses and their perceptions of what other faculty members think about that preparation.

RECOMMENDATIONS

Any curriculum change as dramatic as cross-functional integration requires a significant mind shift among those either directly or indirectly related to it. In a situation where the majority of faculty members support the basic premise upon which the course is founded, one may conclude that the first steps have already been taken. But significant disagreements among faculty members regarding more tactical pedagogical concerns and program outcomes foster the need for a structured faculty-education program. The purpose of such a program would be to make the faculty not only aware of the on-going changes to the cross-functional program and the results brought about by these changes, but to allow for a forum in which faculty could feel free to offer their opinions and recommendations. It is vitally important to allow positive opinions to be voiced, as these may help gain acceptance of radical curricula changes. In fact, this study shows faculty thought perceptions of the program were slightly more negative than they actually were.

Institutions of higher education considering a cross-functionally integrated business curriculum should, therefore, prepare themselves for not only a significant curriculum reengineering effort, but for significant modifications to existing faculty development programs. The radical

changes involved in a cross-functional program will require major internal education programs that will prepare faculty members for a revolutionary paradigm shift and keep them abreast of on-going modifications to the program.

In order to solicit support from faculty members for such fundamental curriculum change, faculty education will need to go beyond the provision of basic information. For example, with this study, even though initial business school communications succeeded in increasing awareness of the cross-functional program and its objectives, these efforts did not fully address many of the concerns held by the faculty.

Because a cross-functional course is multidisciplinary by design, it is essential that all departments within a college be aware of the program's objectives and be granted the opportunity for input regarding course objectives, design, implementation, and progress. Colleges and universities should consider such things as town hall meetings, "brown bag lunches" with individual departments, website and chat room opportunities, and periodic house organ articles as means to keep the faculty abreast of the program and its progress. Future research should examine whether the perceptions of the faculty in this study are similar to those at other schools that have implemented cross-function curricula. Those studies should also investigate the effectiveness of marketing and educational efforts on faculty perceptions and acceptance of cross-functional programs.

As with any major change initiative, not all stakeholders will share the same views of the change. Some faculty will embrace it, and others resist it. Some departments may be more favorable to change than others. But resistance based upon limited or inaccurate data can be addressed. Schools planning, or currently implementing, a cross-functional program should therefore prepare for both a radical change in not only how they teach their students, but also, how they teach their own faculty.

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IMPROVING GROUP COLLABORATION AND STUDENT TEAMS' UNDERSTANDING OF RESPONSIBILITY THROUGH A THREE-PHASED CLASSROOM ASSESSMENT TECHNIQUE

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ABSTRACT

A research-based and theory-driven classroom assessment technique of group collaboration efforts was implemented in a capstone, senior-level, Marketing major required course where 50 teams of students developed a marketing plan for 50 different clients during a two year, four semester time period. A three-part student team assessment model, Collective Effort Classroom Assessment Technique (CECAT), was administered at the beginning of group work, at mid-term, and at the conclusion of the semester. The CECAT not only fostered successful group efforts 100 percent of the time, it also taught the important tenants behind team building while "free riding" was kept to 2.6 percent.

INTRODUCTION

Business leaders have been encouraging business professors to focus on the development of students' oral and written communications for several decades. And, most recently they have been stressing that the future business leaders need to develop strong "team building" and "group collaboration" competencies. Even the international collegiate business school accreditation body, AACSB, has endorsed the business executives' thoughts by their recent continuous improvement recommendations (AACSB 1999).

The anecdotal comments by the business world of student competency development needs was reinforced in a study by Uchida (1996) where it was found that among the skills needed by students to succeed in the workplace include critical thinking, problem solving, written communication, and the ability to work collaboratively. Furthermore, Cunningham (1995), along with Butler and colleagues note that many business colleges have been criticized by the business world for their failure to provide the workplace skills identified by Uchida (Butler, Straughn-Mizerski, and Lacher 1995). Siegel (1996) in her research felt that the cause for the problem could be partly attributed to a reliance on teacher-centered instructional techniques (i.e., lecture method) rather than student-centered techniques that actively engage the student in the learning process. Bennett concluded that "learning is best accomplished when the learner is actively engaged in the process" (1999, p. 54).

Since the field of business, whether on the job or in the classroom, involves a "learning-doing-feedback-learning" process, professors need to emulate that principle with their students in train-

ing. To that end, Maxwell and Hagan contend that innovative professors must provide a "vehicle for providing some sort of 'hands-on' experience with real management situations and problems in order to provide foundations for the concepts introduced and discussed in the textbook" (1999, pp. 86–87). Group collaboration or student team activities have been promoted and researched extensively since 1965 (Walker and Angelo 1998) as an answer to "hands-on" education – where the learner is actively engaged. Promising new research on group collaboration (student teams) not only has helped professors better understand group performance, but design a method to teach and promote teaming, much to the delight of business executives.

GROUP COLLABORATION RESEARCH

Burnett and Gilbert (2000) noted that group collaboration projects are known for their difficulties, including "fair" grading, resentment by certain students who believe they do most of the work, group size (too big or too small for the task assigned), and scheduling of team meetings outside of class time. But, the authors cite that for those students who activity participate in group collaboration endeavors, the project was viewed as a very good learning experience. Slavin (1990) found that teams perform best when they have common goals, a reward structure, and means to insure team member accountability. "Free riding" or social loafing and not pulling one's weight in a group has been identified as a common problem with group collaboration efforts (Johnson, Johnson, and Holubec 1990). To solve a free riding problem, Karau and Williams (1995) concluded that eight factors must be present: (1) the work productivity of students can be evaluated by themselves or others, (2) individuals' contributions to the group are unique, (3) students know what good performance is for the group and themselves, (4) the work of the team is viewed as meaningful and important, (5) the group's task can not be easily done by a single student, (6) group members have mutual respect, (7) each student values working in a collective setting, and (8) team size is small ($n < 7$).

What was first unclear and perplexing about group collaboration efforts several decades ago (Kravitz and Martin 1986) is now much better understood with literally hundreds of studies on free riding, social loafing, and social facilitation having been conducted. Studies on smaller but still significant issues, such as how to compose the teams, have richly provided advice to professors. For example, Wagner (2000) conducted an experimental study where three different classes were arranged into teams in a different manner. One group of teams was organized based on the student's grade point average. Another group of teams was arranged based on the student's performance of a game entitled "Diversity." And the third group of teams was put together based on a combination of student's GPA and the outcome of the game. At the end of the term and all of the team presentations, there was no significant difference between the different group's performance and the team's grade. And there was no significant difference between the different types of teams and their respective perception of group satisfaction/dissatisfaction. Academicians understanding of the group collaboration process is richer than ever before, but it will never be complete.

CLASSROOM ASSESSMENT AND CLASSROOM RESEARCH

What is the difference between classroom assessment and classroom research? According to Cross and Steadman (1996, p. 7), "classroom assessment usually addresses the 'what' question about classroom behavior: what did students learn from . . .?, whereas classroom research is concerned with the 'why' question: why did students respond as they did? Classroom assessment describes what is happening; classroom research tries to find out why."

It would be very hard to argue against the concept cited by Angelo and Cross that "helping students learn the subject matter of their courses is the most common goal of college teachers, and virtually, all teachers try to measure what students are learning about the content being taught"

(1993, p. 106). But thank goodness that most college teachers go beyond just simply teaching students subject matter information. The better professors teach students to think, that is, to develop higher-level cognitive skills: to solve problems, analyze arguments, synthesize information from different sources, and apply what they are learning to new and unfamiliar contexts.

Research also suggests that students concentrate on learning whatever they think will be on the test. As McKeachie and his colleagues observe, "Whatever teachers' goals and no matter how clearly they present them, students' goals are strongly influenced by tests or the other activities that determine grades." (McKeachie, Pintich, Lin, and Smith 1976, p. 76). No matter how clear the teacher is about the "big picture," students are unlikely to share and appreciate the "view" unless tests and other assessment measures point them toward it. Formative, midcourse feedback at the classroom level, especially if it is repeated at regular intervals, helps students and teachers clarify their goals and access progress toward them while there is still time to make changes based on that feedback.

"College students need to be actively involved in their own learning." That was the general message of an influential report by the Study Group on the Conditions of Excellence in American Higher Education: "There is now a good deal of research evidence to suggest that the more time and effort students invest in the learning process and the more intensely they engage in their own education, the greater will be their satisfaction with their educational experience and their persistence in college, and the more likely they are to continue their learning" (1984, p. 17). As a result of this study, Angelo and Cross (1993) contend that active engagement in higher learning implies and requires self-awareness and self-direction.

The Classroom Research Project, funded by the Ford Foundation and the Pew Charitable Trusts, was developed. This handbook contains 50 Classroom Assessment Techniques (Angelo and Cross 1993) and is the most widely used and practical handbook designed for college teachers. The highly respected college classroom researchers and educators Angelo and Cross concluded, "When students respond to Classroom Assessment Techniques and receive feedback on their responses, their attitudes and behaviors also change. Faculty often report the following four observable, interrelated positive effects of Classroom Assessment on their students: more active involvement and participation; greater influence in learning, self-awareness as learners, and metacognitive skill; higher levels of cooperation within the classroom learning community; and greater student satisfaction" (1993, p. 372).

Faculty often report that Classroom Assessment is helpful in "lowering barriers" and in raising levels of trust and comfort in the classroom. Charles Walker, a psychology professor, found that Classroom Assessment helped his students realize that both he and they were after the same basic goal, successful learning. "Instead of engaging in confrontation, students and I found ourselves cooperating, trying to identify the most troublesome topics and exploring ways to understand and teach that which had not yet been learned or taught" (Walker 1991, p. 77). Nakaji notes that "the intense nature of the assessments, the increased personal contact and the overall tone and philosophy of classroom research as a tool to benefit students (have) strengthened and improved the bond between students and myself" (1991, p. 86). And, Cottell believes Classroom Assessment improves student-teacher cooperation because "the level of trust in the class increases as students express their questions and doubts without suffering any negative repercussions" (1991, p. 51).

Angelo and Cross further contend that "when faculty demonstrate their commitment to assessment and self-assessment in the day-to-day level, they send a powerful signal to students about the importance of listening carefully to the ideas and opinions of others. Faculty can use Classroom

Assessment to help create meaningful communities of learners in their classrooms" (1993, p. 374).

Angelo and Cross observe that "students whose instructor use Classroom Assessment tend to believe they are learning more and are convinced that their teachers are sincerely committed to improving learning. Therefore it should come to no surprise that faculty often experience improvement in their student evaluation ratings when they begin to use this approach" (1993, p. 375). Three professors in three very different fields–Cottell (1991, p. 53; accounting), Olmsted (1991, p. 62; science), and Walker (1991, pp. 75–76; psychology) – all documented improvements in their student evaluations as a result of Classroom Assessment.

Finally, Angelo and Cross conclude that "determining whether the use of Classroom Assessment really improves student learning will require carefully planned and well-controlled experiments or quasi-experiments. To date, we know of no one who had the resources or time to carry out this type of confirmatory research, but we hope that someone soon will" (1993, p. 377). A series of anecdotal evidence has been reported that the use of Classroom Assessment has improved student learning.

USING CLASSROOM ASSESSMENT FOR GROUP COLLABORATION PROJECTS

Walker and Angelo (1998) developed and experimented with an assessment of students team work entitled, Collective Effort Classroom Assessment Technique (CECAT). It was their intention that the three-phased assessment technique would "stimulate a healthy development of student groups" (1998, p. 103) while addressing all that we know about learning and group collaboration. And the CECAT was designed to be used when student teams were working together for a half semester or longer. The researchers hoped that the CECAT could also be used with project groups, committees, applied problem-solving teams, case study teams, and other collaborative/group/cooperating teams. Not only was a purpose of the CECAT to foster group collaboration but also to help students avoid "free riding" (social loafing) while motivating students to perform well as individuals and as a group.

An early Assessment of Group Work (Exhibit 1) was administered right after the groups were formed. A mid-term version (Exhibit 2) was administered half way between the beginning time period and when the project was to be concluded. And the final assessment, or summative version (Exhibit 3), was administered after the final presentation was submitted/presented.

Since the CECAT was composed of items taken directly from the model of collective effort by Karau and Williams (1995), with additional elements taken from expectancy-value, social-identify, and social-comparison theories (Abrams and Hogg 1990; Goethals and Darley 1987), it had construct validity. To assess predictive validity, 80 junior and senior college students used the summative version (Exhibit 3) of the CECAT to rate two recent student team experiences: a satisfactory experience and an unsatisfactory experience. Unwanted effects of order were controlled for and an equal number of the gender completed the forms. Twenty of the 21 items significantly discriminated satisfactory from unsatisfactory group experiences; t-test with $p < .01$. The one bad item was deleted and does not appear in the CECAT assessment forms.

APPLYING CECAT TO MARKETING STRATEGY CLASS TEAM PROJECTS

In the capstone, senior-level, Marketing major required "Marketing Strategy" class, taught at a Midwestern four-year public-supported university, students were purposely selected by the teacher into groups of three students per team. This methodology was pursued, following the advice that since "tasks make groups, it is a good idea go let the work pick the workers and not to allow students to form their own groups" (Walker and Angelo 1998, p. 108). The instructor

EXHIBIT 1
AN EARLY ASSESSMENT OF GROUP WORK
(Walker and Angelo 1998, p. 104)

Please indicate your level of agreement with each of the following statements using a five-point agree-disagree rating scale, where 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree (the higher the number, the more you agree).

1. ___ My group will perform excellently.
2. ___ All the members of the group will work equally hard.
3. ___ As our work progresses, the group should become more cohesive.
4. ___ I want to feel proud of my group and I desire to work with people I highly respect.
5. ___ Most of the members of the group appear to value working in a collective (sic) (manner) with others.
6. ___ What the group will try to achieve is valuable and important to others members of the group.
7. ___ What the group will try to achieve is valuable and important to me.
8. ___ The group's task is intrinsically interesting.
9. ___ Other members of my group will not only know what I am doing, they will easily see what I am doing to monitor my work.
10. ___ Performance standards for the group will be set to allow us to evaluate the overall performance of the entire group as we work.
11. ___ The group I will be working in is just the right size.
12. ___ Performance standards for individuals will be set to allow each person to evaluate his or her contribution while he or she works for the group.
13. ___ The effort I exert will be instrumental in helping me obtain outcomes I want to achieve as an individual.
14. ___ My performance will be evaluated by the instructor or by other members of my group.
15. ___ The task of the group will require all of us to meet and work side by side, face to face, most of the time.
16. ___ I will exert a lot of effort to help the group achieve its goals.
17. ___ I have a lot of things to contribute to the group's work such as knowledge, skill, effort, time, and other essentials.
18. ___ My performance as an individual will directly affect how well the group as a whole will perform.
19. ___ My contribution to the group's work is unique; no one else will be doing exactly what I'm doing.
20. ___ The task of the group will be challenging.

_____ Total score

assigned teams were formed at the end of the first week of the semester and they worked together until their final written and verbal presentations were submitted and presented, respectively, at the end of the term.

Each team was assigned to develop an action-ready comprehensive marketing plan for a client on the campus, who had a marketing problem, challenge, or opportunity. One-hundred fifty students, in teams of three each, have

EXHIBIT 2
A MIDWAY ASSESSMENT OF GROUP WORK
(Walker and Angelo 1998, p. 105)

Please indicate your level of agreement with each of the following statements using a five-point agree-disagree rating scale, where 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree (the higher the number, the more you agree).

1. ___ My group is performing excellently.
2. ___ All the members of the group were working equally hard.
3. ___ As our work progresses, the group is becoming more cohesive.
4. ___ I am proud to be a member of the group and I highly respect most of the people I am working with.
5. ___ Most of the members of the group highly value working in a collective (sic) (manner) with others.
6. ___ What the group is trying to achieve is valuable and important to others members of the group.
7. ___ What the group is trying to achieve is valuable and important to me.
8. ___ The group's task is intrinsically interesting.
9. ___ Other members of my group not only know what I am doing, they can easily see what I am doing and monitor my work.
10. ___ Performance standards for the group have been set to allow us to evaluate the overall performance of the entire group as we are working.
11. ___ The group I am working in is just the right size.
12. ___ Performance standards for individuals have been set to allow each person to evaluate his or her contribution to the group.
13. ___ The effort I have exerted thus far has been instrumental in helping me obtain outcomes I want to achieve as an individual.
14. ___ My performance is being (or will be) evaluated by the instructor or by other members of my group.
15. ___ The task of the group requires all of us to meet and work side by side, face to face, most of the time.
16. ___ I am exerting a lot of effort to help the group achieve its goals.
17. ___ I am contributing a lot of things to the group's work such as knowledge, skill, effort, time, and other essentials.
18. ___ My performance as an individual is directly affecting how well the group as a whole performs.
19. ___ My contribution to the group's work is unique; no one else is doing exactly what I'm doing.
20. ___ The task of the group is challenging.

_____ Total score

served 50 clients during the four semesters of fall 1999, spring 2000, fall 2000, and spring 2001. Examples of the 50 different clients include: Admissions Office, Child Development Center, Financial Aid Office, Intercollegiate Athletic Department, Library, Marketing and Public Relations Office, Student Union, Multiculture Education Center, President's Office, School of Music, and (University) Theatre.

EXHIBIT 3
A SUMMATIVE ASSESSMENT OF GROUP WORK
(Walker and Angelo 1998, p. 106)

Please indicate your level of agreement with each of the following statements using a five-point agree-disagree rating scale, where 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree (the higher the number, the more you agree).

1. ___ My group performed excellently.
2. ___ All the members of the group worked equally hard.
3. ___ As our work progressed, the group became more cohesive.
4. ___ I was proud to be a member of the group and I highly respected most of the people I worked with.
5. ___ Most of the members of the group highly value working in a collective (sic) (manner) with others.
6. ___ What the group achieved (or tried to achieve) was considered important and valuable to others members of the group.
7. ___ What the group achieved (or tried to achieve) was valuable and important to me.
8. ___ The group's task was intrinsically interesting.
9. ___ Other members of my group not only know what I was doing, they could easily see what I am doing and monitor my work.
10. ___ Performance standards for the group were set in advance to allow us to evaluate the overall performance of the entire group as we worked.
11. ___ The group I worked in was just the right size.
12. ___ Performance standards for individuals were set in advance to allow each person to evaluate his or her contribution while he or she worked for the group.
13. ___ The effort I exerted was instrumental in helping me obtain the outcomes I want to achieve as an individual.
14. ___ My performance was evaluated by the instructor or by other members of my group.
15. ___ The task of the group required us to meet and work side by side most of the time; we did not work alone and then combine our efforts only at the end.
16. ___ I exerted a lot of effort to help the group achieve its goals.
17. ___ I had a lot of things to contribute to the group's work such as knowledge, skill, effort, time, and other essentials.
18. ___ My performance as an individual directly affected how well the group as a whole performed.
19. ___ My contribution to the group's work was unique; no one else did exactly what I did.
20. ___ The task of the group was challenging.

_____ Total score

Following the group collaboration advice of researchers Walker and Angelo, a sufficiently high value weight to group work was given in the grading system (33%). Walker and Angelo note that conflict within groups "can be avoided if the goals of each group are clear, evaluation standards for the group and its members are clear, and the instructor evaluates the quality of each group's product while the group members evaluate one another on the making of their group's

product" (1998, p. 108). Therefore, the written marketing plan in the capstone course was worth 100 points (Table 1) where 50 percent of those points were awarded by the client. The verbal marketing plan was worth 50 points where the client determined one-third of the points, a Graduate Assistant determined one-third of the points, and the instructor determined the remaining points. A peer evaluation system (Table 2), combined with an assessment of the team members by the client, determined another 50 points. This point distribution system was clearly delineated in the syllabi and was reiterated numerous times throughout the semester so that students would not only focus on developing an actionable marketing plan but also focus on the importance of group collaboration and group accountability.

An early Assessment of Group Work (Exhibit 1) was administered right after the groups were formed. This version was completed as a homework assignment, requesting that they bring the completed form back to the next class session with their name and group identified, but they were told not to share their individual responses with their team members. The author calculated the average total score per group and average rating per item, and returned this information to each team. No team was given the data on other team's scores. Keeping these results confidential and within groups allowed students to see that the instructor was protecting their sense of privacy. The instructor then told the entire class that according to Walker and Angelo (1998, p. 110), an average score of 80 and above (out of 100) had been associated with successful team performance, scores of 60 and below had been associated with mediocre performance and unpleasant group experiences, mean item ratings equal to or greater than 4.0 (5.0 = high) pointed to strengths the groups should maintain, and that mean item ratings of less than 3.0 (5.0 = high) were diagnos-

TABLE 1
DISTRIBUTION OF WRITTEN AND VERBAL MARKETING PLAN POINTS

Client evaluation of written marketing plan . . . 25 points
Instructor evaluation of written marketing plan . . . 25 points
Client evaluation of verbal marketing plan presentation . . . 17 points
Graduate Assistant evaluation of verbal marketing plan presentation . . . 17 points
Instructor evaluation of verbal marketing plan presentation . . . 16 points
TOTAL . . . 100 points

TABLE 2
DISTRIBUTION OF PEER EVALUATION POINTS

Client evaluation of team members' work . . . 25 points
Peer evaluation of other team members' work . . . 25 points
TOTAL . . . 50 points

tic of specific addressable weaknesses. The instructor requested that each team, with their team summary data before them and this research information, talk among themselves about a strategy to improve their group collaboration efforts. Finally, the author invited any team that would like to visit with the instructor about their plans to remedy their weaknesses and build on their strengths to voluntarily make an appointment. In the four semesters of the study, only one group requested to visit with the instructor, but they canceled their meeting saying that they realized that they had to resolve their problem on their own volition. At this time the professor discussed the marketing plan point structure and means of determining the points one more time, focusing on the importance of group collaboration and group success in solving their client's marketing problem, challenge, or opportunity. The total and per items scores of the early Assessment of Group Work (Exhibit 1) have always (50/50 teams; 100%) been higher than the remaining two assessments (Exhibit 2 and Exhibit 3). The greatest value of the early assessment is for students to read (and understand) the research-based 20 items that lead to successful group collaboration, self-reflect, reflect as a group, and lay out a plan with their team members to build on strengths and improve on self-identified weaknesses.

A mid-term version (Exhibit 2) was administered half way between the beginning of team formation and when the project was to be concluded. As in the early assessment, the students completed the instrument in their own privacy, with the instructor providing the team members with their group data results (again, they do not see the data of other groups) and the per item means, and the team meet in class to discuss the data. However, whereas in the early assessment each group was asked to discuss their self-assessment results, the teacher now requested the group to submit a written summary of the members' discussion of the data and their plans to remedy CECAT identified problems. Again, the groups were told they can meet with the instructor on their own volition but before they do that they must try to solve their problems by themselves before consulting with teacher. To date, not one group has met with the author. And, after this discussion, again the marketing plan point distribution system was discussed with the class seeking discussion to clarify any misunderstanding, and stressing that successful group collaboration will lead to a successful actionable marketing plan for their client.

And the final assessment, or summative version (Exhibit 3), was administered (usually during the last two weeks of the semester) after the marketing plan verbal presentation was presented in class in front of the client, the client's guests, the entire Marketing Strategy class, the Graduate Assistant, and invited marketing faculty and College of Business Administration administrators. Each team member was requested to complete the summative assessment in their own privacy and submit it to the teacher at their earliest convenience, but no later than the comprehensive final exam time period. The students were also requested to submit open-ended comments without their name identified and this information was to only be submitted via a computer print out (so that the author would not be able to identify authors by their handwriting) on any (their choice to do all or none) of the following: (1) what worked and did not work with the group assignment, (2) their opinion of the three CECAT instruments and its impact on their group collaboration efforts, (3) their thoughts on the manner in which the team project was handled in this class versus other college classes that had group projects, and (4) their thoughts on whether the learning theories and team collaboration theories of "learning-doing-feedback-learning," "hands-on education," and "student-centered focus of learning" repeatedly espoused by the instructor were or were not accomplished.

SUMMARY AND CONCLUSIONS

The CECAT is a research-based and theory-driven assessment tool of group efforts. Walker and Angelo (1998) claim that the three group assessment model teaching technique "has the

EXHIBIT 4
CECAT ITEMS SORTED BY THEIR SOCIAL FUNCTION
(Walker and Angelo 1998, p. 107)

Group Composition

4. I am proud to be a member of the group and I highly respect most of the people I am working with.
5. Most of the members of the group highly value working in a collective (sic) (manner) with others.
11. The group I am working in is just the right size.
17. I am contributing a lot of things to the group's work such as knowledge, skill, effort, time, and other essentials.

Task Characteristics

2. All the members of the group were working equally hard.
8. The group's task is intrinsically interesting.
15. The task of the group requires all of us to meet and work side by side, face to face, most of the time.

Processes and Procedures

9. Other members of my group not only know what I am doing, they can easily see what I am doing and monitor my work.
18. My performance as an individual is directly affecting how well the group as a whole performs.
19. My contribution to the group's work is unique; no one else is doing exactly what I'm doing.

Individual and Group Motivation

2. All the members of the group were working equally hard.
6. What the group is trying to achieve is valuable and important to others members of the group.
7. What the group is trying to achieve is valuable and important to me.
13. The effort I have exerted thus far has been instrumental in helping me obtain outcomes I want to achieve as an individual.

Performance Evaluation

10. Performance standards for the group have been set to allow us to evaluate the overall performance of the entire group as we are working.
12. Performance standards for individuals have been set to allow each person to evaluate his or her contribution to the group.
14. My performance is being (or will be) evaluated by the instructor or by other members of my group.

General Conditions and Outcomes

1. My group is performing excellently.
3. As our work progresses, the group is becoming more cohesive.
16. I am exerting a lot of effort to help the group achieve its goals.

potential to go beyond this practice-based wisdom and provide insights on *why* certain teaching practices are consistently effective" (italicized "why" in original text). Based on results that this author has seen, in written response from students at the end of the semester plus in written responses received from the students after they've graduated and been employed, the CECAT instrument in and of itself drives home the importance of the concept of team work to students much better than any "lecture" or "advice from a business advisory board" could ever offer. Plus, in the author's 29 years of higher education teaching experience, group projects have never been completed as smoothly and without student complaint as they have when the CECAT group collaboration tool was implemented. All of the previous attempts at team work design, implementation, control, evaluation, and group productivity are now folly.

There are five observable and measurable results of the 50 student teams having been taken down the disciplined road of implementing Walker and Angelo's CECAT. First, 49 of the 50 (98%) groups performed at Walker and Angelo's defined level of being "successful" (average team score of ≥ 80) upon completion of the Summative Assessment (Exhibit 3). Second, all 150 students (100%) noted, in writing, that they know their group's performance improved, over time, as a result of taking the three assessment forms, receiving and analyzing team data, and putting together a plan to build on their strengths and remedy their weaknesses. Third, "free loading" by a team member was identifiable by one member in each of four different teams during the two-year, four semester time period (4/150 = 2.6%). Two of those four "free loading" members flunked the course and one of those two has successfully retaken the course. Fourth, all 150 students (100%) said, in writing, that completing the group project in the class, with the assistance of the CECAT technique, was the best experience they had in college as compared to all other college professors attempts at team work. And finally, all 150 (100%) students noted, in writing, that as a result of the CECAT experience, they were able to experience, first-hand, and see what the instructor was trying to "preach" to them about the importance of the "learning-doing-feedback-learning," "hands-on," and "student-centered focus of learning" models of behavior that the felt had to be exhibited as a Marketing professor and that soon they will see themselves portraying in the business world as they work with their business associates and colleagues.

RECOMMENDATIONS

The unbelievable and semester-after-semester success observed by the use of Walker and Angelo's CECAT is one that, at times, is hard to believe. But, upon serious reflection of CECAT's research-based and theory-driven assessment tool and noting the disciplined manner in which it is administered, not once, or twice, but three times, plus the continual feedback that is provided to the students, the proof was in seeing the student's performance and reading their glowing comments . . . not for just one semester (possible halo effect), but four semesters running. Walker and Angelo's CECAT is a "try it, you'll like it" group collaboration instructional technique that must be implemented by any professor, of any discipline, where team work is utilized. And, even if the student teams are working together for a short period of time, the Summative Assessment form (Exhibit 3) should be given to the students prior to their group work, discussed in class to highlight what comprises successful group collaboration, and then administered at the conclusion of the group effort. Exhibit 4 sorts the 20 CECAT items into group collaboration social functions for the convenience of professors who would like to design their own team work assessment instrument.

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