

# **A TEST OF LEARNING CONCEPTS: TEACHING BUSINESS INTEGRATION TO THE FRESHMAN BUSINESS STUDENT LEARNER VIA PODCASTING**

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## **ABSTRACT**

*The research in this paper is designed to discover if the use of supplemental instruction through the use of podcasts enhance learning for students in a business school environment. Specifically, previous experience in an entry level Survey of Business class suggested that topics regarding the integration of the business disciplines have been difficult for the freshman and sophomore learner. A review of the literature shows that research does not address this specific problem, nor propose any solutions. Thus, a series of podcasts were developed for the purpose of emphasizing the integrative nature of the business disciplines.*

*These podcasts were provided to one section of Survey of Business students, while a similar section acted as control, and did not have access to the podcasts. However, the concept of integration was taught in both sections. An assessment of one multiple choice question on each of three interim exams, and an essay question on the final exam was used to reveal whether the supplemental delivery of content via podcasting influenced student learning. Results from this research indicated a correlation between student success and use of podcasts.*

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## **INTRODUCTION**

Business educators face many challenges in the classroom today. These challenges include providing an “enterprise integrated” educational environment, and adapting to the changing learning styles and needs of the current student. First, the concept of business integration (BI) suggests that business students should have a broad knowledge of each functional area of business, and an expertise in their training. For example, it is important that accounting students receive training that would allow them to pass the CPA exam if the student so chooses, but it is equally important that the accountant understands the functional importance of finance, marketing, and management. In the same way, human resources majors should be experts in their field, but also be able to communicate with their

partners in each functional area and so insure progress toward the firm’s goals.

A second challenge to business educators today is the changing learning styles and needs of the current student. Students now want and expect to have mobile computing used in the curriculum (Barak, Lipson, & Lerman, 2006). Students carry laptops, smart phones and tablets to school. Anecdotal evidence gleaned via a short walk through a student union or business school lobby reveals the level of technology carried by students today. Thus, it is up to the business professor to determine how to effectively integrate this technology into the classroom.

This research addresses both challenges and seeks to determine if podcasting has a positive influence on freshman and sophomore business students’ understanding of

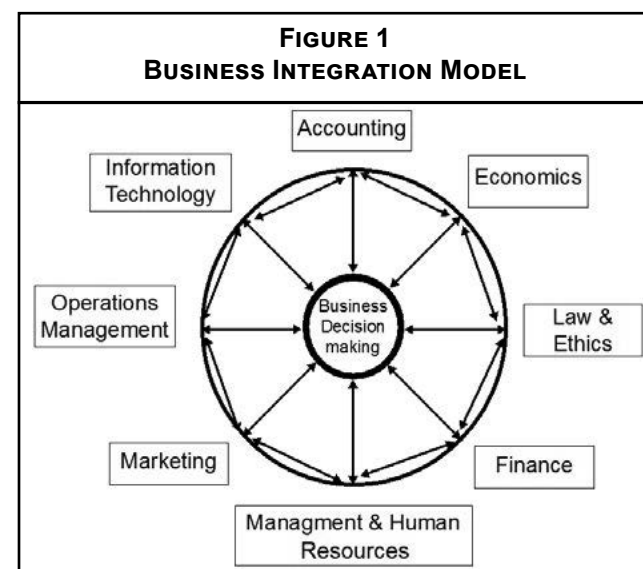
BI. Business integration is defined as the decision making process through close and seamless coordination between business functions, including departments, groups, organizations, and systems. The students in this research are from a Survey of Business class at a Midwestern university. The average student at this point in their academic career knows little about business and its inner-workings, and one of the learning objectives of this course is to provide an integrated perspective of business. The curriculum attempts to show the student that business integration is the combination of business processes into an integral whole, which requires an understanding of business functions and how those functions fit together for the purpose of making business decisions. In other words, the new business student will understand how each part of a company works together to accomplish a task and progress toward achieving the firm's objectives. For example, the curriculum shows the student that there are times when the marketing department must be able to work with legal, finance, and accounting at the same time.

## LITERATURE REVIEW

Podcasting is a method of delivering multimedia files over the internet using Really Simple Syndication (RSS) for playback on mobile devices and personal computers (Beldarrain, 2006). RSS can be a powerful tool for educators in that every time new content is uploaded to a source, such as blog or classroom web page, that same content could automatically download to the users listening device. Educators can consider this feature a "video on demand" offering for the students. Moreover, these play both audio and video files. Students indicate that they like podcasts as supplemental instruction for they are empowering, portable, motivating and easy to use (Rosell-Aguilar, 2007; Salmon & Nie, 2008). Students see that podcasts are replacing real lectures and classroom discussion (Hatch & Burd, 2008), but they also see it as a tool to facilitate two-way communication between the students and the professors (Harris & Park, 2008), and they prefer using various technologies while studying (Saeed, Yun, & Sinnappan, 2009). As such, research has shown that podcasts increased overall GPA, decreased absenteeism, and decreased withdrawal rates among the students involved in a podcast using class (Parslow, 2009; Preuss, 2008).

Since students are enthused and indicate they love podcasts (Kardong-Edgren & Emerson, 2010), This study uses podcasts that were developed and produced with the assistance of a faculty member (Brittain, Glowacki, Van Itersum, & Johnson, 2006), resulting in five podcasts that speak towards the different areas of business integration: Legal / Business Law, Finance, Marketing, Management, and Production / Operations Management. Each of these

podcasts was performed by professors in their respective field. The podcasts were generally not longer than seven minutes in length. Thus, these podcasts were designed to address the two distinct challenges faced in the Survey of Business classroom; that is, to effectively teach the concepts of business integration while at the same time including podcasting technology in an effort to reach and teach the freshman learner.



## METHODOLOGY

This study compares the learning outcomes of students enrolled in the first year business course. These students are freshman and sophomore students who generally know very little about business, including an understanding of the roles of the various business disciplines, and more importantly, how those distinct disciplines interact. These podcasts were recorded, produced, and edited by students in the business school to specifically address the seven of the eight learning goals of the course. Each podcast is a recording of a professor from a business discipline (Marketing, Finance, etc.) discussing their discipline and its integrative relationship to the business enterprise. The podcasts contained relevant information regarding business integration between different disciplines, and the running time of each podcast was about seven minutes. The study consisted of two different groups, a control classroom, of thirty-nine students who did not have access to the podcasts, and a test group of thirty-six students who were provided the podcasts as a part of the classroom presentations. The students were made aware at the beginning of the semester that a study was being completed and data would be collected. No private or demographic information was collected. The two sets of classes had the same amount of class time, both met on the same campus and in the same building on Monday, Wednesday, and

Friday for fifty minutes. Both classes received class lecture time on the concept of business integration and both were taught the same curriculum on the subject. Other than different instructors, the classes were similar.

The comparison tests between the two classes were conducted four times during the semester. The first three comparisons were conducted via multiple choice questions on the first of three common exams for the course. The final comparison was conducted via a three-part essay question on the final exam. The multiple choice test items were electronically graded, while the final exam question for both groups was evaluated by a single graduate student using a rubric. The three multiple-choice questions are:

- **Multiple Choice Question One from the first exam:**  
\_\_\_\_\_ is the process of coordinating the business functions and the understanding of how they fit together for the purpose of making business decisions.
  - A. Contingency Management.
  - B. Management by Objective.
  - C. Business Integration.
  - D. Strategic Planning
- **Multiple Choice Question Two from the second exam:**  
As owner of your company, you are considering expansion. Two options you might explore would be leasing a building or buying a building. You ask your Finance Officer to explore the options. Your Finance officer is likely to talk to:
  - A. Accounting and CEO.
  - B. CEO, Marketing and Legal departments.
  - C. Operations, Marketing and Accounting.
  - D. Accounting, Marketing, Legal, Operations, HR, IT.
  - E. Accounting, Stockholders, Board of Directors, CEO
- **Multiple Choice Question Three from the third exam:**  
Frito-Lay company is launching an ad campaign for a new flavored corn chip. The Marketing Team wants to measure the impact and effectiveness of the campaign. Which company departments would likely be involved in the analysis?
  - A. H.R. and Production.
  - B. Finance and Management.
  - C. Marketing and Accounting.
  - D. Legal and Info. Technology.
  - E. All of the above

The three part essay question was included in the Final Examination for both groups.

Bug-Be-Gone, Inc., a major manufacturer of pesticides, sells its products through retailers and directly to consumers through the Internet. Its product line consists of premium quality pesticides, herbicides, fungicides, and related applicators and safety equipment. Due to forecasted changes in rainfall Bug-Be-Gone, Inc. expects that sales could decline by at least 10% each year over the next five years. Its management team is meeting to address the forecasted decline in rainfall.

- Name the different functional areas of business/business disciplines we have studied in class that will be impacted by the forecasted decline in rainfall? (5 points available)
  - A. Identify and describe a strategic decision you recommend to Bug-Be-Gone's management to adapt to the forecasted change. (5 points available)
  - B. Describe how your recommended strategic decision impacts each of the functional business stated in Part "A". (10 points available)

Part A requires the recall of at least five of the eight business disciplines or functional areas covered in class for 5 points. Part B requires creating a strategic solution for 5 pts. Part C is worth 10 points, and requires an application of the strategy outlined in Part B to the functional areas recalled in Part A. The following rubric was applied to insure consistent grading of the essay responses in both courses.

(points) **Part A:**

- |   |   |
|---|---|
| 0 | no attempt  |
| 1 | stated "all of the areas" without supporting information        |
| 2 | "all of the areas" areas with limited supporting information    |
| 3 | one or two areas identified with limited supporting information |
| 4 | three-four areas identified with supporting information         |
| 5 | five or more areas listed with supporting information           |

(points) **Part B:**

- |     |  |
|-----|--|
| 0   | no attempt                                       |
| 1-2 | non-strategic (tactical) actions                 |
| 3   | weak strategic action identified limited support |

- 4 strategic action identified and limited support  
 5 strategic action identified and supported
- (points) **Part C:**
- 0 no attempt  
 1-4 "all of the areas" with limited supporting information  
 5-6 2 areas identified with limited support  
 7-8 3 areas identified and supported  
 9-10 4 or more areas identified and supported

## RESULTS

All the students took the first and second exams, two students from the podcasting class did not take the third exam, and thirty-five students from the podcasting class and twenty-three from the control class took the final exam. The significant difference in class size between the two groups at the end of the semester may be anecdotal evidence supporting Preuss' (2008) finding that podcasting decreased absenteeism and withdrawal rates.

The results from the three multiple-choice questions indicate that the podcasting class had higher scores than the control group. The first question indicated a statistically significant (Pearson Chi-Square 13.196,  $p=0.001$ ) difference between the groups where 86% of the podcasting students answered the first multiple choice question correctly while 46% of the control group answered the first question correctly. The second multiple-choice question is a more challenging question, and fewer students from both classes answered the question correctly, yet the podcasting group continued to score significantly higher than the control group (Pearson Chi-Square 10.308,  $p=0.001$ ). The podcast class had a 50% pass rate, while the control class had a 15% pass rate on the second question. The third multiple-choice question again showed a statistical difference between the two groups (Pearson Chi-Square 3.946,  $p=0.047$ ). The podcast group had a 62% pass rate on the third question, while the control group had a 38% pass rate. Thus, the three multiple-choice questions showed a difference between the two groups consistently through the semester. See the appendix for a table of the results.

The results from the final essay question are similar to the results from the three multiple-choice questions in that the class using podcasts generally scored higher on the final exam than the control class. The essay question is divided into three parts. Part A is worth five points, and asks the student to list the functional areas of the firm. A t-test comparing the mean scores for both classes indicated that the students' scores on Part A are not significantly different (means of 3.34 and 3.42,  $p=0.73$ ,  $df=41$ ). Part B is also worth five points, and asks the student to identify the strategic decision faced by the firm. A t-test comparing the

mean for both classes also indicated that the scores are not significantly different (means of 4.13 and 4.31,  $p=0.45$ ,  $df=41$ ). Part C is the final portion of this essay question, and it is worth ten points. It asks the student to apply their understanding of how the decision will impact each of the functional areas of the business. A t-test of means between the two classes did find a difference between the groups, where the podcasting group scored significantly higher on the question than the control group (means of 5.96 and 8.59  $p<0.00$ ,  $df=38$ ). The different degrees of freedom for the three parts is due to one or two students not answering one of the sections of the question, thus dropping them out of the statistical analysis.

## DISCUSSION AND CONCLUSION

The results of this study indicate that podcasting does have an effective, positive influence on freshman business learners regarding the topic of business integration. The results from the first multiple choice question show a strong difference between the two classes. The podcasting class had viewed one podcast from Legal / Business Law at this point in the semester. Interestingly, the first exam had the strongest difference between the two groups as indicated by  $\phi_c$  (Hair, Black, Babin, Anderson, & Tatham, 2006). The second exam included a podcast from Finance, and showed a significant difference between the groups, but the strength of that difference was slightly less. The third exam included two podcasts, one from Marketing and the other from management, and that exam again showed a difference between the two groups, but that difference was not a robust. Finally the last podcast covering Production / Operations Management was viewed prior to the comprehensive final exam. The order of podcasting presentation follows the order of the business disciplines covered in the text.

The second phase of the research confirms that both groups had acquired a basic understanding of business integration. At this time, all five podcasts were viewed by the podcasting class. The gap between the two groups grew smaller on the second and third exams, and that trend was also seen in the results of the first two items from the final exam essay question. The mean scores from parts A and B reveal that both groups are equivalent in their understanding of the basic concepts of business integration, but the results from part C indicate that the podcasting group was more able to assimilate and apply that knowledge, suggesting higher order learning. Thus, this one semester experiment supports three concepts. First, podcasting can be an effective supplemental instructional learning method. Second, the effectiveness of the podcasts appears to be stronger as an introductory tool. Third, podcast learning

can be valuable in improving a student's ability to apply and evaluate business integration concepts.

## WEAKNESSES AND FUTURE RESEARCH

While this study indicated that podcasting does have a positive influence on learning, it still leaves some questions unanswered. First, the control and experimental groups were taught by two different instructors. Every effort was made to make the classes similar in content and information delivery. The curriculum, lesson plans, and tests were all similar. The main difference is that the students in the experimental class were exposed to the podcasts as a supplement to lecture. Yet the influence of two different instructors cannot be estimated. Further research is warranted using the same instructor for both the control and experimental classes.

Second, this research did not include out-of-class podcasting. RSS and podcasting allows for students to download content from various sources and view that content at their own leisure. This study exposed the students to the podcasts as part of the classroom instruction. There is the opportunity for further research, including assessing the effectiveness out-of-class viewing the podcasts multiple times, and the impact of student selected media devices in retention.

Third, this study looked exclusively at a single concept. Further research is warranted to determine if other concepts lend themselves to podcasting, and moreover, if

some content is best not delivered via podcasts. In the same way, this study ignores whether some business disciplines are more obvious in the ways they integrate with the rest of the business. For example, learners may see that accounting is naturally more integrated than operations, and thus teaching accounting integration is easier than teaching operations integration.

Fourth, the podcasts in this study were developed by students for students. The level of production quality was good, the picture and audio were of good quality, but these podcasts were not professional studio quality. Also, the podcasts were simply "talking heads" of the professors. There were no supporting graphics, sound or music to reinforce learning. McLuhan (1964) suggests that the quality and format of the media may have an influence on the effectiveness of the message. Since the production levels of the podcasts were minimal, a test of podcasts using more advanced production techniques is warranted.

In the end, this study does show that there is relationship between student success and use of podcasts. This study of business integration found that students who used podcasts were more successful than those who did not. Additionally, the application of the business integration concepts by students was shown to be more effective in the group that had exposure to the podcasts by virtue of the results of the graded essay question. In both instances, the results of this research demonstrate a positive correlation between student learning and the application of podcast technology.

APPENDIX CROSS TABULATION RESULTS FOR THE THREE MULTIPLE-CHOICE TEST QUESTIONS.											
Multiple Choice-Q1				Multiple Choice-Q2				Multiple Choice-Q3			
(count)	Fail	Pass	Total	(count)	Fail	Pass	Total	(count)	Fail	Pass	Total
iPod group	5	31	36	iPod group	18	18	36	iPod group	13	21	34
control group	21	18	39	control group	33	6	39	control group	24	15	39
	26	49	75		51	24	75		37	36	73
(percent)	Fail	Pass	Total	(percent)	Fail	Pass	Total	(percent)	Fail	Pass	Total
iPod group	14%	86%	48%	iPod group	50%	50%	48%	iPod group	38%	62%	47%
control group	54%	46%	52%	control group	85%	15%	52%	control group	62%	38%	53%
	35%	65%			68%	32%			51%	49%	
(expected)	Fail	Pass	Total	(expected)	Fail	Pass	Total	(expected)	Fail	Pass	Total
iPod group	12.5	23.5	36	iPod group	24.5	11.5	36	iPod group	17.2	16.8	34
control group	13.5	25.5	39	control group	26.5	12.5	39	control group	19.8	19.2	39
	26	49	75		51	24	75		37	36	73
Pearson's $\chi^2 = 13.196$ , 1df, p = .001 $\phi_c = .419$				Pearson's $\chi^2 = 10.308$ , 1df, p = .001 $\phi_c = .371$				Pearson's $\chi^2 = 3.946$ , 1df, p = .047 $\phi_c = .233$			

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