

## **EXPERIENTIAL EVIDENCE OF THE ACTIVE LEARNING PEDAGOGY'S IMPACT ON LEARNING OUTCOMES**

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### **ABSTRACT**

*Active learning pedagogies are being touted as superior teaching approaches as they are purported to lead to deeper learning on the part of the student and, as a consequence, promote more elaborative and lasting learning. An exploratory study was conducted in which exam scores from Consumer Behavior classes employing a traditional teaching methodology were compared to exam scores from classes utilizing an active learning approach. Exam scores were found to be significantly higher under the active learning methodology.*

### **INTRODUCTION**

The goal of business educators is to ensure that their students become effective business leaders. To attain this end, over the course of their careers, educators experiment with various teaching

pedagogies in search of the "ideal" method of imparting the necessary knowledge to their students. However, contrary to this aspiration, businesspeople often have a very poor perception of the skill levels of many business graduates (Chonko and Roberts, 1996; Chonko, 1993). Hunt, Chonko and Wood (1986) found that marketing students were no more successful in marketing than those with different majors. Business graduates often are not only perceived to lack full competence in their business discipline but are also found to be poor in problem solving and critical thinking skills (Chonko and Roberts, 1996).

In addressing this often cited problem in business education, Chonko (2004) and others (Bacon and Stewart, 2006; Wingfield and Black, 2005) have questioned the effectiveness of the pedagogies used to transmit knowledge to business students. Could it be that the prevailing paradigm of college teaching, where the student is a passive receptacle to be filled with information that is owned by the faculty (Wright, Bitner and Zeithaml, 1994), is not only ineffective in achieving long term retention of the knowledge gained during college (Bacon and Stewart, 2006) but also fails to prepare graduates to have the critical thinking skills necessary to cope with today's diverse and global business environment?

In response to these criticisms, many business schools have begun experimenting with new instructional methods where learning takes place through a more active, participatory and collaborative interaction between the instructor and students. Recent scientific research supports the superiority of these "active learning" approaches. Instructors create an environment in which students learn through discovering, constructing and transforming knowledge by processing it through their existing cognitive structures, thereby improving retention (Wright, Bitner and Zeithaml, 1994).

It is claimed that the engagement with learning that is achieved through the use of an active learning process leads students to internalize key concepts and make the much needed linkages to what they already know, thus establishing a "stable trace" in memory (Ausubel, 2000). This "deep learning," as conceptualized by Marton

and Saljo (1976), entails an elaborative processing of the course material to find additional meaning, and results in the construction of knowledge structures that are highly resistant to forgetting. Deep learning is also thought to promote higher order thinking and enhance the ability of students to apply concepts acquired in one context to a variety of new situations. The ability to transfer knowledge and experiences from one context to another may strengthen students' much needed problem-solving and strategic decision making skills (Diamond, Koernig and Iqbal, 2008).

Active, or deep learning, includes a variety of methodologies (e.g., semester projects, cases, simulation games, role playing, in-class exercises and class discussions) in which the professor moves beyond the lecture approach to create a more interactive and enhanced learning environment. Active learning requires students to learn by doing and therefore think about the concepts and ideas they are working with (Bonwell and Eison, 1991). While general in nature, all active learning methodologies share four basic elements (Berry, 2008):

- critical thinking
- individual responsibility for learning
- involvement in open-ended activities
- organization of learning activities by the professor

### **EXPERIENTIAL STUDY**

The study described here involved several types of active learning methodologies. These include classroom experiments in which students were responsible for providing information from personal experiences that were then used as data for conceptual discussions; cooperative learning exercises in which students were given a question to discuss first as a group, then as part of a class discussion; and context-rich problems in which students applied core concepts to a personal experience, tying behaviors to a conceptual model.

The professor of an undergraduate Consumer Behavior course at a four-year public university has used various active learning techniques (i.e., classroom discussion, students reporting on articles, students connecting to Internet sites for examples) on a limited basis for many years of teaching this course. None of these activities covered any particular concept in any depth. In an attempt to encourage deeper learning, the professor had some years ago pared down the material covered in the class to what she thought to be the most important chapters and concepts. This action was taken in the belief that students could better learn concepts that were treated in greater depth by the professor, even though the teaching method continued to be primarily lecture-based. The concept selections were all skill-oriented; that is, were meant to give students a deeper understanding of the various techniques used by businesses in researching consumer markets. One of the recommendations made by Bacon and Stewart (2006) as a result of their study of active learning was to sacrifice breadth for depth in an attempt to promote more elaborative and lasting learning.

As the evidence for active learning has become more prominent in the education literature, in the spring semester of 2009, the consumer behavior professor made a concerted effort to develop a predominant active learning environment, and then to test its effectiveness in creating deep learning for the students, a learning skill believed to be essential in their future professional life.

## **METHODOLOGY**

The study compares the test results of a semester in which active-learning methods were employed in a consumer behavior course with the test results of six prior semesters using the more traditional teaching methods described above. The size of the classes included in the study ranged from 24-34 students. Most students were marketing majors but the classes included a few communications majors as well. The time frame of the courses included the semesters of Fall, 2005

through Spring, 2009. The same multiple-choice exams were used for evaluation purposes during each semester.

In the active learning class of Spring, 2009, a wide range of projects and exercises were developed, all of which were conducted either partially or wholly in class. In most instances, one class was devoted to an explanation of the concept (using examples); a second class was devoted to either working through an example in class using information developed by the students prior to the class, or having students discuss the results of a project they had been given prior to the class. There is at least one project covering each of the major concepts that make up the focus of the course. The projects relate to the core concepts described in the textbook by Hawkins, Mothersbaugh and Best (2007). Six of the projects have been chosen to illustrate how the active learning activities were conducted in the course.

#### Example 1: The Diffusion of Innovations and Group Influences

The concept of the "diffusion of innovations" refers to the speed with which new products are adopted in the marketplace. The success of a new product, based on this concept, is generally believed to depend on several factors, including its complexity, compatibility with values and lifestyles, relative advantages, perceived risk, and its ability to be observed and tried. To demonstrate the applicability of this concept, the professor uses different products whose success was particularly dependent upon each diffusion variable; for example, cell phones are highly compatible with the busy lifestyles of today and the personal computer was initially perceived to be extremely complex. Once the concepts have been explained, students are given a new-to-the-market product such as run-flat tires and are asked to go through each of the diffusion variables, determine how each will affect the diffusion of the new product, summarize the overall effect, and make recommendations for overcoming any weaknesses in the product. This project is to be completed for the next class, during which the various student analyses are discussed, with the professor acting as moderator.

#### Example 2: Types of Group Influence

A shorter project is one in which students are asked to apply their personal experiences to develop two examples for each of the three types of group influence--normative, identification, and informational--for the following class period. The examples describe situations in which they were influenced by a group (primary, secondary, aspiration, etc.) to engage in a particular behavior. Students discuss their various examples during the next class.

#### Example 3: Attitudes and Influencing Attitudes

The "attitudes" project was a complex one in which the professor developed a questionnaire to measure the attitudes of university students toward various brands of a product such as athletic shoes, using Fishbein's Multi-Attribute Attitude Model. One complete example, with data already developed, is discussed the first class. Students then take the project questionnaire and are asked to gather original data from approximately five students on campus. During the following class, the students gather data from all questionnaires and calculate the mean responses. The professor, along with the class, then inputs the data into the attitude model to determine the attitudes toward the branded products. The third class is spent using the data to discuss various methods of influencing or changing attitudes toward one of the brands.

#### Example 4: Situational Influences

This is an in-class "situational analysis." Groups are given two scenarios that describe a common situation in which students might find themselves when eating out, for example, running late driving to an afternoon of classes. Students are then to identify the situational influences present and the benefits sought in each scenario, and to develop a marketing strategy that a given restaurant could use to appeal to each situational market.

#### Example 5: The Consumer Decision Process - Problem recognition and Search

The "Consumer Decision Process" (CDP) is covered in the last five chapters of the course. The process stages include problem recognition, search for alternatives, evaluation of alternatives, purchase and post-purchase evaluation. In this project, students are given a questionnaire that measures the first two stages of the process for a particular product. The questions relate to the situation (problem) that led to the need/desire for a new product, what brands they were aware of prior to the problem (internal search, awareness set), their attitudes toward the various brands, and the specifics of their external search (what sources of information were used and how many of each, how important various sources were, and how much time was spent). This information was used in a follow-up class to discuss the search concepts. It was then used to discuss the strategies that companies would use to market their brand depending on the degree of search and the attitude of consumers toward their brand.

#### Example 6: The Consumer Decision Process--An Extended Decision

Students are asked to use an important product decision they recently made to describe each of the stages in the Consumer Decision Process they went through as they made the decision. They must organize and apply as many of the concepts from the CDP model as possible to explain their decision process. This is an out-of-class extra credit project, although one or two students are asked to share their papers with the class.

### **ANALYSIS AND FINDINGS**

To determine the effectiveness of the active learning activities employed during the most recent semester (Spring, 2009), the average exam scores from the multiple exams given during each semester were calculated for each of the seven semesters from Fall, 2005 through Spring, 2009. [Spring, 2007 was not included as a different teaching method was used during that semester.] The class sizes, ranging from 23 to 34, are relatively large enough to assume normal sampling distributions. Furthermore, Levene's test supports the assumption of

equal population variances. Independent-samples t-tests were conducted to evaluate whether the six mean exam scores observed during the traditional teaching semesters were lower than the mean exam scores resulting from the active learning methodology.

The results of the analysis are summarized in the table below. It can be seen that the mean scores from Spring, 2009 were the highest out of the seven semesters included in the study. The point estimates of the mean difference range from 8.34 to 19.92. While the average exam score for the combined exams during each semester varies somewhere around 66 points, a low was observed during the Spring, 2006 semester with an average score of 57.18. The exam score differences are all statistically significant, with p-values of .002 or lower. These results indicate the mean exam score achieved with active learning activities is significantly higher than the mean exam scores using the more traditional teaching methodology.

Table 1: A Comparison of Mean Exam Scores Using Active Learning and Traditional Teaching Methodologies

Semester	Sample Size	Mean	Standard Deviation	Independent Samples t score, df, p-value
<i>Spring 2009*</i>	32	77.09	11.28	<i>not applicable</i>
Fall 2008	25	66.01	12.61	3.50, 55, .000
Spring 2008	23	66.83	7.94	3.75, 53, .000
Fall 2007	26	65.58	10.67	3.96, 56, .000
Fall 2006	25	62.96	11.06	4.74, 55, .000
Spring 2006	34	57.18	10.86	7.31, 64, .000
Fall 2005	32	68.75	11.06	2.99, 62, .002

\*Active learning semester



## CONCLUSION AND FUTURE RESEARCH

It seems obvious that, in this instance, providing students with opportunities to work with the concepts they are expected to understand aids significantly in that endeavor. Not only is greater involvement in the material instructive to the students as to what they really understand and what they only superficially understand, working through the exercises in class better instructs the professor as to what needs further explanation. If students are given the projects to do on their own, some depth of learning would be expected according to the active learning pedagogy. However, from the results of the experiment set forth here, the professor also gains more information as to how instructive the active learning exercises have been and is able to adjust what is explained as the students bring their knowledge back into the classroom. Perhaps it is the interactive nature of the methodology, with information provided by the students, that finally leads to the deeper learning.

While the increase in exam scores was dramatic, the mean scores were still lower than one would hope for given the accolades associated with the active-learning pedagogy. However, it would be rare that every student take advantage of the learning opportunities provided through the projects and exercises or attend every class, both necessary to achieve the full impact of the methodology utilized. In this case, if at least one class is used to explain the concept and to assign projects, and a second (or third) class used to discuss the results of the student projects, less learning would result if students were not present for both classes.

The results of this experiment seem to suggest that utilization of the active-learning pedagogy leads to deeper learning on the part of students. However, it should also be noted that the mean scores used for comparison purposes in the study came from only one class during one semester. While not evident to the professor, it is certainly possible that the comparison class consisted of better students. As a result, a series of semesters using the active-learning projects should be incorporated into the study. In addition, it would be beneficial to

look at a variety of different business courses to determine if similar results would occur with different subject matter.

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