

LEARNING IN HIGHER EDUCATION

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EFFECTS OF DEGREE OF UNCERTAINTY AND CRITICALITY ON PERCEPTION OF WAITING TIME: AN EMPIRICAL INVESTIGATION IN AN EDUCATIONAL SETTING

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ABSTRACT

In today's fast-paced world, individuals may encounter a myriad of delays while performing daily activities, whether driving to work, getting their morning espresso, or waiting for a document to download. Waiting has become a ubiquitous experience; yet, these incidents often prove frustrating and stressful. This study tested the effects of the degree of uncertainty and the criticality of service on perception of waiting time [as measured by perceived waiting time and psychological reactions to waiting] in an educational setting. The selected method was experimental design and the experimental stimulus comprised a task assigned to undergraduate students in the Business Statistics course.

The results of the study provided evidence of the impact of the degree of uncertainty on psychological reactions to waiting; when students were armed with the information in regards to waiting, they were more accepting of it [waiting] and felt less anxious. Furthermore, the study indicated that the impact of the degree of uncertainty on psychological reactions to waiting was stronger when students were working on the task perceived to be as part of the Quiz (high criticality) rather than as part of the Extra Credit (low criticality) opportunity. The findings signify the importance of the assessment tasks' design and students' sensitivity towards it; the more weight the task carries, the more critical its design becomes. Consequently, instructors should be particularly careful when designing quizzes or examinations.

Introduction

In today's fast-paced world, individuals encounter a myriad of delays while performing daily activities, whether driving to work, getting their morning espresso, or waiting for a document to download. Although the waiting experience permeates modern society (Hui & Zhou, 1996), such occurrences often prove frustrating, stressful, and expensive (Chebat & Filiatrault, 1993; Katz, Larson, & Larson, 1991; Kumar, Kalwani, & Dada, 1997; Taylor, 1994). For the most part, people simply do not like waiting. Consequently, there is pressure on every area of business and service to minimize waiting time (Groth & Gilliland, 2006). Additionally, research has demonstrated that individuals are affected not only by actual waiting time, but also by its perception (Beqiri, 2004; Groth & Gilliland, 2006; Katz et al., 1991; Maister, 1985; Nie, 2000). Katz et al. (1991) argued that improving an individual's "perception of the waiting experience can be as effective as reducing the actual length of the wait" (p. 44). Understanding psychological reac-

tions to the experience of waiting is crucial to minimize the negative impact of waiting time on individuals.

Objectives

Prior studies that investigated the wait experience focused on the operations and service management perspective. A great deal of the literature pertaining to this issue presents models, anecdotes, and observations in the following settings: doctor's office, research facility, grocery stores, hotels, and restaurants, to name a few (Groth & Gilliland, 2006; Jones & Dent, 1994; Jones & Peppiatt, 1996; Larson, 1987; Nie, 2000). This study explores the wait experience of undergraduate students in an academic, experimental setting, and its purpose is two-fold. First, it seeks to examine the effect of the degree of uncertainty on perception of waiting time, and secondly, it investigates the potentially moderating effect of the criticality of service on the relationship between the degree of uncertainty and perception of waiting time.

Theoretical Background

Perceived waiting time has been examined by researchers in a variety of different fields from the service industry to information technology (Groth & Gilliland, 2006; Jones & Peppiatt, 1996; Nah, 2004; Yan & Lotz, 2006). Companies involved in providing goods and services continue to focus on minimizing customer wait times. Unfortunately, this operations-based approach can be costly (Katz et al., 1991; Kumar et al., 1997), particularly if the organization resorts to adding additional employees in an attempt to serve customers in a more timely fashion (Davis, 1991).

On the other hand, Katz et al. (1991) examined customer perceptions of waiting time and investigated different methods for reducing customer frustration and anxiety. Maister (1985) proposed eight principles for use by organizations to influence perceptions of waiting time. Principle three states that “Anxiety makes waits seem longer” and principle four maintains that “Uncertain waits are longer than known, finite waits” (p. 45).

One of the variables linked to people’s psychological reactions to waiting is whether or not they receive any information regarding the expected duration of the wait (Groth & Gilliland, 2006; Hui & Zhou, 1996; Maister, 1985; Nah, 2004). Osuna (1985) found that an individual’s anxiety, frustration, and stress begins to increase after waiting for a given length of time, due to the degree of uncertainty involved, as well as a sense of waste. On the other hand, customers may not mind waiting if they know the reason for the wait. Coye (2003) determined that one major source of frustration with the wait experience involves the lack of information about causes and duration of the wait. Therefore, informing individuals about the anticipated duration of the wait or providing an explanation of the reason for the wait may have a positive impact on their reactions, and help reduce the psychological stress and anxiety associated with waiting (Hui, Thakor, & Gill, 1998). This study follows the latter approach by providing subjects with information about the reason for waiting. Hence, the following hypotheses are proposed:

- H1a: Mean perceived waiting time for high degree of uncertainty will be higher than mean perceived waiting time for low degree of uncertainty.
- H1b: Mean psychological reactions to waiting for high degree of uncertainty will be higher than mean psychological reactions to waiting for low degree of uncertainty.

The issue of criticality of service may also relate to perception of waiting time. Again, Maister (1985) asserts that one of the factors influencing an individual’s tolerance for waiting is the perceived value of the service. A very limited number of prior studies have been located that discuss the topic of the criticality of service. For instance, Levesque and McDougall (2000) note that people are more likely to complain when problems occur in a high critical service than in a low critical one. Davis and Vollman (1990) suggest that criticality is one of the factors influencing customer satisfaction with regard to waiting time. The current study predicts a potentially moderating effect of the degree of criticality on the relationship between the degree of uncertainty and perception of waiting time. Therefore, it is hypothesized that:

- H2a: The effect of degree of uncertainty on perceived waiting time will be stronger for high critical services than for low critical services.
- H2b: The effect of degree of uncertainty on psychological reactions to waiting will be stronger for high critical services than for low critical services.

Method

Subjects. Participants in this study included students from a small religiously-affiliated private university in the Northwest US. Ninety four usable responses were received. Students were enrolled in the undergraduate Business Statistics course, and extra course credit was offered as an incentive to participate in the study. Respondents’ age ranged from 18 to 29, with a mean of 20.2, 44.7% being female.

Procedure. The selected method for this study was experimental design in an educational setting, and the experimental stimulus comprised a task assigned to students in the Business Statistics course. Students were required to finish an in-class exercise, and subsequently to fill out a questionnaire consisting of items used to measure the perception of waiting time. Since the experiment involved the perception of waiting time, the classroom clock was disabled so that students would not easily be able to determine the passage of time.

Experiment. Students took an in-class exercise in the last 15 minutes of the class, either as an *Extra Credit* or as a *Quiz*. The statistical exercise distributed to students omitted some required critical information; therefore, students couldn’t complete work on the exercise without the missing information. *The instructor pointed out (or not) to the students that some information was missing*

and that she was going to retrieve it from her office. The teaching assistant remained in the classroom with the students.

A stopwatch was utilized to measure the time [from the moment that students were told that the information was missing until the moment that the information became available] and to ensure that the elapsed time was exactly five minutes. The previously missing information was then displayed on the projector, in order for all students to receive it at the same time.

Independent Variable

Degree of Uncertainty. In this study, the authors used two levels of the degree of uncertainty, low and high. In the case of low degree of uncertainty, students were informed about the missing information, while in the case of high degree of uncertainty, students were not told that critical information was being withheld.

Moderating Variable

Degree of Criticality. Similarly, the authors used two levels of the degree of criticality, low and high. In the case of low degree of criticality, students perceived taking the in-class exercise, as part of an Extra Credit opportunity. On the other hand, in the case of high degree of criticality, students perceived the exercise as an in-class Quiz.

Given that there were two levels of the degree of uncertainty and two levels of the degree of criticality, four experiments were conducted. A full description of each of the experiments can be found in Appendix A. The distribution of respondents according to the experiments is presented in Table 1.

TABLE 1: STUDENT DISTRIBUTION BY EXPERIMENT (N = 94)		
	Low Degree of Criticality	High Degree of Criticality
Low Degree of Uncertainty	28	24
High Degree of Uncertainty	19	23

Dependent Variable

Perception of Waiting Time. To measure perception of waiting time, four items were included in the questionnaire. The first item used, which we refer to as “*Perceived*

Waiting Time (PWT)”, asked respondents “How long do you think you waited for the information missing (approximately in minutes)?” Respondents’ perceived waiting time ranged from .00 to 10.00 with a mean of 4.95 and standard deviation of 2.59. One interesting comment made by a student in the low degree of uncertainty scenario (who reported a waiting time of zero minutes), was: “I was doing other things while waiting.”

To capture students’ reactions to waiting, the following items were measured using a five point Likert scale:

- ▶ “How appropriate do you think the waiting was?” ranging from 1 (very appropriate) to 5 (not appropriate at all);
- ▶ “How long do you believe you waited?” ranging from 1 (very short) to 5 (very long); and, lastly,
- ▶ “How anxious were you during waiting?” ranging from 1 (not anxious at all) to 5 (very anxious).

These items were examined using reliability and factor analyses. Based on the eigenvalue greater than 1 criterion and scree plot, the factor analysis led to the 3-item measure, which we refer to as “*Psychological Reactions to Waiting (PRW)*”. The measure was interpreted to be unidimensional (69.33% of variance explained) with high factor loadings ranging from .814 to .848. The reliability was found to be moderate ($\alpha = .764$); however, given the exploratory nature of the research, this value is considered acceptable. Appendix B presents the items and their respective factor loadings.

Results

To test the effect of the degree of uncertainty on PWT and PRW, two separate *t*-tests (one-tailed) were performed. The results indicated that mean perceived waiting time for high degree of uncertainty ($M = 5.33, SD = 2.11$) was higher than mean perceived waiting time for low degree of uncertainty ($M = 4.65, SD = 2.90$); however, the findings were not significant ($t(90) = 1.23, p = .11$ (one-tailed)). On the other hand, the results of the second *t*-test showed that mean psychological reactions to waiting for high degree of uncertainty ($M = 3.48, SD = .69$) was higher than mean psychological reactions to waiting for low degree of uncertainty ($M = 2.42, SD = .65$), and the findings were significant ($t(91) = 7.57, p = .000$ (one-tailed)). Consequently, hypothesis H1b was supported, while hypothesis H1a was not supported.

To test the moderating effect of the degree of criticality on the relationship between the degree of uncertainty and perception of waiting time, two moderate regres-

sion analyses, using a hierarchical approach, were run. In the first step (Model 1), in the regression equation, we entered the degree of uncertainty; then, in the second step (Model 2) the degree of criticality was added; and finally, in the last step (Model 3), the interaction of the degree of uncertainty and the degree of criticality was incorporated. Two dependent variables, respectively, PWT and PRW were used.

For a moderating relationship to be significant, both the regression model (Model 3), as well as the change in R² (R₃² - R₂²) need to be significant. The results indicated (as shown in Table 2) no significant moderating effect of the degree of criticality on the relationship between the degree of uncertainty and perceived waiting time. Model 3 was significant ($F(3, 88) = 3.59, p = .017$); yet, the change in R² was not significant ($F(1, 88) = .33, p = .569$).

Model/ Variables	β	t- value	Change in R ²	Model Sig.
Model 1				
Degree of Uncertainty (DU)	.129	1.233	.017	.221
Model 2			.089***	.007
Degree of Uncertainty (DU)	.118	1.177		
Degree of Criticality (DC)	.299	2.979		
Model 3			.003	.017
Degree of Uncertainty (DU)	.053	.351		
Degree of Criticality (DC)	.249	1.864		
DU * DC	.101	.572		

*p<.10. **p<.05. ***p<.01.

On the other hand, the data revealed that there was a significant moderating effect of the degree of criticality on the relationship between the degree of uncertainty and psychological reactions to waiting. As dis-

played in Table 3, Model 3 was significant ($F(3, 89) = 27.14, p = .000$) as was the change in R², ($F(1, 89) = 4.97, p = .028$). Consequently, hypothesis H2b was supported, but hypothesis H1a was not supported.

Model/ Variables	β	t- value	Change in R ²	Model Sig.
Model 1			.387***	.000
Degree of Uncertainty (DU)	.622	7.575		
Model 2			.062***	.000
Degree of Uncertainty (DU)	.617	7.886		
Degree of Criticality (DC)	.249	3.180		
Model 3			.029**	.000
Degree of Uncertainty (DU)	.433	3.831		
Degree of Criticality (DC)	.094	.914		
DU * DC	.297	2.229		

*p<.10. **p<.05. ***p<.01.

Furthermore, the results of the hierarchical regression analysis, Model 2, showed a significant main effect of the degree of criticality on both PWT ($F(2, 89) = 5.27, p = .007$) and PRW ($F(2, 90) = 36.62, p = .000$). Given these significant results, we performed additional one-tailed *t*-tests to explore the differences in PWT and PRW by the degree of criticality. The results signified that mean perceived waiting time for high critical services ($M = 5.65, SD = 2.75$) was higher than mean perceived waiting time for low critical ones ($M = 4.07, SD = 2.11$) and the findings were significant ($t(90) = 3.02, p = .002$ (one-tailed)). Similarly, with regard to PRW, it was found that mean for high critical services ($M = 3.10, SD = .93$) was higher than mean for low critical services ($M = 2.66, SD = .69$); still, the difference was statistically significant ($t(91) = 2.57, p = .006$ (one-tailed)).

Discussion and Conclusion

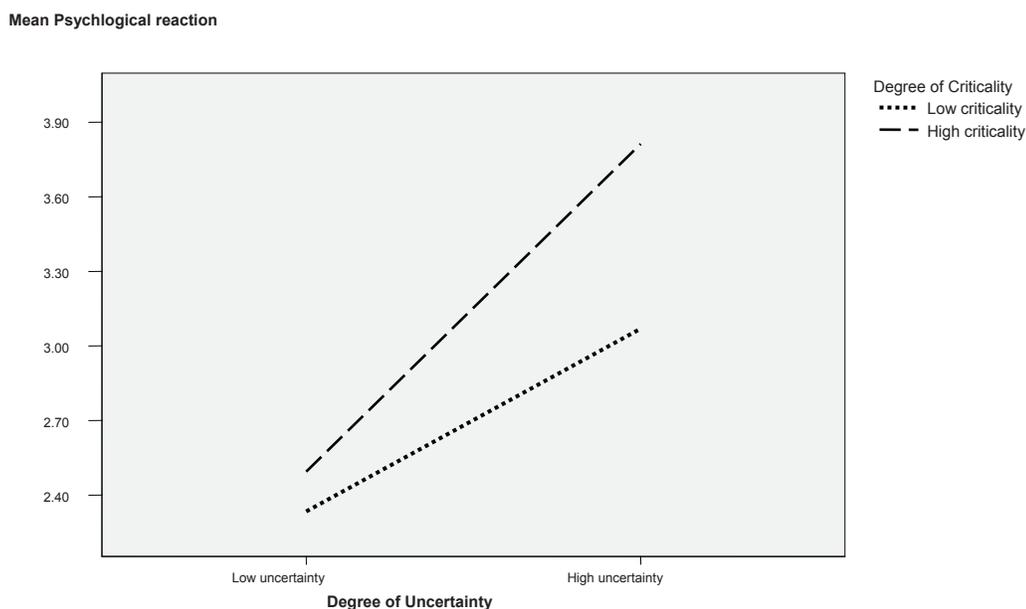
In this study, we tested the effect of the degree of uncertainty on PWT and PRW using the classroom as an experimental setting. With regard to PRW, we developed and tested a measure consisting of three items. The results of the study provided significant evidence of the impact of the degree of uncertainty on psychological reactions to waiting; when students were armed with the information in regards to waiting, they were more accepting of it [waiting] and felt less anxious.

Furthermore, the potential moderating effect of the degree of criticality on the relationship between the degree of uncertainty and perception of waiting time was investigated. The results indicated that the impact of the degree of uncertainty on PRW (see Fig. 1) was stronger when students were working on the Quiz rather than the Extra Credit. Lastly, it was discovered that the degree of criticality had also a direct influence on perception of waiting time. Mean perceived waiting time and mean psychological reactions to waiting were both higher when students perceived the in-class exercise as part of the Quiz (high criticality) rather than as part of the Extra Credit (low criticality) opportunity.

This study provides insights into the significance of the assessment tasks' design. Instructors should make every effort to create these tasks properly and accurately. If at any point they realize that there is information missing, instructors should immediately inform students about it; otherwise, as this study implies, students may become overly frustrated [and mess up the whole task]. Additionally, the study suggests that students' sensitivity towards the missing information and the task's design may vary based on the criticality of the given task; the more weight the task carries, the more critical its design becomes. Consequently, instructors should be particularly careful when designing quizzes or examinations.

Further research should be directed towards exploring other factors that may potentially affect perception of waiting time; the factors can be socio-demographic, such as gender, personality type, culture, etc. or service design related, such as pre-process vs. in-process, unoccupied vs. occupied time, etc. Moreover, the measures introduced in this study may be refined and the sample size increased by involving other courses and schools.

FIGURE 1
MODERATING EFFECT OF THE DEGREE OF CRITICALITY ON THE
RELATIONSHIP BETWEEN THE DEGREE OF UNCERTAINTY AND
PSYCHOLOGICAL REACTIONS TO WAITING



References

- Beqiri, M. (2004). Perception of waiting time: Effects of individual characteristics, service design characteristics, and criticality of service. (Doctoral dissertation, Southern Illinois University, Carbondale. IL.).
- Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, 54, 69-82.
- Chebat, J. C. & Filiatrault, P. (1993). The impact of waiting in line on consumers. *International Journal of Bank Marketing*, 11(2), 35-40.
- Coye, R. W. (2003). *Waiting to be served: A closer look at Maister's principles of waiting*. Paper presented at the Annual Meeting of the Production Operations Management Society, Savannah, GA.
- Davis, M. (1991). How long should a customer wait for service? *Decision Sciences*, 22, 421-434.
- Davis, M.M. and Vollman, T.E. (1990). A framework for relating waiting time and customer satisfaction in a service operation. *The Journal of Services Marketing*, 4(1), 61-69.
- Groth, M., & Gilliland, S. W. (2006). Having to wait for service: Customer reactions to delays in service delivery. *Applied Psychology: An International Review*, 44(1), 107-129.
- Hui, M. K., Thakor, M.V., & Gill, R. (1999). The effect of delay type and service stage on consumers' reactions to waiting. *Journal of Consumer Research*, 24, 469-479.
- Hui, M. K. & Zhou, L. (1996). How does waiting duration information influence customers' reactions to waiting for services? *Journal of Applied Social Psychology*, 26(19), 1702-1717.
- Jones, P. & Dent, M. (1994). Improving service: Managing response time in hospitality operations. *International Journal of Operations and Production Management*, 14(5), 52-58.
- Jones, P. & Peppiatt, E. (1996). Managing perceptions of waiting times in service queues. *International Journal of Service Industry Management*, 7(5), 47-61.
- Katz, K. L., Larson, B. M., & Larson, R. C. (1991). Prescription for the waiting-in-line blues: Entertain, enlighten, and engage. *Sloan Management Review*, 44, 44-53.
- Kumar, P., Kalwani, M. U., & Dada, M. (1997). The impact of waiting time guarantees on customers' waiting experience. *Marketing Science*, 16(4), 295-314.
- Larson, R. C. (1987). Perspectives on queues: Social justice and the psychology of queuing. *Operations Research*, 35(6), 895-905.
- Levesque, T. J., & McDougall, G. H. G. (2000). Service problems and recovery strategies: An experiment. *Canadian Journal of Administrative Sciences*, 17(1), 20-37.
- Maister, D.H. (1985). The psychology of waiting in lines. In J. A. Czepiel, M. R. Solomon, & C. F. Sureprenant (Eds.), *The service encounter: Managing employee/customer interaction in service business*. Lexington, Ma: Heath.
- Nah, F. F. (2004). A study on tolerable waiting time: How long are web users willing to wait? *Behaviour & Information Technology*, 23(3), 153-163.
- Nie, W. (2000). Waiting: Integrating social and psychological perspectives in operations management. *Omega*, 28, 611-629.
- Osuna, E. E. (1985). The psychological cost of waiting. *Journal of Mathematical Psychology*, 29, 82-105.
- Taylor, S. (1994). Waiting for service: The relationship between delays and evaluations of service. *Journal of Marketing*, 58, 56-69.
- Yan, R., & Lotz, S. (2006). The waiting game: The role of predicted value, wait disconfirmation, and providers' actions in consumers' service evaluations. *Advances in Consumer Research*, 22(1) 412-418.

APPENDIX A Experiments

Experiment 1 (Low Uncertainty/Low Criticality):

Students took an in-class exercise in the last 15 minutes of the class as part of an *Extra Credit* opportunity. The statistical exercise distributed to students omitted some required critical information; therefore, students couldn't complete work on the exercise without the missing information. *The instructor pointed out to the students that some information was missing* and that she was leaving to retrieve it from her office. The teaching assistant remained in the classroom with the students.

A stopwatch was utilized to measure the time [from the moment that students were told that the information was missing until the moment that the information became available] and to ensure that the elapsed time was exactly five minutes. The previously missing information was then displayed on the projector, in order for all students to receive it at the same time. The independent variable and the moderating variable were manipulated as follows:

Low uncertainty: Information was provided regarding the withheld data

Low criticality: Extra Credit

Experiment 2 (Low Uncertainty/High Criticality):

Students took an in-class exercise in the last 15 minutes of the class, as part of a *Quiz*. The statistical exercise distributed to students omitted some required critical information; therefore, students couldn't complete work on the exercise without the missing information. *The instructor pointed out to the students that some information was missing* and that she was leaving to retrieve it from her office. The teaching assistant remained in the classroom with the students.

A stopwatch was utilized to measure the time [from the moment that students were told that the information was missing until the moment that the information became available] and to ensure that the elapsed time was exactly five minutes. The previously missing information was then displayed on the projector, in order for all students to receive it at the same time. The independent variable and the moderating variable were manipulated as follows:

Low uncertainty: Information was provided regarding the withheld data

High criticality: Quiz

Experiment 3 (High Uncertainty/Low Criticality):

Students took an in-class exercise in the last 15 minutes of the class, as part of an *Extra Credit* opportunity. The statistical exercise distributed to students omitted some required critical information; therefore, students couldn't complete work on the exercise without the missing information. *The instructor did not mention anything to students that some required information was missing* and left to retrieve it from her office. The teaching assistant remained in the classroom with the students.

A stopwatch was utilized to measure the time [from the moment that students were told that the information was missing until the moment that the information became available] and to ensure that the elapsed time was exactly five minutes. The previously missing information was then displayed on the projector, in order for all students to receive it at the same time. The independent variable and the moderating variable were manipulated as follows:

High uncertainty: No information was provided regarding the withheld data

Low criticality: Extra Credit

Experiment 4 (High Uncertainty/High Criticality):

Students took an in-class exercise in the last 15 minutes of the class, as part of a *Quiz*. The statistical exercise distributed to students omitted some required critical information; therefore, students couldn't complete work on the exercise without the missing information. *The instructor did not mention anything to students that some required information was missing* and left to retrieve it from her office. The teaching assistant remained in the classroom with the students.

A stopwatch was utilized to measure the time [from the moment that students were told that the information was missing until the moment that the information became available] and to ensure that the elapsed time was exactly five minutes. The previously missing information was then displayed on the projector, in order for all students to receive it at the same time. The independent

variable and the moderating variable were manipulated as follows:

High uncertainty: No information was provided regarding the withheld data

High criticality: Quiz

APPENDIX B
Items Used to Measure
Psychological Reactions to Waiting

1. How appropriate do you think the waiting was (.814)?
2. How long do you believe you waited (.848)?
3. How anxious were you during waiting (.836)?

DEVELOPMENT AND VALIDATION PROCESSES FOR A PUBLIC RELATIONS NEWS RELEASE WRITING RUBRIC

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ABSTRACT

Public relations practitioners and educators agree: writing is fundamental to a student's academic success in the public relations discipline, and the ability to write a news release is a major key to career success after graduation. This paper focuses on a methodology to develop a valid rubric for teaching and assessing news release writing based on guidelines practiced by public relations professionals; use of the Delphi method to identify weighting factors to add specific validity to the rubric; and finally, application of various statistical procedures to test the rubric for conformance of assessment between practitioners and academics. The results indicate that differences between the average grade assessments of professionals and of academicians is not significant so that each student's work is being judged reasonably based on actual workplace criteria. Further, results indicate the rubric and its grading application can discriminate between different papers within reasonable grading ranges. Finally, the conclusions imply that further research is needed to resolve differences in rubric weights between professionals and academics and that further examination of the grading rubric administration to well or poorly written news releases related to the variance of those grades is warranted.

Introduction

Public relations writing specializes in creating messages to shape public opinion and on generating supportive behavior from targeted publics who can help or hinder an organization's objectives. Public relations practitioners and educators agree: writing is fundamental to a student's academic success and professional career, and is the student's most marketable skill (Steel, 2008; McCleneghan, 2006).

Despite the importance of mastering public relations writing skills, an exhaustive look at discipline-specific publications indicates only a handful of articles, and even fewer studies, with research targeting public relations writing (Alber-Morgan, Hessler & Konrad, 2007; Cole & Corner, 2008; Hardin & Pompper, 2004).

Given the lack of research specifically on teaching writing for public relations, this paper focuses on developing and validating a rubric protocol that will concentrate the teaching efforts on professional and employment skills identified by practitioners; on developing and refining a valid teaching and assessment rubric; and on examining any statistical differences between professional and academic graders when applying the rubric to student news releases.

Initial efforts centered on identifying a specific example of public relations writing that would be representative of writing within the public relations field and that could be valid and reliable in the teaching and assessment of student writing.

The Public Relations Society of America's (PRSA, 2006) highly regarded Port of Entry Report provided significant direction: "Public relations writing is an essential, discrete skill. . . it requires a solid understanding of media, media channels . . . it includes planning, writing, producing and delivering communication to publics in all media channels." (p. 46).

Following extensive discussions, a committee of seven faculty members in Public Relations Studies at Columbia College Chicago elected to focus on the news release as the central project of PR writing. (The faculty committee included six adjunct professors and the director of Public Relations Studies, who also is the co-author of this paper. It should be noted that the six adjunct professors are those who also teach the multiple sections of PR Writing. They are referred to as Faculty throughout this paper.)

The news release is the time-honored convention combining critical thinking, writing and communication skills. The news release focuses on generating news, advancing organizational goals and objectives, and capital-

izing on formal communication principles (Rios, 2008; Tucker, Derelian & Rouner, 1997). Crafting the news release brings into practice basic news-writing skills which conform to conventional journalistic style. Writing the release involves several major activities, including generating and organizing ideas, translating those ideas into written form, and revising the written product (McMaster & Espin, 2007).

Teaching the student to understand and master the skills for writing a news release necessitates a reliable teaching and assessment tool, and a valid rubric reflecting academic and professional expectations. Essentially, students must embrace the need to conform to expectations of professionals and potential employers in the public relations practice.

Thus, this paper focuses on a methodology to develop a valid news release writing rubric based on guidelines practiced by public relations professionals, refined by consensus and validation procedures, and finally, tested for conformance of assessment between practitioners and academicians.

Literature Survey

Based on an extensive search of the literature, the authors found very little research has been directed specifically at the teaching and assessment of public relations writing and validation of rubrics to teach and assess student learning. However, numerous related articles on specific topics relative to the initiative have provided background into the establishment of a baseline for research in the area. Specific topical areas include (1) research in the need for teaching writing skills for student readiness in the marketplace; (2) research on assessment of student writing skills using rubrics; and, (3) validation of rubric methods including those used to achieve convergence of professional opinions (the Delphi method).

The literature revealed that teaching writing skills is a critical element of student preparation for professional employment. The National Commission on Writing report titled, "Writing: A Ticket to Work ... or a Ticket Out" (College Board, 2004) stated that writing was a "threshold skill" for both employment and promotion, particularly for salaried employees. More than half of the responding companies stated that writing is taken into consideration in hiring decisions.

In the public relations field, Hardin and Pompper (2004) noted that practitioners lament expending significant resources to bring new hires up to par and

further state that public relations textbooks are unclear on recommended writing styles. The authors also state that most public relations research on pedagogy has focused on the use of technology or on other issues such as globalization (Curtin & Witherspoon, 1999, Gower & Cho, 2001) rather than writing skills. As for specifics, Hardin and Pompper's survey of practicing professionals (n=191) found that writing constituted at least 71% of their job. In the same study, 90% (n=173) stated that a public relations writing course should be required of public relations majors. From the academic side, Hardin and Pompper reported that of the 152 accredited public relations programs, only about half required a public relations writing course and only 43% required a news-writing course. Thus, the article points out that the development of writing skills in public relations is critical to the professional development and employment of students but the development and assessment of the public relations and news writing skills needs far greater emphasis in order to make students more market ready.

Given the establishment of the importance of teaching public relations writing, the development of what should be taught and how learning outcomes should be assessed are critical issues to be addressed. The "what" issue recognizes that writing involves myriad skills, like critical thinking, analysis, and evaluation. In fact, McMaster and Espin (2007) determined that writing involves several major activities including generating ideas, translating those ideas into written form, and revising the written product.

The PRSA Report (2006) identified five elements and related standards for evaluating a news release. The five elements are: headline/lead combination, news angle, including organization of the 5W's; journalistic style; conformance with Associated Press style; and finally, basic grammar, spelling, and punctuation.

The research literature also noted that the teaching and assessment of student writing using rubrics was of current interest and research development. Nagy, et al., (2000) stated that assessment has many roles. What students do and don't know, and what to do about it summarize the role of assessment. The selection and development of appropriate assessment procedures has been studied in many venues and has become a major emphasis of accountability for education at all levels (AACSB, 2007). In many cases, educators in various venues have attempted to develop "rubrics" as a systematic way to specify what skills are needed along with suggested measurement guidelines to assess performance and to give feedback to students.

Rubrics tend to clarify an assignment and help students reach its objectives (Schneider, 2006). Andrade (2005) provides further background on the structure and purpose of rubrics and catalogues the benefits of rubrics as teaching and grading tools but warns that steps should be made to ensure the validity, reliability and fairness of the rubrics.

Many researchers have examined validity and validation of writing assessments and rubrics. Messick (1989) describes validity as “an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores.” McNamara (1996) suggests that the initial design stage of a scoring rubric should focus on including expert informants, examining available literature and designing the test specifications and scoring procedures (rubric).

The Delphi method (Adler & Ziglio, 1996) has been identified as one method of collecting and distilling knowledge from a group of experts by means of a series of questions interspersed with controlled opinion feedback. According to Helmer (1977), the Delphi method facilitates the formation of group judgment and has been widely used to generate forecasts in education and also in other fields (Cornish, 1977). McNamara further stressed both the importance of *a priori* construct validity where the teaching modality focuses on identified skills from professionals and other sources and *a posterior* construct validation that relates to empirical and statistical validation of the rubric.

The literature review thus provided the basic background for the paper. However, the research on the development of a rubric for teaching and evaluating public relations writing using the news release has not been identified. Additionally, although the elements of validation methodologies were identified in general, no specific information has been identified that defines a methodology for validating the rubric and identifying weighting factors that will add more specific validity to a news release writing rubric. This paper provides research that attempts to address the void.

Initial Rubric Development— Identifying and Testing the Rubric

In fall 2005, the faculty committee met to develop a rubric for assessing students’ news release writing. This rubric was designed primarily on the PRSA model and then refined based on a review of existing literature, primary and secondary research, one-on-one meetings with academics, interviews with public relations profes-

sionals, and regular and informal meetings with the PR Writing faculty. (The resulting rubric is provided as an attachment to this article). This rubric was used as a model for the pedagogy in the course.

In summer 2006, a panel of four senior-level professionals (not involved in initial conversations) from a prominent international public relations agency used the resulting rubric to assess news releases written by students enrolled in PR Writing in the spring 2006 semester. This evaluation established a benchmark. Using the same rubric for teaching and for teacher feedback for student improvement, the process was repeated in summer 2007. The work of students enrolled in PR Writing in the spring 2007 semester was evaluated. In both 2006 and 2007, the same four professionals evaluated a random selection of 61 news releases (nearly 50 percent of total enrollment in eight sections of PR Writing).

The faculty committee met each summer to discuss the results of the evaluations. Modifications in the pedagogy resulted, though no changes were made to the rubric. Between 2006 and 2007, certain areas of the students’ work improved significantly as reflected by a comparison of ratings. Some areas of the students’ work showed negligible gains, and a few areas actually declined. Data from the evaluations in 2006 and 2007 indicated that 7 in 10 students wrote acceptable news releases, while the remaining 3 in 10 needed to further strengthen basic writing skills. However, the use of the rubric to teach and then assess student writing resulted in a year-over-year increase in the number of news releases rated as acceptable work for entry-level public relations professionals.

The assessment data indicated that questions remained. Chief among those questions was the validity of the rubric, and its ability to reliably measure students’ learning outcomes. Hence, the project was launched to validate the news release rubric.

In fall 2007, the faculty committee met to discuss the implications of the assessment data. Because students’ writing skills were still below expectations, the committee first examined the pedagogical approaches of each faculty member teaching PR Writing. By consensus, a consistent pedagogy, including definition of terms and expectations, was adopted. To manifest this consensus, the faculty agreed to use the rubric as a model for in-class instruction. Since the rubric also would serve as a method for providing feedback to students about their work, for grading their writing, and for assessing their learning outcomes, the committee recognized the importance of determining relative weights for each of the

five categories. Thus, while the content of the rubric was unchanged, its structure was streamlined. Validating the rubric and identifying weighting factors to add more authority to the rubric remained a baseline issue.

Yet, one issue remained: how to insure the in-class pedagogy was consistent? The faculty committee recognized the importance of real-time, in-class observations and elected to depend upon peer evaluations. Commencing in late 2007, the co-author of this paper observed each of the faculty in his classroom on at least one occasion. Perhaps because of the depth of the earlier discussions, and the professional insights and experiences of the faculty, for the most part there was consistency in pedagogy. The results of these observations were shared amongst the faculty, and where minor refinements were appropriate, each of the faculty agreed to the modifications.

Refinement and Validation of the Rubric

Processes for Evaluating Relative Weights of the Rubric

Once the teaching pedagogy was consistent, the use of the rubric for assessment needed refinement since no relative weights of emphasis had been established for assessment grading (or for that matter, teaching emphasis). Given that the Delphi method seeks to converge differing professional opinions on relative weights of concepts, the method was selected to refine the grading weights of the five elements of the rubric.

In order to seek convergence on the different weights of the rubric based on professional input, seven professionals ranging from assistant account executive (an entry-level position) to senior vice president at a highly regarded, international public relations agency were solicited for their judgment. To insure broad-based input from public relations professionals, the individuals involved

in this exercise were not those who evaluated learning outcomes in 2006 and 2007.

With the co-author as facilitator, the professionals met in a sixty-minute session. Each participant was provided with the rubric, and the five rubric categories were discussed to ensure consistent understanding of the rubric content. The facilitator explained the objective of the exercise, that is, to determine the groups' best estimate of the relative weights of each of the five different areas.

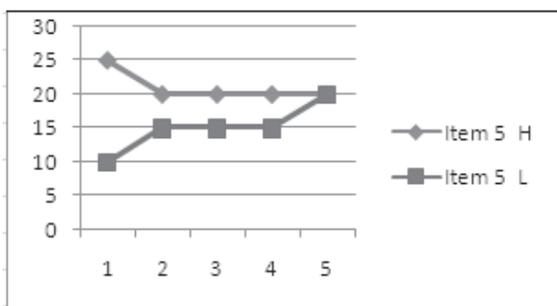
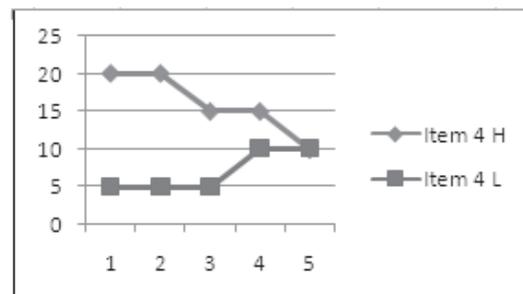
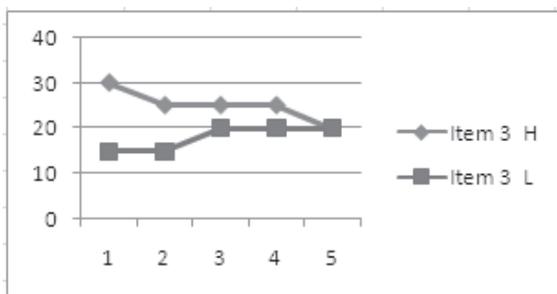
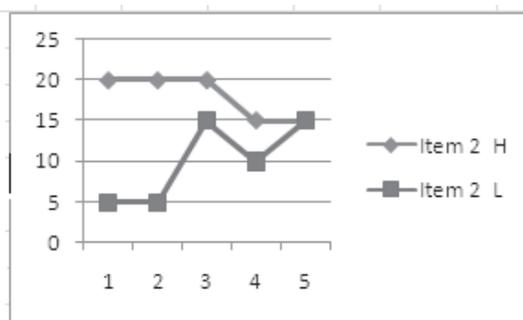
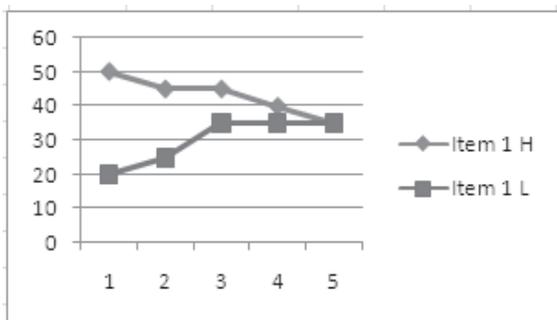
Each participant was given multiple sheets of the rubric, with space for name and iteration number. One category was analyzed at a time. Each participant independently and silently estimated a percentage weighting in increments of five percent. Scoring sheets were collected. The high and low values were presented, and each high and low participant had the opportunity to justify the weighting. Participants then rescored the same category on the second sheet of paper, and the process of reading and justifying high and low scores was repeated.

The exercise went five rounds with high/low weights given in Table 1. Justifications for the final weights were discussed. The professionals repeatedly stressed category number one, the requirement that information in the news release be accurately written and effectively organized (#1 – Are the key ideas organized effectively?). “The message shapes the release,” they agreed. “Without supporting points, the credibility (of the author and source of the release) is on the line.” Thus, that category was most highly weighted with 35 points.

Two categories were equally weighted, with 20 points each. When discussing the weight of number three: In the headline/lead combination, is the news angle compelling?, the professionals agreed. “There’s a short window to grab attention. The release must immediately establish that it has a compelling message. Otherwise, the media toss it out.” The group also weighted category number five (Are the basics in place – grammar,

TABLE 1

TABLE 1										
Rubric Item										
Iteration	Item 1		Item 2		Item 3		Item 4		Item 5	
	H	L	H	L	H	L	H	L	H	L
1	50	20	20	5	30	15	20	5	25	10
2	45	25	20	5	25	15	20	5	20	15
3	45	35	20	15	25	20	15	5	20	15
4	40	35	15	10	25	20	15	10	20	15
5	35	35	15	15	20	20	10	10	20	20



The Delphi method facilitated the development of movement toward group consensus. Graphs of the convergence of consensus for each of the categories are given above.

The Delphi method also was adopted by the faculty. To weight the rubric, the same rubric was sent via email to each of faculty, asking them to assign each of the five categories a value that when added equaled 100 points. Similar to the process employed with the professionals, the results of each round were shared with the faculty. The exercise went five rounds with high/low weights given in Table 2.

sentence and paragraph mechanics?) with 20 points: “Spelling and grammar are wash-out errors. If these are wrong, then it’s a no-go release.”

The professionals considered categories two (Headline/lead combination) and four (Does the news release use a convincing journalistic style?) related to style, which in their professional opinions, were less important than substance.

The iterative Delphi method also converged on consensus among the faculty. However, item 2 (In the headline/lead combination, Is the message clear and compelling?) and item 4 (Does the news release use a convincing journalistic style?) were considered to be most important in emphasis and weight while items 1 and 5 received the

Iteration	Rubric Item									
	Item 1		Item 2		Item 3		Item 4		Item 5	
	H	L	H	L	H	L	H	L	H	L
1	25	15	30	15	25	10	30	20	30	10
2	20	15	30	15	25	15	25	15	20	15
3	20	15	30	20	25	20	25	20	20	15
4	20	15	30	20	25	20	25	15	20	15
5	15	15	25	25	20	20	25	25	15	15

Rubric Category	Professional/ Practitioner Rating	Faculty Rating
1. Are the key items organized effectively?	35	15
2. In the headline/lead combination, is the message clear and compelling?	15	25
3. In the headline/lead combination, is the news angle compelling?	20	20
4. Does the news release use a convincing journalistic style?	10	25
5. Are the basics in place – grammar, sentence and paragraph mechanics?	20	15

lowest weighting evaluation – quite different from the weightings provided by the active professionals at the public relations firm. A summary of the relative convergent weights of each group is provided in Table 3 above. The differences in final weights and the comments that led to the justification of the weights provide several interesting conclusions. First, the professionals used a more “acceptable/not acceptable” mentality and logic when assessing the weights of the rubric by giving items 1 and 5 prominence and stating that without those, the news release was a “no go”. Faculty weightings showed far less dispersion between categories and suggest that the instruction process of teaching writing indicates a need to develop multiple skills in all areas without excessive emphasis on the “go/no go” emphasis of actual acceptance of the news release.

Secondly, the differences indicate that further potential “Delphi sessions” could be conducted between the two groups to encourage dialogue and discussion related to mutual understanding and importance of the specific terms in the 5-point rubric. Questions to consider include: Should the teaching of public relations news releases be specifically targeted to the “go/no go” emphasis of professionals?, or Should “teaching emphasis” incorporate a broader range of developmental skills at the student learning level? Only further discussion and dialogue between the two groups using the methodologies suggested can resolve the differences in emphasis.

Thus, although final convergence of the two groups was not as close as had been hoped, the differences did shed light on the areas that need to be explored in future work and also provided a framework for the actual discussions and methodologies to resolve differences and reach consensus in the future.

Processes for Assessing the Validity and Use of the Rubric

The validation of the rubric also depends on accurate and consistent understanding of the rubric and its terms and, finally, its administration as evidenced by statistical

analysis. The process chosen and suggested in this article incorporated grading two different student news releases (News releases X and Y) using the rubric weights as determined by the faculty. Although either weighting system could have been used to insure comparability of final grades, the faculty weighting system was selected. A two-way ANOVA methodology was utilized to determine if in fact significant differences between the news releases (X and Y) could be assessed using the rubric as well as could significant differences between the grading of the two news releases by the two different grading teams (faculty and professionals) be assessed.

The average results of the final grades in each cell are given in Table 4.

	Paper X	Paper Y	Averages
Professionals (n=5)	45.4	77.3	61.35 N = 5
Faculty (n=6)	42.6	78.74	60.67 N = 6
Averages	43.9	78.05	60.97

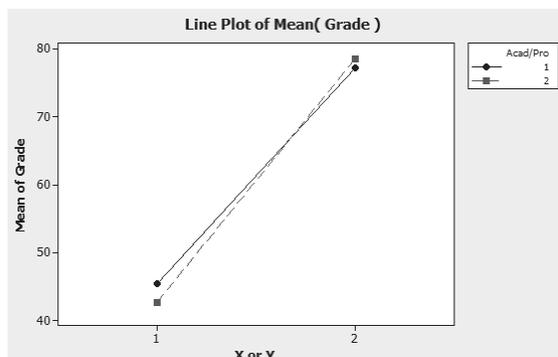
A two-way ANOVA of the results generated the following results.

Source	DF	SS	MS	F	P
Fac. vs. Prof.	1	2.8	2.80	0.01	0.910
X or Y	1	6915.6	6915.61	32.69	0.000
Interaction	1	25.2	25.22	0.12	0.734
Error	20	4230.7	211.53		
Total	23	11174.3			

S = 14.54 R-Sq = 62.14% R-Sq(adj) = 56.46%

The results indicate that the usage of the rubric generated significant differences in the grading of the news releases X and Y ($p=.000$) while no significant differ-

ences could be found between the grading practices of the professionals and the faculty ($p = .910$). Also, no interaction was found within the model ($p = .734$). Thus, the rubric usage has the ability to differentiate between the desirability of different news releases. Further, the results indicate that the judgment of the faculty and professionals about the desirability of the news release is similar. Finally, one could conclude that the usage of the rubric indicates that the student is being judged on the essential public relations workplace criteria for success. A diagram of the results follows.



Now, assuming that no significant differences exist in the averages between the professionals and the faculty, a differences in means test was performed to determine the ability of the rubric's precision to discriminate between different news releases.

TWO-SAMPLE T FOR GRADE				
Paper	N	Mean	Std. Dev	SE Mean
1	11	43.9	17.6	5.3
2	11	78.0	10.7	3.2

While the data indicate that significant differences in the means of these two sample news releases could easily be found ($p = .000$), the average standard error of the means given the equal sample sizes would be 4.25. Thus, using a 95% confidence, the data indicate that a precision in grades of ± 8.33 could be assured when a single news release was graded by multiple graders ($n = 11$ in this case).

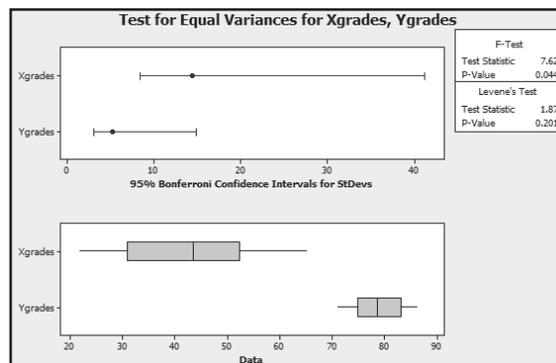
Meanwhile, an individual student submitting a news release to an individual grader utilizing the rubric would be subject to a precision of ± 14.54 points with 68% confidence and approximately ± 29.32 with 95% confidence given the overall standard deviation from the ANOVA of 14.54. While the rubric is validated within a normal letter grade when a news release is graded by a team of graders, the application of the rubric to an

the individual's grade is still subject to a much larger range of potential grades depending on the individual faculty member. Given an R-squared of 62.14% for the ANOVA which indicates that approximately 62.14% of the variation in the grades can be attributed to the differences in the news releases submitted, the remainder of the variation (37.86%) may be subject to other factors, such as differences in the individual grading habits of faculty and their interpretation of the rubric. Thus, while the rubric can account for a majority of the variation in the news release grading, further improvement in the understanding and uniform application of the rubric between faculty (that is, reducing the variation of grades that faculty award any given paper) can be a continued focus for improvement.

Since faculty will ultimately be grading the news release, an analysis of the variance of the grades given solely by the faculty is given below.

TEST FOR EQUAL VARIANCES: XGRADES, YGRADES (95% Bonferroni confidence intervals for standard deviations)				
	N	Lower	Std. Dev.	Upper
Xgrades	6	8.42	14.36	41.06
Ygrades	6	3.05	5.20	11.85

F-Test (Normal Distribution)
Test statistic = 7.62, p-value = 0.044



First, the F test for testing equal variances of the two papers indicates that significant differences exist in the variances of grading in the two news releases ($p = .044$). The box charts at the bottom of the diagram illustrate reasonable performance. The chart indicates that very good news releases (Y paper) tend to be more consistently graded according to the rubric than the poorer news releases (version X). Although the data doesn't indicate the reason for the explanation, numerical logic would support the fact that as a news release improves and approaches a higher average, the variance will necessarily have to contract given the nature of the 100-point grad-

ing scale. News releases that vary significantly from the goal of the rubric would be more difficult to judge given the wider range of values available to assign. An implication of interest without numerical support would be that faculty that grade poor papers confound the specifications of the rubric with the potential of overly discouraging (rather than encouraging) student learning. Thus, the data suggests that a clearer understanding of how to apply the rubric to poorer papers without discouraging learning needs to be considered and explored more fully.

Finally, the data on the best estimates of the standard deviations of both news releases as graded solely by faculty indicate that the better news release has a smaller standard deviation. News release Y with an average of 78 has a best estimate standard deviation of only 5.2 which indicates that a grade on an individual “good news release” could be reasonable graded within ± 5.2 points (one letter grade) in 68% of the cases. However, the News release X, the poorer news release, has a best estimate standard deviation of 14.36. Thus, a relatively poor news release would have a grading range of about 14.36 with 68% confidence (possibly 3 letter grades) depending on the faculty member. Such variation in grading would tend to diminish the quality of the rubric and its application from a student perspective as the grade received would be highly teacher dependent.

This grading variation can be reduced in two ways. First, the rubric should be administered to poorer news releases without regards to learning encouragement or discouragement. However, the rubric feedback could be provided to the poorer news releases with an appropriate “learning re-write” that could facilitate learning without undo discouragement. As a consequence, as the papers improve, the variance of the grading assignment against the rubric will diminish and again provide a more valid and precise assessment of the news release.

The analysis that was concluded was obviously limited in sample size given the nature of the rubric selection for a particular college and given the difficulty of recruiting busy professionals to participate in the analysis. However, regardless of the sample size, the assessment processes and procedures should provide clues and directions for rubric validation strategies for other academicians wishing to improve the validity and precision of their rubric. The authors understand and appreciate the fact that further continuing analysis will need to be performed in the never ending process of continuing improvement and refinement of the rubric.

Conclusions

The most obvious conclusion is public relations writing is a skill fundamental to a student’s success, and that professionals and most academics agree it is the students’ most marketable skill. As evidence, each group dedicated countless hours to developing, refining and validating the teaching and assessment rubric for the news release, the key tool of public relations writing. Through the application of the Delphi methodology, it was possible to converge opinions of differing grading weights on five elements of the rubric to evaluate students’ writing on news releases. Though the final convergence is not as close as had been hoped, the differences point to areas ripe for future research. Similarly, a two-way ANOVA methodology and other statistical tools were utilized to determine if there were differences in means using the rubric to assess two different news releases written by students. Results indicate in fact the use of the rubric generated significant differences in assessing different papers but that the average judgment of the faculty and professionals in the desirability of the news release is similar. Additionally, the F test for testing equal variances of the grades of the two papers indicates that significant differences in standard deviations exist in grading well and poorly written news releases. These results point the way for further research.

Additional research might consider how faculty approach students and assess their writing to avoid discouraging learning. Public relations writing and the ability to master the news release often is a prerequisite to more advanced courses in public relations studies. So those who don’t do well, or who become discouraged and drop out of the course, also abandon a career in public relations. Motivating students to want to write better, even as their skills aren’t manifest in their work, is particularly important as colleges and universities recruit minorities (and males, who are a minority in the so-called “Velvet Ghetto” of public relations), who are typically considered “at risk” students in the study of public relations.

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also acknowledge initial work on teaching news release writing and assessing student learning outcomes by colleagues Alton Miller and Laurence Minsky.

Name: _____ Category: _____ Iteration: _____	
News Release Evaluation Matrix	Category % Weight
<p>1. Are the key ideas organized effectively?</p> <ul style="list-style-type: none"> Points in the release support the main message Points in the release support the main message Quote in second or third paragraph moves story forward 	
<p>2. In the headline/lead combination, is the message clear and compelling?</p> <ul style="list-style-type: none"> Headline is a complete sentence Tense in headline matches tense of news release topic Headline summarizes main point of release Organization's name/product is mentioned in headline/subhead Headline "grabs" attention Headline summarizes information found in lead paragraph 	
<p>3. In headline/lead combination, is the news angle compelling?</p> <ul style="list-style-type: none"> Information is timely First sentence establishes local interest First sentence introduces news angle Lead paragraph includes 5 W's - who, what, when, where, why 	
<p>4. Does the news release use a convincing journalistic style?</p> <ul style="list-style-type: none"> Release is objective <ul style="list-style-type: none"> News is written in inverted paragraph fashion Least important information is in last paragraph Release conforms to standard format <ul style="list-style-type: none"> Dateline: <ul style="list-style-type: none"> Includes date Capital Letters Location of story Answers "where" question Contact information <ul style="list-style-type: none"> Includes name, title Day and night telephone numbers Second/third pages include slug line Pages end in (more) or #### Release conforms to Associated Press Stylebook standards 	
<p>5. Are the basics in place - grammar, sentence and paragraph mechanics</p> <ul style="list-style-type: none"> Misspelled words Correct grammar Proper punctuation Complete sentences Declarative sentences Paragraphs have one dominant idea 	
ACCEPTABLE OVERALL NEWS RELEASE	

References

- Adler, M. & Ziglio, E. (1996). *Gazing into the oracle*. Bristol, PA: Jessica Kingsley Publishers
- Alber-Morgan, S., Hessler, T., & Konrad, M. (2007). Teaching writing for keeps. *Education and Treatment of Children*, 30, 107-128.
- Andrade, L. (2005). Teaching with rubrics: the good, the bad, and the ugly. *College Teaching*, 53, 27-30.
- AACSB.(2007). *Assurance of learning standards*. Report by the Association to Advance Collegiate Schools of Business http://www.aacsb.edu/accreditation/process/documents/AACSB_STANDARDS_Revised_Jan08.pdf
- Cameron, H. & Tolley, J. (2007). But I'm a distinction student: helping students to understand assessment standards and feedback processes. Unpublished paper delivered at the SoTL Commons Conference for the Scholarship of Teaching and Learning, Nov. 2, 2007, Statesboro, Ga.
- Cole, R. & Corner, E. (2008) How are we doing? Time for research on teaching writing for public relations. *TACTICS*, 18-20.
- CollegeBoard (2004) Writing: A ticket to work ... or a ticket out: A survey of business leaders. Retrieved January 27, 2007, from www.writingcommission.org/prod_downloads/writingcom/writing-ticket-to-work.pdf
- Cornish, E. (1977). *The study of the future*. Washington, D.C.: World Future Society.
- Curtin, P. & Witherspoon, D. (1999). Computer skills integration in public relations curricula. *Journalism and Mass Communication Educator*, 54, 23 – 34.
- Dixon, L. (2007). Learner focused assessment: Student participation in rubric development and students perceptions of impact on their grade by being involved in assessment. Unpublished paper delivered at the SoTL Commons Conference for the Scholarship of Teaching and Learning, Nov. 2, 2007, Statesboro, Ga.
- Gower, K.A. & Cho, J.Y. (2001). Use of the Internet in the public relations curriculum. *Journalism and Mass Communication Educator*, 56(2), 81-92.
- Hardin, M. & Pompper, D. (2004). Writing in the public relations curriculum; practitioner perceptions versus pedagogy. *Public Relations Review*, 30, 357-364.
- Helmer, O. (1977) Problems in futures research: Delphi and causal cross-impact analysis. *Futures*, 17-31.
- McCleneghan, S. (2006). PR executives rank 11 communication skills. *Public Relations Quarterly*, 51, 43-45.
- McMaster, K. & Espin, C. (2007) Technical features of curriculum-based measurement in writing. *The Journal of Special Education*, 41, 68-84.
- McNamara, F. (1996). *Measuring second language performance*. London: Longman.
- Messick, S. (1989) Validity. In R. L. Linn (Ed.), *Educational measurement* (pp. 13 – 103) New York: Macmillan.
- Nagy, P. (2000). The three roles of assessment: gatekeeping, accountability, and instructional diagnosis. *Canadian Journal of Education*, 25(2), 262-279.
- Orrell, J. (2006). Feedback on learning achievement: rhetoric and reality. *Teaching in Higher Education*, 11 (4), 441 – 446.
- Rios, M. (2008). Following communication rules: A communication-centered theory for public relations. In T. Hansen-Horn & B. Neff (Eds.), *Public relations: From theory to practice* (pp.181 – 192) Upper Saddle River, NJ: Pearson Education, Inc.
- Schneider, F. (2006). Rubrics for teacher education in community college. *Community College Enterprise*, 12, 39-55.
- Steel, A. (2008, Feb. 4). Careers: Expert Advice. *PR Week*, 19.
- Tucker, T., Derelian, D., and Rouner, D. (1997). *Public relations writing: An issue-driven behavioral approach*. Prentice Hall, Saddleback, New Jersey, 90-134.
- Van Slyke, J. (Ed.). (2006). *Public Relations Society of America: The report on the commission on public relations education. Public relations education for the 21st century: the professional bond*. New York City: Public Relations Foundation.

IS ONLINE INSTRUCTION MORE EFFICIENT THAN TRADITIONAL INSTRUCTION?

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ABSTRACT

The purpose of this study is to determine if online teaching efficiency is the same or different from traditional classroom instruction in regards to instructor's time. One administrative appeal for online education is the ability to attract the same revenue as earned in traditional teaching, but without some of the costs associated with the classroom. Can we assume teaching time to develop and implement online teaching is the same as traditional classroom teaching? Faculty time is an input that needs to be recognized or we may jeopardize the quality of online instruction. Faculty and administrators committed to both educational efficiency and effectiveness have a responsibility to know the reality. Adequate time needs to be available for faculty to devote to online instruction. Like earlier studies this one resulted in demonstrating online teaching requires more faculty time than traditional teaching. However, changing technology might offer solutions to improving the efficiency in both online and traditional education.

Introduction

The purpose of this study is to determine if online teaching is less or more efficient than traditional classroom instruction in regards to instructor's time. Online teaching has the advantage of being able to earn the same revenue as traditional teaching, but without some of the costs associated with a classroom. Can we assume teaching time to develop and implement online courses is the same as in the traditional classroom? Faculty time is an input that needs to be recognized or the quality of teaching online may be jeopardized. Faculty and administrators committed to both educational efficiency and effectiveness have a responsibility to know what the reality is. Adequate time needs to be available for faculty to devote to online instruction.

After establishing the parameters and limits of the study, previous research will be summarized. The data resulting from this study will be presented and analyzed. The results tend to support previous studies that discovered online course development and implementation is more time consuming than developing and teaching a traditional course. Assuming online teaching requires the same time as traditional teaching when it does not may jeopardize the effectiveness of an educational method that technology has made available that has proven to be convenient to both faculty and students.

Limitations

This study does not examine whether online teaching is less, the same, or more effective as traditional teaching.

Rather for our purpose, it assumes that online and traditional teaching result in similar educational outcomes. This study also does not address other inputs needed to develop or implement the online or traditional course. The variable examined by this single case study is the amount of time an instructor needs to develop and implement an online course as compared to the same course or section in a traditional setting.

Definitions

Traditional instruction: Students and faculty meet in a classroom at predetermined times for face to face instruction and discussion. This format may use electronic media and course management systems like Desire to Learn (D2L) or WebCT/Blackboard to supplement the course for posting syllabi, reporting grades, or posting and receiving assignments, resulting in what some call a hybrid course, but face to face classroom space for meetings is required.

Online instruction: Teaching is done through electronic means like e-mail and course management systems like Desire to Learn (D2L) or WebCT/Blackboard. No classroom or face to face meeting is necessary. Discussions are done by chat rooms or posts into discussion boards.

Hypotheses

1. The time it takes an instructor to develop and implement a course for online teaching will vary

no more or less than 5% from developing and teaching a course traditionally.

2. The time it takes an instructor to develop a course for online teaching will vary no more than 5% of the time it takes to develop a course for traditional teaching.
3. The time it takes an instructor to implement a course online will vary no more or less than 5% of the time it takes to implement that course in a traditional class.

Previous Studies

The Special Nature of Online Instruction

A number of studies have documented the differences in online and traditional teaching. Britt (2006) says online education is not mass producing a product. Online teaching has the potential to be more than a new form of independent study, suggest Al-Bataneh, Brooks, and Bassoppo-Moyo (2005). Al-Bataneh, et al (2005) add that online learning may not offer students expected time savings, but students do benefit as more of their time is spent in active learning. Britt (2006) cites the advantage of online teaching for faculty as the ability to teach from any location at any time, but the disadvantage is the need to learn and use a course management system technology.

No Difference in Academic Outcomes

No significant difference in educational outcomes has been noted in previous studies (Miller, Cohen, and Bef-fa-Negrini, 2001; Lucas, 2001). On the other hand, a review of the literature comparing faculty time in online and traditional teaching is very different.

Earlier Studies Comparing Faculty Time

Lewis and Abdul-Hamid (2006) examined the view of seasoned faculty regarding teaching online courses. Online teaching, according to Lewis and Abdul-Hamid (2006), requires significant preparation and organization. Lewis and Abdul-Hamid (2006) state grading and other course components take longer than expected. Barth (2004) found online teaching to be more labor intensive. Britt (2006) says formatting from traditional to online takes considerable time. Designing and delivering online courses appear to require a significantly greater investment of time for the instructor compared to a traditional course (Barth, 2004; Lenz, Jones and Monaghan, 2005; Tomei, 2006).

Two recent studies warrant particular mention. Bender, Wood, and Vredevoogd (2004) found online teaching to require twice as much time as traditional teaching. The faculty in their study taught two sections of the same course, one online and one traditional, and kept a log to document their time. Tomei (2006) inquired into the faculty workload and ideal class size for online courses, using faculty time spent in the three components of advising, instruction, and assessment as a basis. Tomei (2006) found that online students required an overall 14.2% more time than traditional students. If the advising component is removed, the online instructional component required 43.5% more time than the traditional instructional component. However, the student assessment component required 7.6% less time online. If one combines the assessment and instruction components for comparison, the online method required 13.4% more time than the traditional method.

Study Design

During a summer term the author was provided a stipend from a university to develop an online undergraduate course in management which had previously been taught only traditionally in the classroom. The course had been taught for two semesters as a traditional course by the author. The course management system was one with which the researcher was familiar and was the only one used during the study. Since that time the author has used another course management system at the same university. The author was to teach two sections of the course, one online and one traditional, in the semester following the summer the online course was developed. The traditional course was scheduled to undergo a major revamp with a new text, assignments, and tests, generally amounting to a new course.

The real task was not simply to adapt a traditional course to online teaching, but to develop a new course with two versions or sections, one taught online and one taught traditionally. There were about 10% more students in the traditional section than in the online course. There were about 20 students in the online section and 25 in the traditional section. The actual numbers varied with additions and drops and would have affected only the implementation phase if the number changes were substantial. While the sample size in this study is limited to one course, the study was designed to control several other variables. The same instructor is developing and implementing two sections of the same course limiting variances related to instructor styles and differences and time periods which may cause some problem in comparing different courses.

Minimizing Researcher Bias

Prior to collecting data for this study the researcher, also the author of the study, had taught six graduate online courses and eight undergraduate traditional courses. While the researcher believed teaching online seemed more time consuming in some respects, this was a subjective belief, not a conclusion based on evidence. Courses taught varied in number of students per course and whether they were graduate or undergraduate students, that no valid comparison could be made. Given these variables were not controlled, there was no strong belief that the online or traditional nature of the course was more or less of a factor in the time spent than other factors. To control for potential bias, however, no totals were calculated in this study prior to collecting all the data.

Data Collection

Data was recorded during two phases, course development and implementation. In the first phase the number of hours devoted to planning and developing the course were tracked. The second phase began after the actual teaching began in the semester following the summer when the course was developed. When activity was spent in development that applied to both the online and traditional version, the time was divided evenly and recorded with half the time assigned to each column. When time was spent addressing the planning of daily classroom activities for traditional teaching, this time was recorded only in traditional teaching column. If time was spent preparing a discussion board or in developing a drop box to receive assignments for the online course, this was recorded only in the online column. Once the teaching semester began, time in any activity continued to be assigned to either online or traditional, but was considered implementation, even if it involved some revision in planning. Data collection stopped half way through the implementation phase when the numbers recorded became repetitious.

Results

The faculty/author devoted 12% more time developing the online course than the traditional course. Implementation of the online section required 12 more hours or 6.8% more of the instructor's time. Online course development and implementation required 22 additional hours or 8.9% more time than the traditional course. Table 1 reports the results in hours of time required to develop and implement the sections of the course online and in the traditional classroom.

Effect of Technology

After collecting data for the development phase, but prior to implementation, the course management system made available to faculty a significant innovation in its software. While this did not affect the outcome for this study, the innovation needs recognition due to its implication to the topic under study. When the course was being developed it was assumed that the customary dropbox was the only method by which assignments would be received in the online section. The course management system had a dropbox system where once an assignment was received; it was simply recorded and filed as submitted, forever fixed in time and place in that drop box, not subject to reorganization or re-filing without first being copied to other storage devices. The submission could not be organized, unless moved to a hard drive or other storage device to be filed by assignment or student. Before the innovation faculty teaching online had two ways to respond to a student. One way required the instructor to find the right file, copy it, make notes on the submission, and then return it to the student by e-mail. The other method was to create a new response file, and make reference to the file buried in the course management system's dropbox.

The course management system added the ability to create in the assignment section of its software an assignment specific dropbox which added a feedback mechanism available to students. Students could read

	Traditional	Online	Difference	% Difference	Total
Development	100	112	12	12.0	212
Implementa- tion	147	157	10	6.8	304
Total	247	269	22	8.9	516

comments and the drop box linked directly to grading. An instructor now could readily find the file submitted, conveniently offer feedback, and post a grade which simultaneously posted in a built in system grade book also available to students. While no pre-test post-test type empirical data was available to compare the time it took for an instructor to provide feedback and record grades online before and after the innovation, the author found this innovation to be so efficient it was made available to the traditional students as a means to submit assignments.

The implications of this innovation for both online and traditional teaching are important. If this one innovation in online technology can substantially reduce the amount of time it takes to teach online, how long will it take for the difference in time to teach online to be more equivalent to traditional teaching? Using this technology in the classroom also decreased the amount of housekeeping time to collect and return hardcopies, leaving more time for student/faculty interaction. The technology is of course a tool and does not dictate policy. Being apprised of the changes may be a benefit for both online and traditional faculty. Whether this innovation reduced the time in implementation in both online and traditional teaching is not determinable. The implication of this innovation, however, is that this online technology may close the gap in time taken to teach in the two methods, by making online teaching more efficient. As importantly, online technology may improve the efficiency of both online and traditional teaching.

Conclusions and Recommendations

Online teaching takes faculty more time to teach than traditional teaching. The data suggests that developing and implementing a course online takes more instructor time than in a traditional course. The three null hypotheses are not supported. The results have implications for the question of whether online teaching is more efficient than traditional teaching.

The reported amount of difference to teach online in this study varied substantially from that reported in Bender, Wood, and Vredevoogd (2004), who found it took twice as much time to teach online. However, Tomei (2006) reported it took only 13.4% more time in online instruction and assessment components, which is similar to the 8.9% more time reported in this study.

The question whether online teaching is more efficient in terms of faculty time remains and needs continued examination and update. Online teaching efficiency is related to the overall question of whether online edu-

cation is more efficient. Online education involves costs not considered in this study. As the discussion on the innovative assignment drop box feature illustrated, technology is changing and improving. Some of these new features in course management systems might create efficiencies for faculty. If the recently introduced drop box innovation in the course management system had not been innovated, would the time difference in this study have been closer to that in the one by Tomei (2006)? Did this new feature make the difference?

Aceves (2006) concludes that university and program administration should encourage active strategies to ensure all faculty are offered opportunities to learn and engage in online-delivered education. This is a sound recommendation that will get more people involved to generate more ideas. Furthermore, Tomei (2006) concluded that online teaching should not be expected to generate larger revenues by means of larger class sizes at the expense of effective instructor or faculty oversubscriptions. Tomei (2006) also suggests follow-on research is required to evaluate the effectiveness of the two teaching strategies on student learning. Barth (2004) echoes this in pointing out the reality that online education encompasses many types of techniques, instructors, and students, so large scale comparison studies are difficult to conduct in a scientifically rigorous manner. Barth (2004) suggests, therefore, that the future research be an accumulation of experiential case studies and forums for instructors to share techniques and best practices.

Online teaching seems to be a promising educational tool, but may be jeopardized if the quality of instruction is eroded when the reality of the time commitment is overlooked. It may be efficient in many regards, but not necessarily in faculty time. At the same time, the answer is not to focus only on adjusting class sizes or workloads. It is also important to apprise faculty of new developments in course management systems that may create time efficiencies. These innovations may bridge the gap between faculty time needed to teach online and traditional instruction. These innovations might introduce faculty time efficiencies in both online and traditional methods.

References

- Aceves, R.I. (2006). Course development issues in online education. *Academic Exchange*, winter, 224-228.
- Al-Bataineh, A., Brooks, S.L., & Bassoppo-Moyo, T.C. (2005). Implications of online teaching and learning.

- International Journal of Instructional Media*, 32, 285-295.
- Barth, T.J., (2004). Teaching PA online: Reflections of a skeptic. *International Journal of Public Administration*, 27, 439-455.
- Britt, R. (2006). Online education: A survey of faculty and students. *Radiologic Technology*, 77, 183-190.
- Bender, D.M., Wood, B.J., & Vredevoogd, J.D. (2004) Teaching time: Distance education versus classroom instruction. *American Journal of Distance Education*, 18, 103-114.
- Lewis C.C., & Abdul-Hamid, H. (2006) Implementing effective online teaching practices: Voices of exemplary faculty. *Innovative Higher Education*, 31, 83-98.
- Lenz, T.L., Jones, R.M., Monaghan, M.S. (2005). Faculty workload comparison between a campus-based and Internet-based patient assessment course. *American Journal of Pharmaceutical Education*, 69, 67-68. Article 67.
- Lucas, S. (2001). Assessment of learning outcomes in an online environment. *Academic Exchange Quarterly*, 5, 63-67.
- Miller, B., Cohen, N.L., & Beffa-Negrini P. (2001). Factors for success in online and face to face instruction. *Academic Exchange Quarterly*, 5, 4-10.
- Mupinga, D.M. and Maughan, G.R. (2008). Web-based instruction and community college faculty workload. *College Teaching*, 56, 17-21.
- Tomei, L.A. (2006). The impact of online teaching on faculty load: Computing the ideal class size for online courses. *Journal of Technology and Teacher Education*, 14, 531-541.

WHAT WERE THEY THINKING: TEACHING TO REACH THE “COLLEGE BRAIN”

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ABSTRACT

Student learning and concept retention are common goals for most professors. Relatively recent developments in technology have allowed us to better understand the ways in which the adolescent brains of our students work. By employing certain teaching techniques, we are better able to help our students learn and retain more of the concepts we cover in class. Accordingly, this paper provides an overview of the literature on learning and the brain and applies that research to the way in which we teach. In short, the paper explores counterfactual reasoning, personalization and elaboration as ways to improve student learning and retention.

Introduction

Professors teach what we know. Often, though, we need to remind ourselves that the subject we are teaching is new and completely foreign to most of our students. For example, professors teaching Legal Environment of Business will have no trouble spouting the requirements for a cause of action for negligence or even the complete legal definition of assault.¹ However, even for experts in the area, there are limits to what we can recall. For non-experts such as our traditional college students with limited relevant experiences on which to draw, comprehension and retention of complex, abstract concepts often proves quite challenging. Recent developments in brain research, however, can help us understand the workings of the adolescent brain and develop teaching methods that can effectively mitigate physical limitations imposed by the brain, leading to better learning in our classrooms. The purpose of this paper, accordingly, is to describe the current literature on learning and the brain and offer recommendations for applying that research to a business classroom, specifically Legal Environment of Business.

¹ Professors in law school often have first year students memorize difficult to retain legal definitions of commonly used torts, including assault: “An intentional, unlawful offer of corporal injury to another by force, or force unlawfully directed toward person of another, under such circumstances as create a well-founded fear of imminent peril, coupled with apparent present ability to execute attempt, if not prevented” (*Black’s Law Dictionary*, 1968, p. 147).

Background Brain Studies

Current research has drastically altered what we know about the learning process and the brain. In large part, our new understanding is due to scientific developments that have changed the manner in which brains can be studied. Until recently, comparative studies of brains were done through post mortem examinations (Blakemore & Choudhury, 2006). Prior to the 1960s and 1970s, when post-mortem examinations began, researchers believed that there was little substantive change in brain development after the very early stages of life. In the late 1990s and early 2000s, researchers began using Magnetic Resonance Imaging or MRI machines to gather views of the brains of living persons, substantially increasing our knowledge of how the brain functions and providing a better map of which specific areas of the brain were used for what purpose (Blakemore & Choudhury, 2006). Improvements in MRI technology have allowed researchers to view the brain at work using Functional MRIs or fMRI. With this technology, researchers have been able to determine how the living brain actually functions during childhood, adolescence, young adulthood and further. Not only can researchers understand the use and purpose of different parts of the brain, this research also answers many questions about why people of different ages react to information differently.

For example, in one fMRI study, a group of adolescents and adults were scanned while presented with questions requiring respondents to answer whether a suggestion was a good idea or a bad idea (Blakemore & Choudhury, 2006). The answers seem obvious to most of us, with

questions such as “Should you swim with sharks?” The results, however, are somewhat surprising. The results demonstrated that adolescents took significantly longer than adults to decide that the activity was a bad idea. Further, the fMRI showed that, when confronted with decisions regarding risky behavior, adolescent brains showed greater activity in a region of the prefrontal cortex than the adult brains. The researchers’ understanding of this information explains that adults had a relatively efficient response to the mental image and of the possible outcomes, while the adolescents relied more on reasoning to determine if swimming with sharks was a good idea (Blakemore & Choudhury, 2006). In other words, adolescents had to “think about it,” where adults responded more reflexively.

So what differences in the brain explain this remarkable difference in reasoning ability? While it is established that the brain’s physical volume does not change significantly after age 3, there is a reorganization process that continues to develop throughout life, past adolescence and into adulthood (Baird & Fugelsang, 2004). The brain goes through two major refinements, “myelination” and “synaptic” pruning.

Myelination is the process by which the “wires” of the brain become insulated. Myelin is a fatty substance that increases the speed with which signals can travel in the brain. Myelinated fibers connect regions of grey matter and enable their communication. Grey matter, or cortex, is where the brain’s “work” is done Synaptic pruning is the process by which the connections within the grey matter are refined, it is believed that the brain follows a strict “use or lose” policy with regard to grey matter. This process results in a more efficient cortex, and in conjunction with myelination, a more extensively connected cortex (Baird & Fugelsang, 2004, p. 1800).

In other words, as myelination occurs, the brain forms its connections allowing us to communicate information within brain. Over time, the brain undergoes synaptic pruning to refine these connections making thought processes more efficient.

In understanding myelination and synaptic pruning, researchers understand the different stages of human brain development. Researchers believe that the last parts of the brain to mature with myelination are the frontal lobes, which are involved in emotional control and reasoning (Schenck, 2003). From ages 13-19, as the

frontal lobes are developing, adolescents have “a tendency to ignore evidence that does not fit. Preconceived ideas may encourage adolescents to distort evidence to fit their ideas . . . [and l]ogical reasoning skills are poorly or unevenly developed” (Schenck, 2003, p. 20). These deficiencies explain that adolescents often have poor decision making skills.

Illustrating this point is an ad run on September 12, 2007, in the Wall Street Journal. The caption reads: “Why do most 16-year-olds drive like they’re *missing part of their brain*? . . . BECAUSE THEY ARE” (Allstate, 2007, p. A20). In this full page ad by Allstate Insurance Company, the text continues by explaining that

[e]ven bright, mature teenagers sometimes do things that are “stupid.” But when that happens, it’s not really their fault. It’s because their brain hasn’t finished developing. The underdeveloped area is called the dorsal lateral prefrontal cortex. It plays a critical role in decision making, problem solving and understanding future consequences of today’s actions. Problem is, it won’t be fully mature until they’re into their 20s (Allstate, 2007, p. A20).

According to, Jeb Schenck, a researcher and teacher currently applying brain research to the classroom, during this time, adolescents “[tend] to consider only most recent data and [don’t] weigh evidence. [They are r]eluctant to abandon a failed theory without a new one to replace it” (Schenck, 2003, p. 21).

The development of the brain continues. It is not until ages 18-20 that young adults develop the “ability to see complex relationships between different aspects of an abstraction” (Schenck, 2003, p. 21). Finally, around age 23-25, young adults develop the “ability to use principles to combine different abstractions and [to understand] more principle[s] of justice” (Schenck, 2003, p. 21).

As students in college are typically between ages 17-23, their brains are far less capable of using abstract ideas and making complex connections between abstractions – and yet, making such connections lies at the heart of most education in business and law classes. As one study put it, “[o]ne’s ability to imagine alternative outcomes and understand the consequences of those outcomes is an essential component of human reasoning. Such *counterfactual thinking* typically involves imagining a set of circumstances leading up to an event that may have had a different outcome *if only* a critical preceding event did

not take place” (Baird & Fugelsang, 2004, p. 1800). Accordingly, given the phase of their brain’s development, college students will most likely find it difficult to engage in counterfactual reasoning, i.e. anticipate consequences effectively (Baird & Fugelsang, 2004).²

Outthinking the Adolescent Brain

A quick read of the preceding information could prove quite depressing to the college professor. The literature indicates that adolescent brains can’t do what we need them to. Certainly maturation and real life experiences provide avenues for learning, but these take time and rarely occur in the college classroom. Yet, as educators, we know that learning and retention does occur for many students. The question then becomes: What techniques can the professor use to deliver content that will help students learn in spite of their *physical* limitations? This section explores three such techniques – (1) exercises in counterfactual reasoning, (2) personalization and (3) processing and elaboration.

Counterfactual Reasoning

Recall that counterfactual reasoning requires students to imagine a scenario with an expected outcome, and, altering one fact, imagining the possible new outcomes resulting from the change. Many theories of business and law are based, at least in part, on the idea that one must be able to foresee that chosen actions will have varying consequences. For example, adults may understand and foresee the potential outcome of driving recklessly; while adolescents may not directly connect the behavior with the possible consequences of their actions (Baird & Fugelsang, 2004). Hence the legal consequences may differ according to age of the reckless driver.

The more experience adolescents have with situations, the more likely they are able to reason abstractly about similar situations (Baird & Fugelsang, 2004). It is the continued interaction of real life experiences and the brain’s refinements that appears to make counterfactual

² “[A]dolescents are much more likely to reason abstractly about situations where they have had some previous experience; however, it is the interaction of continued experience and refinements in the adolescent brain that enable the emergence of counterfactual reasoning, as well as the appreciation of consequences, in the absence of actual experience. . . . It may be physically impossible for adolescents to engage in counterfactual reasoning, and as a result of this [they] are often unable to effectively foresee the possible consequences of their actions” (Baird & Fugelsang, 2004, p. 1801).

reasoning possible. However, absent extensive experience by adolescents, professors must search for ways to connect counterfactual reasoning exercises to subjects familiar to students. The smaller the step from scenarios familiar to adolescent students, the more likely they can imagine abstract alternative outcomes.

For college professors teaching a legal course, the ability to engage in counterfactual reasoning is core to understanding many concepts. One prime example is the concept of “negligence.” As is understood in every Legal Environment of Business classroom throughout the country, to have a cause of action for negligence one must show: 1) “a duty, or obligation, recognized by the law, requiring the person to conform to a certain standard of conduct, for the protection of others against unreasonable risks;” 2) “a breach of that duty;” 3) “a reasonably close causal connection between the conduct and the resulting injury . . . [or] ‘legal cause,’ or ‘proximate cause;” and 4) “[a]ctual loss or damage resulting to the interest of another” (Keeton et al, 1984, p. 281). As Legal Environment students learn, the crux of proximate cause is *foreseeability*. It is a basic tenet of negligence that “no defendant should ever be held liable for consequences which no reasonable person would expect to follow from the conduct” (Keeton, et al, 1984, p. 281). To fully understand the concept of proximate cause, students must be able to imagine the foreseeable outcomes of different courses of action.

One of the leading cases law school and college classes currently use to practice counterfactual reasoning is *Palsgraf v. Long Island Railroad Co.* (1928, hereinafter *Palsgraf*). In this case, Helen Palsgraf was waiting for a train on a station platform when a man carrying a package of fireworks was helped onto the train. The man’s fireworks fell on the track and exploded. Palsgraf, standing several feet away, was injured by scales that fell due to the concussion of the fireworks explosion. Using these facts, classes typically debate where the “zone of foreseeability” ends and must determine if Palsgraf’s injuries were “reasonably foreseeable,” in which case she is entitled to compensation. While they may use their imagination and find the scenario to be quite bizarre, the invariable questions are: “So what did this scale look like?” – “Why was that man carrying fireworks on a train?” – “Why did they push him on the train?”

Once students get past imagining a 1928 train station, they are able to engage in fact altering scenarios and begin their counterfactual reasoning using the facts of the case. During class, students begin to imagine small alterations to the case and explore various alternate consequences. They ask more probing questions: “Did peo-

ple in 1928 routinely carry fireworks on trains and did they ever blow up?” – “If the employees knew the man was carrying fireworks, shouldn’t they have been more careful letting him on the train?” – “Shouldn’t the train station have bolted down the scale?” – “Exactly how far away from the train was Mrs. Palsgraf?” In formulating these questions, and in responding to the fact altering scenarios provided by the professor, students gain more of an ownership in the material. Their understanding of the concepts is deeper and often students will leave the class exploring more scenario changes continuing their counterfactual reasoning beyond the hour and a half class period.

While Aristotle’s famous phrase may describe the law as “reason, free from passion,” (Aristotle, 384BC-322BC)³ the style of teaching that logically follows from this assertion flies in the face of current brain research because it is inaccessible to the adolescent brain. A major component of creating lasting memory is making links to emotionally significant items in the lives of students (Schenck, 2003). While *Palsgraf* is and will likely remain the seminal case dealing with foreseeability in negligence, the case may have little personal significance to modern college students. We know from current brain research that students learn best when class material touches something that they already know - a scene that is familiar or emotionally important to them (Schenck, 2003).

Me and My Needs: Personal Links through Concrete Material

Research into specific areas of the brain has yielded a new understanding of the way the brain filters information. Researchers have found that the limbic structures in the brain, including the amygdale, assist in tagging information to determine emotional significance (Schenck, 2003). “Generally, the more personally significant the information, the more thoroughly it will be processed and remembered” (Schenck, 2003, p. 48, citing LeDoux, 1996 and Lockhart, 1972). The less personally significant or emotionally significant, the more likely the brain is to “dump” the information.

For the teacher, this suggests that the more successfully we integrate content from the student’s life experience, the more learning occurs. The purpose of integrating their life experiences is that the brain learns new concepts by creating new neuronal networks between the new information and concepts that the brain already

3 Perhaps more appropriately cited for the contemporary student: *Legally Blonde* (2001).

knows and understands (Zull, 2002). If teachers focus more on what students already know and believe and tailor new concepts to that current understanding, then teachers will have an entry into a student’s current neuronal network and a basis for making a new neuronal connection. The more a student can tie a new concept to an old idea, the more likely she is to integrate that idea into her neuronal network and have the ability to make cross connections and references to the new material, using her own personal experiences (Zull, 2002). Without that emotional interest or personal significance, the brain is more likely to simply “dump” that material as insignificant.

So what connects to an emotional interest for college students? Does this research mean that we should be aiming to have our students laugh, cry, or even sing in order to assist them in retaining information? Does this information mean that the content of our courses must be subordinated to meeting the emotional needs of our students, a task that few college professors feel prepared, let alone interested, in doing? No, it doesn’t. What it does suggest, however, is that we are most likely to reach and teach our students when we understand their limited life experiences and purposefully set out to connect to them.

The number of ways in which professors can learn about the interests of their students in efforts to make these “connections” exceeds the scope of this paper. What is most important is that those connections are made. In a faculty meeting at Millsaps College, the question was posed, “what are students most interested in at this stage in life.” The answer was, not surprisingly, “beer and sex.” While I am hardly advocating that all lectures include a discussion of beer and sex, it is, nevertheless, true that in discussions with students from Legal Environment of Business classes, students can more readily discuss the facts and significance of *Lucy v. Zehmer* (1954), a contract dispute over the sale of land in which one of the parties was as “high as a Georgia pine,” than they can discuss *Palsgraf* and her unfortunate train station accident. This illustrates the point that, in an effort to engage the modern college student, we might balance our devotion to historically significant cases with cases that allow students to focus on their life experiences in choosing material designed to deliver an understanding of the law.

Borrowing another example from Legal Environment, West’s Business Law Text and Cases recently added the *Martin v. Wal-Mart Stores, Inc.* (1999, hereinafter *Martin*) to its section dealing with the duty of shopkeepers to business invitees (Clarkson, et al, 2006). In that

case, Harold Martin was shopping in Wal-Mart when he slipped on loose shotgun shell pellets (bb's) that were either overlooked by a Wal-Mart employee or were not cleaned in a timely manner (Martin, 1999). The court focused its attention on the requirements of anticipating dangerous conditions in stores of this type and noted that Wal-Mart is charged with the knowledge of foreseeable risks inherent in its self-service stores (Martin, 1999). Typically, the class enters a discussion of the likelihood that Wal-Mart employees could foresee that the shot pellets would fall to the floor and injure a patron.

One of the benefits of teaching this case is its accessibility to students - a professor would be hard pressed to find a student who had not shopped at a Wal-Mart. The discussions of the case lead students to recall their own experiences in shopping malls with wet marble floors and yellow "A" framed caution signs or the cluttered aisles of a toy store during the day after Thanksgiving sales. The point is that students are able to use their life experiences to make new connections to material with which they are already familiar. Using these familiar building blocks and making these new neuronal connections helps lead to long-term memory of the subject matter discussed by emotionally tagging information as important and relevant to their lives.⁴

One obvious challenge when attempting to connect to students' personal experiences is the constant challenge to find examples with which current students can identify. Faced with cases that are often hard for students to imagine, in class, I ask students to consider their own experiences and articulate similar "foreseeability" issues. Often the discussion leads to grocery stores or department stores and the various hazards that should be foreseen and remedied by shop keepers. Here, the students can choose to make their own connections. However, students may find it a stretch to learn a new concept such as foreseeability and deal with a fact scenario that they cannot firmly see with their own life experiences. Not surprisingly for the adolescent brain, "concrete, visible, objects that can be seen or felt are easier to work with than abstract concepts" (Schenck, 2003, p. 85). Employing movie clips and relevant up-to-date news stories can assist in giving visible objects with which adolescent brains can work. These concepts may then be translated back to an understanding of *Palsgraf*, cre-

ating a new link between an existing neuronal network and the new material.

For example, imagine being a college student in your first law related class, Legal Environment of Business. Imagine reading the textbook the night before coming into class and for the first time ever reading the "black letter" law of the types of intellectual property. The names "trade mark," "trade dress," "patents," and "copyrights" might sound familiar, but reading that a song is protected by copyright means little in the abstract. However, once the student comes to class and discusses how they violated the law by downloading the latest hip-hop music, the material is taken out of the abstract and is given a life in pictures in the brain of the students. Similarly, showing a clip from the movie *Coming to America* (1988) including Eddie Murphy working in a restaurant with "Golden Arcs" called "McDowell's" helps them put the theoretical ideas of "trade dress" and other intellectual property ideas into concrete images.

If our students are actually going to leave class with an understanding and memory of concepts we purport to teach, we must tie those concepts to more concrete images - images with which adolescent brains can connect. When dealing with subjects that are in the abstract, students should be given "CLEAR and DIRECT uses before asking them to come up with their own concepts" (Schenck, 2003, p. 85). Elaboration by the students is key, regardless of whether the concept is abstract or concrete (Schenck, 2003). However, before they can elaborate on a theoretical subject or scenario, they must first be directed to subjects with which they are familiar.

Processing and Elaboration

Simply introducing students to the idea of counterfactual reasoning and using personal examples are only part of the path to increasing understanding and long term retention. In order to "own" the material, students must take that information and process it to create the new neural pathways between the old information and the new (Schenck, 2003). Presenting an abstract idea and trying to tie it to a familiar concept gives the basic framework for the brain to learn (Zull, 2002). But for learning to occur, a new connection between the two concepts must be made.

It seems obvious that those students who participate in class discussions and respond with new and different applications of the subjects being discussed are often the higher achieving students in class. It is not necessarily that these students are smarter than other students, it is perhaps that those students, through the process of *elab-*

⁴ While this article is not suggesting a replacement to *Palsgraf*, using more modern case scenarios to lead to the seminal case on foreseeability may help students ease into the concepts, building on existing neuronal networks.

oration, made a connection to a life experience they already understood. The more connections students make between their life experiences and the new concepts, the more likely the brain will create a strong neuronal connection in the new material, thus leading to a more complete understanding of the new concepts and long term retention. When students elaborate, or “provide their own examples, restate [concepts], make decisions based upon the new information, or make applications . . .,” (Schenck, 2003, p. 83) the information becomes more personally meaningful and more emotionally significant (Schenck, 2003). Moreover, those students will be able to engage in further and more complicated counterfactual reasoning.

The use of elaboration as a teaching tool is not new to the classroom. Professors using the Socratic Method in class are already employing this strategy for long-term retention. In asking students to respond to questions and to restate and defend their positions through direct questioning, the students have a prime opportunity to engage in elaboration. A part of most law classes is taking the case or concept at hand and spending class time having the students elaborate on those facts to explore the boundaries of an idea. For example, in *Palsgraf*, many professors will test the bounds of foreseeability with probing questions and fact-altering scenarios.

Much of the law is abstract, however. Thinking back to law school and the memorization of every element of each and every tort, it is easy to recognize that the difficulty was keeping those definitions in your mind when so many of them made little sense without a “story” to provide a context for the definitions. One can define an assault, but without a mental picture of an assault to put with that definition, it is extremely difficult to keep in mind.

Obviously, different lessons could benefit from different teaching strategies. The point here is not to demonstrate that one simple strategy will revolutionize the classroom. Instead, the point is to demonstrate that context/content-specific strategies can be employed with various measures of success if we are willing to accept that learning is a biological function and that we, as teachers, can do more to facilitate student learning.

Conclusion

We may recall our favorite or most infamous law professor from law school. Perhaps he was the one who instigated the burning of the American flag or perhaps he was the one who, like Professor Kingsfield in the movie *The Paper Chase* (1973) took it upon himself to

sternly teach the hard lessons of being unprepared for class through fear and intimidation. Or perhaps, sticking with a the theme of this paper, we should discuss a character with which our students can more readily relate, Professor Stromwell of *Legally Blonde* who refers to the front row of her class as the “Hot Zone” and professes that she “recommend[s] knowing, before speaking.” These long-revered images of the law classroom might bring a sense of romance from movies and personal nostalgia, but they are ineffective in teaching today’s college student. At the end of the day, the goal is to have students remember and process the information and lessons from class. Isn’t it better to have a class that provides knowledge to students in ways that enhance the students’ long-term memory of the law rather than being the crusty image of a law professor, only the character of whom is remembered?

References

- Allstate Insurance Company. (Sept. 12, 2007). Why do most 16-year olds drive like they’re missing part of their brain? . . . BECAUSE THEY ARE. *Wall Street Journal*, p. A20.
- Aristotle (384BC-322BC).
- Baird, A.A. & Fugelsang, J.A. (2004). The Emergence of Consequential Thought: Evidence from Neuroscience. *Philosophical Transactions of the Royal Society London B*, 359, 1797.
- Black, H.C., (1968). *Black’s Law Dictionary* (Rev. 4th ed.). St. Paul, Minn.: West.
- Blakemore, S-J. & Choudhury, S. (2006). Development of the Adolescent Brain: Implications for Executive Function and Social Cognition. *Journal of Child Psychology and Psychiatry*, 47:3, 296.
- Clarkson, K.W. et al (2006). *West’s Business Law* (10th Ed.). U.S.A.: Thomson/South-Western.
- Craik, F. & Lockhart, R. (1972). Levels of Processing: A Framework for Memory Research. *Journal of Verbal Learning and Verbal Behavior* 11(6), 671-84.
- Keeton, W.P. et al, (1984). *Prosser and Keeton on Torts* (5th ed.). St. Paul, MN: West.
- LeDoux, J. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. New York, NY: Touchstone.
- Schenck, J. (2003). *Learning, Teaching, & The Brain*. Knowa.

Case Law

- Palsgraf v. Long Island Railroad, Co.*, 162 N.E. 99 (N.Y. 1928).
- Lucy v. Zehmer*, 84 S.E. 2d 516 (Va. 1954).

Martin v. Wal-Mart Stores, Inc., 183 F.3d 770 (8th Cir. 1999).

Other

Coming to America (1988). Paramount Pictures.

Legally Blonde (2001). Metro-Goldwyn-Mayer.

The Paper Chase (1973). Twentieth Century-Fox.

**ADD THE TOTAL OF LINE 23, PAGE 1 TO LINE 49, PAGE 2...
DISCUSSION IN FAVOR OF A FORMS-BASED APPROACH TO
TEACHING INCOME TAX**

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ABSTRACT:

Income taxes are driven by two major sources, the body of law known as the Internal Revenue Code, and the myriad of income tax forms mandated by federal and state taxing agencies.

Educators seeking to teach and test income tax have a limited amount of time to present information about tax calculation, comprehension and research issues. Thus, educators must evaluate and determine the most effective method for teaching individual income tax in the time allotted.

This paper contends that a form-based approach to teaching income tax will best prepare students to identify and respond to their future client's income tax questions. The curriculum should arm students with knowledge about the key tax forms, an understanding of the information the forms seek, and how the forms combine to calculate tax liability. With this background, students will be in a position to advise clients on matters that fall within the scope of the current income tax forms, and also to recognize issues and topics that will require more in-depth treatment. As to the more difficult issues, the students can engage in targeted research of the tax code rules and regulations. Once an answer is found, the student can synthesize the research with the client's data to properly report financial statements and tax forms.

Introduction:

Clients seeking a certified public accountant (CPA) are looking for more than just someone who can plug numbers into an income tax form. They want someone who understands their individual financial situation, their business, and the important tax aspects of their business; someone who can advise them on business start up, business operations, and tax minimization.

As both a seasoned tax practitioner and a tax professor, I believe that a forms-based approach to learning income tax provides the strongest basis for today's students to become tomorrow's knowledgeable and trusted accounting advisors. To help our students succeed, we must familiarize them with the key tax forms and checklists, and also help them develop a thorough approach to assessing their client's financial situation to ensure that they are using the right forms at the right times. It is this latter task that separates our students from tax preparation software for the computer. We must give our students the ability to think critically and creatively

about tax questions. Indeed, by giving our students this broad overview, rather than simply teaching them how to plug numbers into a chart, we will ensure that our students do not become so wedded to the tax forms that they freeze when faced with a situation that does not fit neatly into one of the tax-form boxes. In sum, we must teach our students both to fill in the boxes and to think "outside the box."

To give our students the means to deal with more complex or novel tax issues, we can expose them to a research-oriented statutory approach to income tax, and show them where to look for guidance on unanswered questions. Researching statutes is a good starting point for solving complex tax issues, and is a skill that far too many accountants lack. Statutory research teaches our students why they must treat certain events in a particular manner.

A tax education that relies exclusively on research-oriented methods falls short in the real world, however, unless it is linked with a strong understanding of how

to implement the research in a tax transaction. That is, once the students decide what law applies, they must be able to take the next step and actually apply the law to calculate the client's income taxes in a rational and reasoned manner. We must give our students the tools to reconcile the law and the client's unique issues in the tax forms.

Educational Challenges

Tax educators are caught between a rock and a hard place. We have limited time – 43 hours in the case of my Income Tax I class, for example – to teach our students the ins and outs of income taxation. Given that the IRS estimates the average time burden for completing Form 1040 at 33.5 hours, my 43 hours of class time seems miniscule. In just over the time it takes the average taxpayer to complete one tax return, tax educators are charged with giving their students the basis for completing tax returns that run the gamut from simple to complex, for individuals, businesses, and other entities.

The limited time that we have to pass information to our students means that we, as educators, must allocate our resources wisely and teach our students how to find the answers that they will need in the future. A forms-based approach to teaching income tax, combined with an explanation of the proper way to research issues that do not present themselves neatly in a form, appears to be the best route.

Completing the Forms

The Internal Revenue Service has close to 1,000 forms and schedules in its library. The goal of a forms-based teaching approach is not to teach students how to fill out each and every one of the forms. Rather, the approach familiarizes students with the existing forms, details the kind of information required to complete the most often used forms, and helps the students to spot tax issues and situations that call for using one form as opposed to another. It also teaches students to recognize the limitations of the forms; that is, it highlights novel or complex situations that the forms may not cover. It is the best way to learn the most relevant information in the time period allowed.

In tax practice, an accountant will meet with a client and evaluate the client's financial situation, then decide the most prudent tax approach. The accountant must know what information is relevant and they must know what question to ask their clients to gather that information, since most clients do not have a background in accounting. Learning the most used tax forms and the

information necessary to prepare them will help a future accountant identify the key tax issues facing their clients.

For example, a "standard" individual income tax return for a couple who work, with two children, including one in daycare, may contain Form 1040, Schedule A (Itemized Deductions), Schedule B (Dividends and Interest), Schedule C (Profit or Loss from Business), Schedule D (Capital Gains), Schedule E (Rent and Royalties), Form 2441 (Child and Dependent Care Expenses), Form 4562 (Depreciation and Amortization), Form 6251 for Alternative Minimum Tax, and a child tax credit worksheet. This is assuming our couple does not qualify for either the Earned Income Credit, the Additional Child Tax Credit, which would create a whole score of additional forms and checklists.

Most young accountants begin their careers filling in basic tax forms. A new accountant with a full grasp of the forms will be able to determine quickly whether the information she has in hand matches the information called for on a particular form. If not, the new accountant will know that she must seek additional information, either from the client or from the tax code. A forms based approach to teaching income tax will aid the students in beginning their careers.

Notably, tax educators must require their students to prepare income tax returns, with all necessary forms, by hand, rather than through the use of computer software. If a class is simply answering the questions the computer software asks, and letting the computer generate the tax return, they are not preparing the tax return. If a student prepares a tax return by hand, he will be forced to read the form, read the corresponding directions, calculate the mathematical computations, and generally see how the numbers fit together. This manual computation will also help him in his career. If a practitioner doesn't know what the answer should be, he will not know if the computer generated a wrong answer when he is reviewing information for his client.

Jane T. Rubin in her article "Teaching tax using a life cycle approach" discusses that the amount of tax knowledge needed to prepare even the simplest of returns can be overwhelming and difficult to memorize. She states "How many details in the tax law can be retained? Is it more important to memorize information or to be able to find it?" Simple memorization of tax facts does not make a good accountant. A good accountant is one who can answer straightforward questions in a reasonable and rational manner, and who can find answers to

questions that he has not previously encountered when consulted by a client.

Researching the Law

Title 26 of the United States Code is the Internal Revenue Code, the body of law that governs the United States federal tax systems. Many students who begin an income tax class do not realize that income taxes are guided by federal law. The Federal Income Tax Code governs what percentage of income taxpayers pay in taxes, what qualifies as income, what counts as a deduction, who is a dependent, and myriad other matters that the tax professional encounters over and over again. An educator must teach research and its importance, as well as give real life examples of how an accountant takes the research and uses it to prepare the financial statements or tax return for the clients.

For example, Section 61 of the Internal Revenue Code (IRC 61, 26 U.S.C. 61) defines gross income to include “all income from whatever source derived, including (but not limited to)” a laundry list of items:

1. Compensation for services, including fees, commission, fringe benefits, and similar items
2. Gross income derived from business
3. Gains derived from dealings in property
4. Interest
5. Rents
6. Royalties
7. Dividends
8. Alimony and separate maintenance payments;
9. Annuities
10. Income from life insurance and endowment contracts;
11. Pensions;
12. Income from discharge of indebtedness;
13. Distributive share of partnership gross income;
14. Income in respect of a decedent; and
15. Income from an interest in an estate or trust.”

Forcing students to memorize this list may give educators a simple final exam question. If the student cannot apply this list to an actual situation, however, his memorization means nothing. By taking this list and comparing it to the Form 1040 and supporting schedules, an educator can show students through the use of forms not only the law, but how it is applied. For example, the compensation in (1) above is reported on line 7 of the Form 1040, gross income from business is reported on Schedule C, interest and dividends are reported on Schedule B, rents and royalties are reported on Schedule E. By taking these concepts and having students

work through actual examples, including preparing tax returns by hand, the student should have reinforced knowledge of the income concepts.

Rather than relying on memorization, educators should help their students to understand the tax code in general, and show them how to research specific questions that may arise. Practitioners turn to the tax code and related regulations to find answers to the questions that they face everyday: should the client’s company buy a new piece of equipment? Are the depreciation rules favorable for that piece of equipment? Will our new product line create a cost of goods sold deduction or must we capitalize the expenses? Indeed, because the code is so lengthy it is impossible to memorize every nuance; a student must simply know that the code and related regulations are the ultimate resource for novel tax questions. Once an answer is found, the next step is to synthesize the research with the client’s data to properly report financial statements and tax forms.

The American Institute of Certified Public Accountants (AICPA) describes the expanded roles accountants are assuming as careers that “demand a broader understanding of business issues.” Additionally, the AICPA touts that certified public accountants are taking a broader role in business and are expected to work across departments within a company. No longer is the certified public accountant just the “numbers guy” who gets to the bottom line. Educators must train their students to be able to apply their tax knowledge to not only the current tax return at hand, but to what will happen if a new product line is implemented, a new machine is purchased, new employees are hired. Today’s CPA needs to know not only how to report depreciation on Form 4562 and equipment sales on Form 4797, but also what the equipment purchase or sale will mean overall to the company. While a solely forms-based approach to teaching income tax will not fully impart this knowledge to students, it will provide them with a framework for evaluating their client’s interests and pursuing tax minimization options. Moreover, a student with a strong forms-based background will know how to proceed if the issues do not fit neatly into the IRS forms package.

Conclusion

In order to lead businesses in today’s economy, accountants need to know both how to do something and why it should be done. Tax educators are charged with balancing these competing ideals to ensure that students are familiar with the requisite forms, know how to identify and locate the answers to more complex questions, and

are in a position to advise clients who do not have the same background regarding these topics. A client asks what steps he should take to minimize taxes or pursue other financial goals. The accountant well-versed in the numerous tax forms, and able to identify and evaluate when specific information is not covered by an existing form, will be in the best position to respond fully and consistently with the law.

Reference

Career Planning & Development by Robert Half International found on www.aicpa.org/youngcpanetwor/career_tips

Internal Revenue Services Forms found on www.irs.gov.

Internal Revenue Code Section 61, 26 U.S.C. 61 (1986).

Rubin, "Teaching tax using a life cycle approach" The Tax Adviser, May 1998.

IMPROVING THE IMPACT OF CLASSROOM STUDENT ENGAGEMENT ON OUT-OF-CLASS MENTAL FOCUS IN QUANTITATIVE COURSES

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ABSTRACT

Subject mastery does not occur solely in the classroom, but rather is supplemented by thoughtful completion of reading assignments, repetitive work through problem assignments, application on cases, and other out-of-class activities. Can one be assured classroom engagement activities will lead to out of class mental focus? This research suggests the amount of effort students spend on a course is a function of the enjoyment level of the engagement strategies used in the classroom. The purpose of this study is to determine the role of enjoyment, mental focus, and expectations on student performance in quantitative classes. The results from a structured equations analysis showed that enjoyment does influence mental focus which in turn influences expectations and performance. The implication for this result is that if one expects students' motivations to spend more time on traditional activities related to grade success (studying, homework, team discussions, etc), engagement strategies should be perceived as enjoyable.

Introduction

Many students dislike quantitative classes: calculus, statistics, quantitative analysis, even accounting and finance. Their dislike for these classes may be attributable to a variety of reasons: perhaps they had bad experiences with math classes prior to college, maybe they failed to see its relevance to career or personal goals, or perhaps because the learning strategies successful in other areas don't usually work with quantitative topics. Dislike for quantitative topics leads to poor study habits including procrastination on reading and problem assignments, poor class attendance, and inattention when they are in class—all of which lead to poor expectations, unsatisfactory performance, and lack of enjoyment.

As lecture methods increasingly come under attack as a process that stimulates only the auditory and passive visual senses (Becker & Watts, 1995), student engagement, or active learning tactics, have become widespread in many quantitative courses in an effort to enhance student understanding of quantitative tools and their importance in many jobs (See Hakeem, 2001; Lovett & Greenhouse, 2000; Garfield, 1995; Prince, 2004; Philpot & Peterson, 1998; Polito, Kros, & Watson, 2004 as examples). Most active learning studies report an improvement on some measure of student performance such as factual knowledge, relevant skills, student attitudes, or pragmatic items such as student retention in academic programs (Prince, 2004). No literature, however, addresses the carryover impact of in-class ac-

tive learning tactics to out-of-class behaviors. Learning can and should take place outside of the classroom, but many students, even when engagement strategies are being used, do not spend enough time on a topic to fully understand it. Revans pointed out as long ago as 1976, "Men or women learn only when they want to learn... (Revans)." Garfield indicates students studying statistics learn to do well only what they practice doing and students do well only if "...they are engaged enough to struggle with learning new ideas (Garfield, 1995)." In an expose' on statistical instruction, Lovett & Greenhouse state emphatically, "Students learn best what they practice and perform on their own (2000)." How can engagement strategies promote students to become more immersed in the study of a quantitative subject? The goal of this research is threefold: 1) To present a general theoretical framework of the relationships we believe influence the degree to which students become engaged with a quantitative topic, 2) To test the efficacy of that framework, and 3) To compare the viability of that framework to one developed by Lee, et al. that relates enjoyment and mental focus.

Student Engagement

Student Engagement is generally defined as any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing (Bonwell & Eison, 1991). While this definition could include traditional activities such

as homework, in practice student engagement refers to activities that are introduced into the classroom. The core elements of student engagement are student activity and engagement in the learning process. Categories of student engagement tactics include active learning, collaborative learning, cooperative learning, and problem-based learning (Prince, 2004). Evidence on the effectiveness of student engagement is mixed, and, as Prince (2004) points out, depends on what one is measuring: factual knowledge, relevant skills, student attitudes, or pragmatic items such as student retention in academic programs. Bonwell & Eison (1991) report student engagement leads to better student attitudes and improvements in students' thinking and writing. Hakeem introduced a semester-long project in a statistics course that required students to perform three main functions: 1) Collecting data and computing descriptive statistics, 2) performing statistical inference analyses, and 3) preparing a written report describing their data, summarizing the results, and explaining conclusions (Hakeem, 2001). He compared exam scores from this population with exam scores from classes that did not have a required project, and found those students who participated in the project achieved higher exam scores leading him to conclude, "Active learning techniques may be useful for enhancing learning...[and]...may also offer alternative learning opportunities for students who do not fully grasp course material in the traditional lecture format (Hakeem, 2001)." Simulations are also a part of student engagement, especially in quantitatively oriented classes. Polito, Kros, and Watson (2004) investigated the effect of Zarco, an operations management "mock factory" experiential learning activity, on student recollection of operations management concepts. They found that the Zarco stimulation had a significant effect on student recollection (Polito, Kros, and Watson, 2004). Whitely and Faria (1989) also used a simulation student engagement tactic and found students performed better on the final exam. In another quantitative course, finance, Philpot & Peterson (1998) found that student engagement tactics work better than traditional lecture methods. Finally, Prince (2004) reports cooperative learning not only leads to better material mastery, but also promotes interpersonal relationships, improves social support, and fosters self-esteem.

There is little published research reporting negative or neutral results from student engagement approaches, so one might be tempted to believe all engagement strategies are effective at improving student performance. Clearly that cannot be true. Prince (2004) cites research with negative results from problem based learning studies and Azriel, et al. (2005) report the impact of using a game in business statistics did not significantly improve

student performance on exams. There are at least three possible explanations for so few failed student engagement reports:

1. Engagement strategies are overwhelmingly successful and those few negative reports are statistical aberrations,
2. Authors are reluctant to submit studies which have negative results, and
3. Because journals receive so many submissions, they prefer to publish articles within their domain which have positive results.

It is difficult, therefore, to separate successful engagement strategies from unsuccessful ones and examine why some work better than others. One explanation might lie in the follow-up behaviors students adopt.

A neglected area in the active learning research is the actions students take outside the classroom to complement classroom engagement strategies. If students learn when they "want to" as Revans (1976) suggest, and students must struggle and practice on their own as Garfield (1995), and Lovett & Greenhouse (2000) suggest, then what is it about engagement strategies that would make them want to engage in additional study? None of the above articles specifically addressed how students behaved outside of the classroom; that is, to what degree did the classroom engagement strategy carryover to other important learning activities such as completing reading assignments, doing assigned problems, or discussing subject matter with others. It would seem successful engagement strategies would motivate students to learning activities beyond the classroom.

Motivation

In a report by Middlecamp (2005) on the use of engagement strategies in her Chemistry classes, a student was quoted stating, "After taking the final today, I realized how great it felt to take a test after learning about things that I really care about." However, many users pursue student engagement activities in the hopes that students' will increase their motivation to complete assignments and participate in meaningful discussions outside the classroom, increase their expectations, and lead to a better understanding of course material. What characteristics must an engagement activity have to motivate students to increase their mental focus, the degree to which someone becomes involved with a subject, on a topic? Because motivation has complex roots in goal setting, the question is not easy to answer.

People engage in meaningful activities, in part, based on how they set goals, which in turn are based on what is valued (See Ames & Archer, 1988; Dweck & Leggett, 1988). An individual with a mastery orientation values the improvement of skill or knowledge in a given domain and believes success depends on working hard, attempting to understand the domain, and collaborating with others. An individual with an ego orientation values establishing superiority over others and believes success depends on social comparison and assertion of superior ability (Middleton, & Spanias, 1999). An individual's intrinsic motivation to mentally focus (the degree to which someone becomes involved with a subject) on a subject is mediated through the types of goals he or she creates (Meece, Blumenfeld, & Hoyle, 1988).

Regardless of the goal orientation, something must stimulate an action. Several authors believe feelings of personal satisfaction, relevance, and boredom seem to be created by students with respect to specific tasks (Duda & Nicholls, 1992; Seegers & Boekaerts, 1993). This would lead one to conclude, the degree to which a student engages in the subject must be, in part, a function of the engagement tactic itself. If a student finds the tactic enjoyable, stimulating, and worthwhile, he/she is more likely to mentally focus on the subject outside the engagement strategies used in the classroom. Middleton, et al, assert that when a student first encounters an engagement strategy, he/she will tend to evaluate the stimulation (challenge, curiosity, and fantasy) and its control attributes (free choice, not too difficult) to determine if it will generate the desired motivational affect (Middleton, Littlefield, & Lehrer, 1992). While Middleton, et al's work focuses on secondary school mathematics, there is no reason to believe the same motivational factors do not apply to college students. If one accepts that assertion, then the design of student engagement tactics should play a role in college students' mental focus. Furthermore, it is the instructor who is responsible for these tactics and who must tailor them such that they foster stimulation and interest. Part of stimulation and interest is enjoyment. We suggest enjoyment of the classroom engagement tactics must be an integral component in the design.

Research Model and Hypotheses

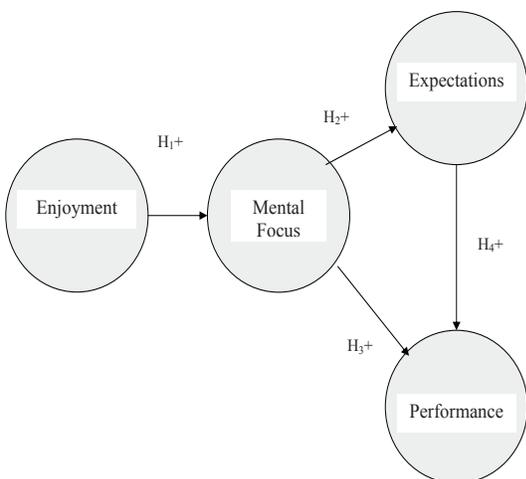
Goal theory and expectancy theory suggest mental focus, the degree to which someone becomes involved with a subject, positively influences performance expectations and enjoyment (Lee, Sheldon, & Turban, 2003). Lee, Sheldon, and Turban (2003) include enjoyment in their study of the influence of goal patterns on mental focus, goal levels, and performance. Their model sug-

gests the degree to which one becomes involved in a subject leads to enjoyment and that enjoyment has no direct influence on one's performance. They further suggest mental focus along with goal level or expectations has a direct impact on accomplishment. The findings of this research support the latter hypotheses. The mere fact people enjoy something does not make them good at it. For example, many people enjoy poetry or music, but few have the ability to write publishable works. Preparation through mental focus should improve performance. As much of the literature already cited supports, as students practice more, read more critically, and participate in other study oriented practices, their subject mastery increase.

Lee, et al's hypothesis about the relationship between mental focus and enjoyment seems intuitively backwards and antithetical to the work of Whiteside (2002), Paris & Paris (2001), and Corbeil (2002). Does one's focus on a topic lead to enjoyment, or does one's enjoyment of a topic provide the motivation to mentally focus? The order of this relationship is important. If one is to believe Lee, et al, then one must also believe any engagement strategies will immerse students in a subject and will lead to their enjoyment. Alternatively, the authors suggest enjoyment leads to a student's desire to become engaged with the subject matter. This would imply an important characteristic of engagement tactics must be an element of enjoyment in order for a student's intrinsic motivation to be stimulated. Paris & Paris (2001) agree and state, "...learning should be hard fun." A link can be made between enjoyment and learning by looking at the general atmosphere of the group, which if positive can equate to a high level of enjoyment (Boocock & Schild, 1968). A positive group atmosphere can lead to high individual learning, even though fun does not directly equate to learning (Boocock & Schild, 1968). These findings also lead one to believe that the more students focus mentally, the higher their expectations, which also contributes to improved performance.

This study presents hypotheses suggesting when students enjoy the learning experience; they are willing and able to increase their mental focus, which are consistent with expectancy theory in that an increase in mental focus does result in increased expectations. Expectancy theory offers face validation of the model proposed here. The findings further agree with the expectancy theory implication that in addition to mental focus having a direct influence on expectations, it also has a direct impact on performance. The research model appears in Figure 1. The following hypotheses correspond to that model:

FIGURE 1
RESEARCH MODEL ON MENTAL FOCUS AND THE
INFLUENCE ON PERFORMANCE THROUGH AN
INDIVIDUAL'S EXPECTATIONS



- H1: Enjoyment is positively related to mental focus
 H2: Mental focus is positively related to expectations
 H3: Mental focus is positively related to performance
 H4: Expectations are positively related to performance
 H5: Enjoyment is not related to performance

Hypotheses 1 – 5 were first tested using a correlation table. Since this data indicated significant correlations, additional analyses using a Structured Equations Model (SEM) were justified and performed (Hox and Bechger, 1998). The model was supported through SEM, justifying a comparative test of strength against the Lee, et al. model, which uses enjoyment as a predictor of mental focus. If that ordering reveals an equally good fit to our hypothesized model, it would detract from our hierarchical argument because it would imply enjoyment is not a determining factor of mental focus.

Methodology

Data were acquired from three identical junior level, Quantitative Analysis classes taught by the same instructor at a medium-sized university. Students were traditional college age students with 93% of them age 20 – 22. The number of males in the population was slightly larger than females (52% male). Every student was offered the opportunity to participate in this study in return for two points being added to their final average at the end of the semester—97 of 118 students accepted the offer. All classes were taught using a wide variety of engagement strategies; some borrowed from other authors and adapted to a quantitative course, oth-

ers created by the authors specifically to enhance student engagement.

At the beginning of each instructional module, students were given diaries on which they recorded the amount of time they spent preparing for the course. Preparation included reading, doing homework problems, studying and working with others on class projects. At the end of each module, students completed a six-item mental focus questionnaire developed and validated by Lee, et al. (2003). The mental focus questionnaire assesses how well students were able to concentrate on the subject matter during the semester. Items include the following: When preparing for classes I ... “became easily absorbed in its pursuit,” “had good concentration,” “found my mind wandering to other things” (reverse scored), “felt distracted and found it hard to pay attention” (reverse scored), “had to work hard to keep my mind on-task” (reverse scored), and “had a difficult time focusing on the task” (reverse scored). A 4-point Likert scale was used for responses, ranging from *I probably didn't do this at all* (1) to *I probably did do this a lot* (4). At the end of each module, students were asked to complete an eight-item measure of enjoyment developed by Elliot and Church (1997). A sample item is “I enjoyed this class very much.” Items were rated on a 5-point Likert scale ranging from strongly agree (1) to strongly disagree (5) and an index was created by summing the scores of all eight items. Exam scores were retained at the end of each module as a measure of performance. Eighty-six students finished the project with usable answers.

Results and Discussion

Hypotheses $H_1 - H_4$ suggest a positive relationship among all variables along the paths through the model. Specifically, there should be a significant correlation between variables connected by a path. A simple correlation analysis among all variables tests these hypotheses, which are consistent with goal and expectancy theories and with the work of Lee, et al. Significant path correlations do not mean the model is properly specified, but insignificant correlations would imply the model is not accurately specified.

Table 1 contains the result of a correlation analysis using SPSS. All correlation paths of the hypothesized model are significant (NOTE: Because SPSS limits variable name length, Performance was called RESULT).

Hypothesis 5 states there should be no significant relationship between enjoyment and performance (result). The correlation matrix in Table 1 shows this relationship to be insignificant as hypothesized. This is consistent

TABLE 1
CORRELATION ANALYSIS FOR THE HYPOTHESIZED MODEL.

Factor	Measure	Enjoy	Focus	Expect	Result
Enjoy	Pearson Correlation	1	.		
	Sig. (2-tailed)	.			
	N	172			
Focus	Pearson Correlation	.257(**)	1		
	Sig. (2-tailed)	.001	.		
	N	172	172		
Expect	Pearson Correlation	.154(*)	.218(**)	1	
	Sig. (2-tailed)	.044	.004	.	
	N	172	172	172	
Result	Pearson Correlation	.134	.256(**)	.396(**)	1
	Sig. (2-tailed)	.079	.001	.000	.
	N	172	172	172	172

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

with other authors’ findings—one can enjoy something and not be good at it, and one can not enjoy something but excel.

Having confirmed the general relationship hypotheses, the next steps are to test the hypothesized model of how engagement strategies impact topic mastery in a quantitative course and compare the strength of our model against the alternative model suggested by Lee, et. al. Structured Equations Modeling is a statistical modeling technique whereby the relationships between theoretical constructs are represented by regression or path coefficients (Hox and Bechger, 1998). Observed exogenous variables (those variables with no explicit cause as indicated by an absence of path arrows coming into them) and observed endogenous variables (intervening causal and dependent variables indicated by arrows coming into them) are represented by rectangles in a path diagram. Unobserved variables are represented by ovals.

Figure 1 represents the hypothesized model of interest. Mental Focus cannot be directly observed and is being represented by a surrogate variable, the Effectiveness Index, developed by Lee, et al. (2003).

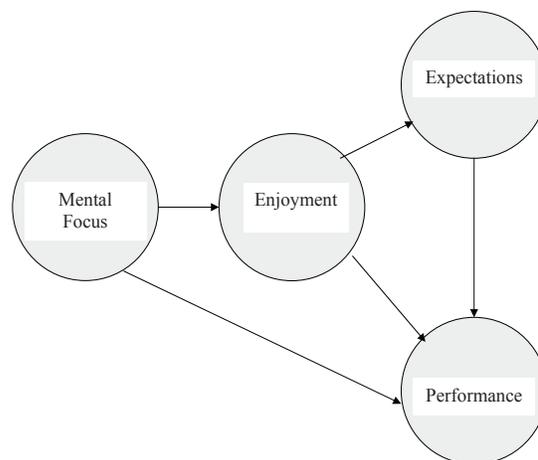
Figure 2 is the alternative model suggested by goal and expectancy theories (Lee, et al, 2003).

Goodness-of-fit tests determine whether or not the model being tested should be accepted or rejected. There are many goodness of fit tests—the two most popular SEM software, LISREL and AMOS, report 15 and 25, respectively. The choice of an appropriate measure is a matter

of dispute among methodologists (Garson, 2005). Jaccard and Wan (1996) recommend using at least three fit tests so as to reflect diverse criteria. Three measures are selected, one of which will also address parsimony.

A good fit is not the same as strength of relationship. “A model may have a perfect fit when all variables in the model are totally uncorrelated (Garson, 2005).” Furthermore, a model can have a good fit, but be mis-specified. Fit indexes rule out bad models, but do not prove good ones. Garson suggests a more useful criterion may simply be to compare the fit of one model to the fit of another. Such a comparison is made between the models from Figures 2 and 3 in Table 2.

FIGURE 2
ALTERNATIVE ENGAGEMENT STRATEGY MODEL



Chi Square is the most common fit test for structural equations analysis. A significant Chi Square indicates a **lack** of satisfactory model fit, leading one to suggest Chi Square is actually a “badness of fit” measure. A significant Chi Square means the hypothesized model’s covariance structure is significantly different from the observed variable covariance matrix (Garson, 2005). Table 2 shows an insignificant Chi Square for the hypothesized model and a significant Chi Square for the alternative model, meaning the hypothesized model is an accurate specification of the relationship among the variables, while the alternative model does not properly portray the relationship among the variables.

The Normed Fit Index (NFI) is a goodness-of-fit measure reported on a scale from 0 to 1, with 1 being a perfect fit. By convention, NFI values below 0.90 indicate a need to respecify the model. Table 2 shows a near perfect fit for the hypothesized model, while once again, the alternative model falls outside the acceptable range.

RMSEA, Root Square Error of Approximation, is another popular measure of goodness of fit because it corrects the model for complexity—the more complex the model, the more penalty attached to it by this measure. RMSEA computes the lack of fit per degree of freedom and an acceptable RMSEA level is said to be less than 0.05. The alternative model does not have an acceptable RMSEA whereas the hypothesized model does.

The hypothesized model is shown to have a better fit than the alternative model on all three of the reported goodness of fit measures; indeed, for all fit measures supplied by AMOS, the hypothesized model is superior.

Discussion, Implications, and Recommendations for Future Research

There is an abundance of literature in all areas of study demonstrating the value of student engagement strategies, but not all learning takes place in the classroom.

No studies have considered the impact engagement strategies have on out-of-class behaviors, and this research does not fully explore that question. As a first step, understanding was sought on how enjoyment of an activity motivated further actions generally associated with subject mastery. Evidence was found that engagement strategies with an element of enjoyment led to increased mental focus outside the classroom. Furthermore, as students increased their focus on a topic, their expectations also increased, which is consistent with goal theory. Raised expectations also contributed to student performance.

The most salient implication of this finding is a not all engagement strategies will promote student activities outside the classroom. Students require time to learn and time to explore underlying concepts for connections to previous learned knowledge. Because of time limitations within a class, students must explore concepts outside of class. In-class activities must motivate this exploration. Games and simulations would seem to be fertile ground for active learning strategies which have an element of enjoyment. Games and simulations induce play and engagement, thereby supporting individual growth in knowledge, motivation, and self-definition. As noted by Boocock and Schild (1968), “games generate potent motivation due to the expectation of pleasure children associate with them and because of their inherent dramatic interest deriving from action, conflict, and uncertainty of the outcome” (pp. 79-80). Paris & Paris (2001) state “learning should be hard fun” (p. 12). Play is generated by internal motivation within the individual with no external goals (Corbeil, 1999), but realism in a game increases the “enjoyability” of the gaming experience, and this probably further enhances learning (Lainema, 2004).

Quantitative courses tend to be among the most dreaded taken by college students, perhaps in part because of past failures. Diefendorff et al. (2000) report students who have past failures may have difficulty completing

TABLE 2
GOODNESS OF FIT STATISTICS

	Chi Square (Probability Level)	NFI Delta1	RMSEA
Hypothesized Model (Figure 1)	.240 (0.624)	0.996	0.001
Alternative Model (Figure 2)	11.453 (0.003)	0.801	0.173

tasks if they become preoccupied by those thoughts. Furthermore, over concern about current performance or preoccupation with other off-task concerns may disrupt an individual's concentration (See Kanfer & Ackerman, 1996; Sarson et al. 1996; and Yair, 2000). Future research should examine the whether the effects of these types of intrusions can be mitigated through enjoyable engagement tactics and to subsequent impact on the mental focus of these individuals. Subsequent research may also want to explore specific activities that tend to generate additional commitment to mental focus and the relationship among personality types, goal types, student perception of enjoyment, and the resultant impact on mental focus and expectations. Finally, this model should be tested on predominately adult learners in corporate training venues to see if the relationships posited here hold true.

Effective teachers are always searching for ways to improve subject mastery by students. Active learning tactics such as small group discussions must have an educational objective, but if they also contain an element of enjoyment, this research has shown it will have a carryover effect on other outside-of-class factors which contribute to student success. Student engagement activities may make classroom instruction effective, but enjoyable student engagement activities will motivate students to continue their exploration of a topic beyond the classroom.

REFERENCES

- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes, *Journal of Educational Psychology*, 80, 260-267.
- Becker, W., & Watts, M. (1995). Teaching methods in undergraduate economics. *Economic Inquiry*, 33, 692-700.
- Boocock, S. S., E. (Ed.). (1968). *Simulation games in learning*. Beverly Hills, CA: Sage Publications.
- Bonwell, C.C., and J. A. Eison (1991). *Active Learning: Creating Excitement in the Classroom*. ASHEERIC Higher Education Report No. 1, George Washington University, Washington, DC.
- Corbeil, P. (1999). Learning from the children: Practical and theoretical reflections on playing and learning. *Simulation & Gaming*, 30(2), 163-180.
- Diefendorff, J.M., Hall, R.J., Lord, R.G. & Strean, M.L. (2000). Action state orientation: Construct validity of a revised measure and its relationship to work-related variables. *Journal of Applied Psychology*, 85, 250-263.
- Dweck, C.S., & Leggett, E.L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.
- Elliot, A.J., & Church, M. A. January 1997. A Hierarchical Model of Approach and Avoidance Achievement Motivation. *Journal of Personality and Social Psychology*, 72(1). 218-232.
- Garson, G. D. 2005. *PA 765 Statnotes: An Online Textbook*. <http://www2.chass.ncsu.edu/garson/pa765/structur.htm>.
- Hakeem, S.A. (2001). Effect of experiential learning in business statistics. *Journal of Education for Business*, 77(2), (95-98).
- Hox, J.J., & Bechger, T.M. (1998). An Introduction to Structural Equation Modeling. *Family Science Review*, 11, (354-373).
- Jaccard, J., and Wan, C.K. (1996). *LISREL approaches to interaction effects in multiple regression*. Thousand Oaks, CA: Sage Publications.
- Kanfer, R. & Ackerman, P.L. (1996). A self-regulatory skills perspective to reducing cognitive interference. In I. G. Sarason, G. R. Pierce, & B. R. Sarson (Eds.), *Cognitive interference: Theories, methods, and findings* (pp. 153-171). Mahaw, NJ: Erlbaum.
- Lainema, T. (2004). Redesigning the traditional Business Gaming Process - Aiming to Capture Business Process Authenticity. *Journal of Information Technology Education*, 3, 35-52.
- Lee, F. K., Sheldon, K. M., & Turban, D. B. April 2003. Personality and the Goal-Striving Process: The Influence of Achievement Goal Patterns, Goal Level, and Mental Focus on Performance and Enjoyment. *Journal of Applied Psychology*, 88(2), 256-265.
- Lovett, M.C., & Greenhouse, J.B. (2000). Applying cognitive theory to statistics instruction. *The American Statistician*, 54(3), 196-206.
- Meece, J.L., Blumenfeld, P.C. & Hoyle, R.H. (1988). Students' goal orientation and cognitive engagement in classroom activities. *Journal of Educational Psychology*, 80, 514-523.
- Middlecamp, C. H. (2005). The art of engagement. *Peer Review*, 7(2) 17-20.
- Middleton, J.A., & Spanias, P.A. (1999). Motivation for achievement in mathematics: Findings, generalizations, and criticisms of the research. *Journal for Research in Mathematics Education*, 30(1), 65-88.
- Middleton, J.A., Littlefield, J., & Lehrer, R. (1992). Gifted students' conception of academic fun: An examination of a critical construct for gifted education. *Gifted Child Quarterly*, 36, 38-44.
- Paris, S. & Paris, A. (2001). Classroom applications of research on self-regulated learning. *Educational Psychologist*, 36(2), 89-101.

- Philpot, J., & Peterson, C. (1998). Improving the investments or capital markets course with stock market specialist. *Financial Proactice & Education*, 8, 118-124.
- Piaget, J. (1962). *Play dreams and imitation in childhood* (C. H. Gattegno, F., Trans.). New York: Norton and Company, Inc.
- Polito, T., Kros, J., & Watson, K. (2004). **Improving Operations Management Concept Recollection Via the Zarco Experiential Learning Activity.** *Journal of Education for Business*, 79(5), (pp. 283-286).
- Prince, Michael (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(30), XXXX.
- Revans, R.W. (1976). Management education: time for a rethink, *Personnel Management*, 8(7), 20-24.
- Sarason, I.G., Pierce, G. R., & Sarson, B.R. Vol. (Eds.). (1996). Domains of cognitive interference. In I.B. Weiner (Personality and Clinical Psychology Series Ed.) *Cognitive interference: Theories, methods, and findings* (pp. 139-152). Hillsdale, NJ: Erlbaum.
- Whiteley, T., & Faria, A. (1989). A study of the relationship between student final exam performance and simulation game participation. *Simulation & Gaming*, 20, (pp. 44-64).
- Whiteside, J. A. (2002). *Beyond Interactivity: Immersive Web-based Learning Experiences*. Retrieved September 10, 2002, 2002, from www.eLearningGuild.com.

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